UPL Limited, Unit-5, Jhagadia

Mr. Hemant Warhekar - Energy Lead

Mr. Kishor Kumar - Energy Specialist

Mr. K V Suresh - Head - Energy Cell

UPL FACTSHEET

UPL Ltd. - Deepening reach across markets

North America

193 Products | **1** Plant

Latin America

550 Products | **9** Plants

Europe

498 Products | **10** Plants

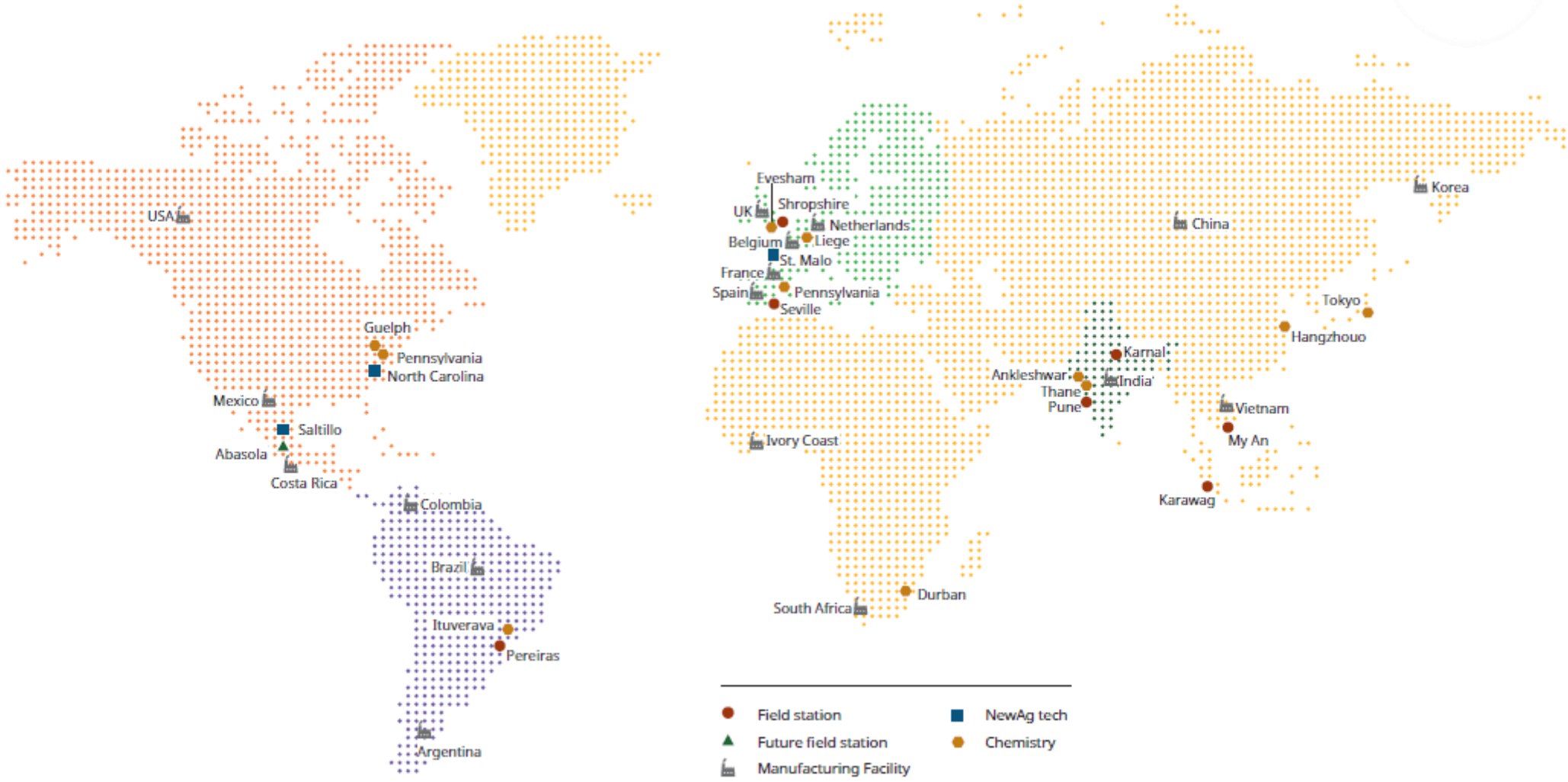
ROW

876 Products | **8** Plants

India

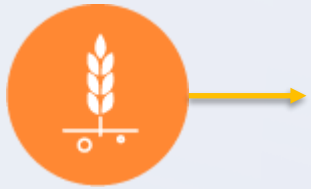
178 Products | **15** Plants

Products where Net Sales > $ 0.01 Mn



Brief Introduction to UPL Ltd. Unit-5, Jhagadia

- Largest unit of UPL
- Captive Power Plant of 26 MW and 15 MW
- We have 4 Improvement Cells : Energy Cell, Maxpro, Maxpro+, Green Cell
- Manufacturer of : Fungicides, Insecticides, Herbicides, Soil & Water Technologies and Chemicals

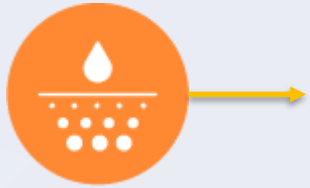


Crop Protection

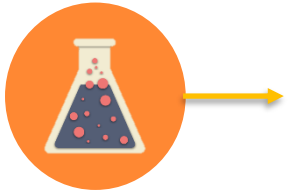
Herbicides

Fungicides

Insecticides



Soil & Water Technologies



Chemicals

CCP, PCL3, TPPI, Acrolein, CS2

3. Response & Impact of COVID 19

The pandemic had far-reaching impact on business and societies across the world. It is our core value of Always Human and Agility that led us to respond to this emergency with speed and empathy. On one hand we enabled continued food supply by being an integral part of the food value chain, on the other hand we contributed to sanitization, supplies and welfare efforts for the communities. Our initiatives were not just limited to India, we embarked on various initiatives across countries of our presence.

- **Business continuity**

  We have been categorized under **essential segments** of the economy. This helped us to continue our plant operations despite the lockdown. We converted some of our plants to manufacture hand sanitizers which were distributed to health authorities, medical professionals and other frontline workers.

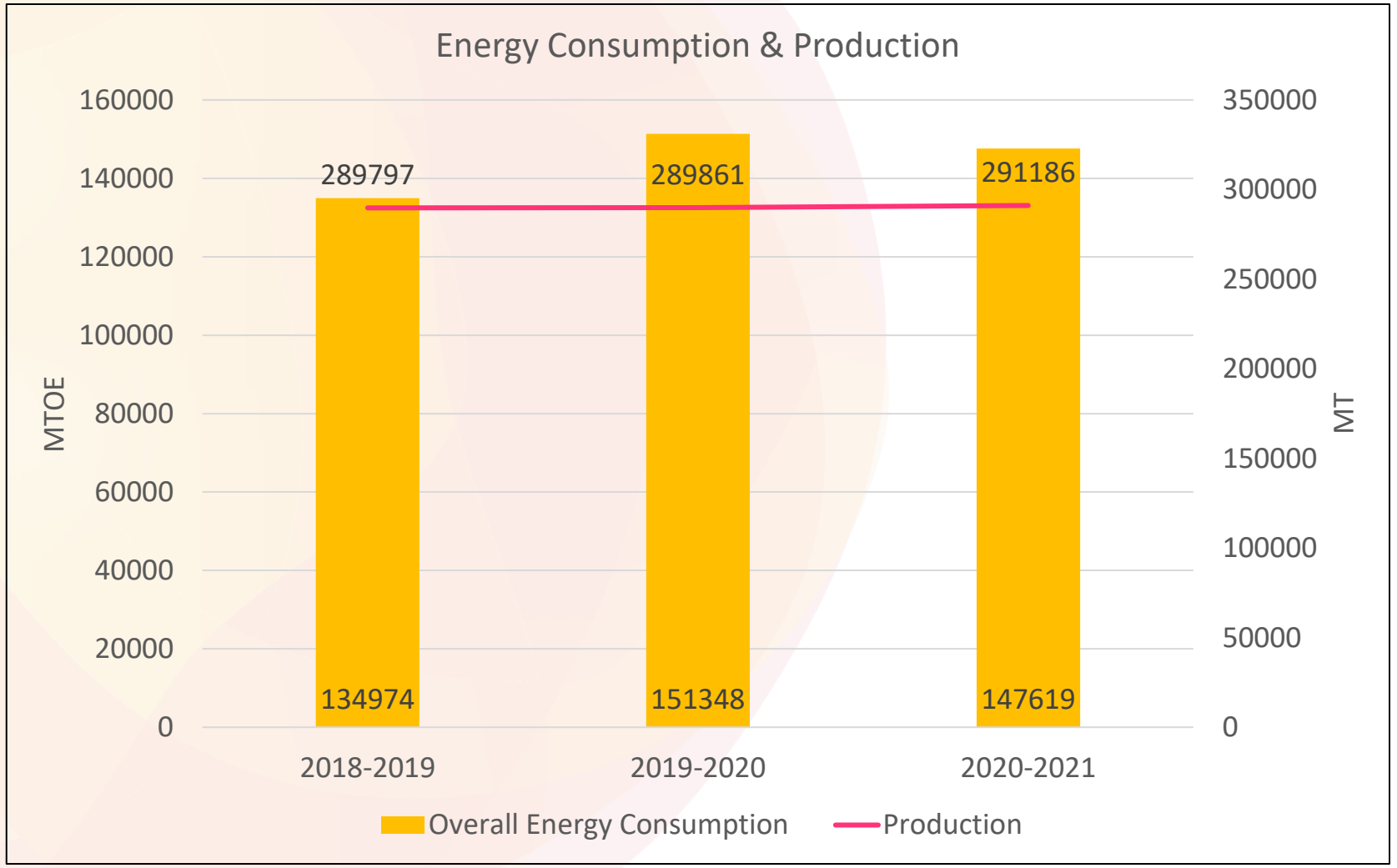
- **Employee safety and care**

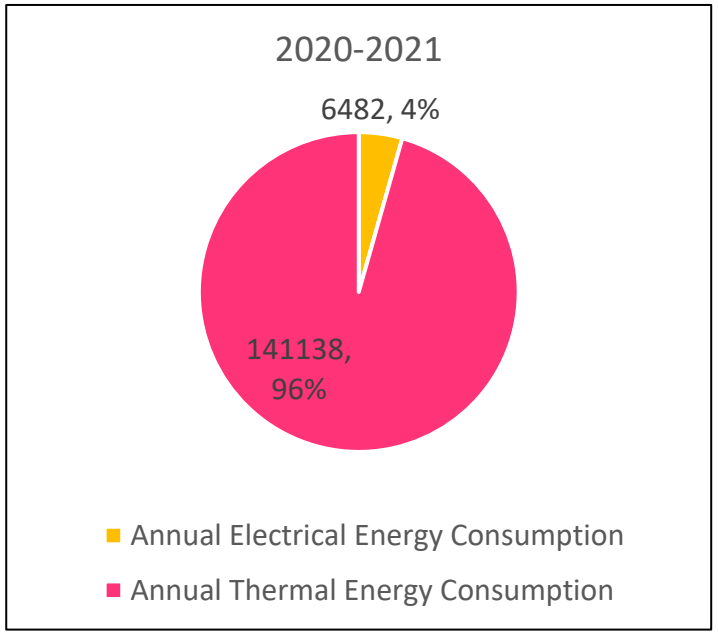
  As the pandemic loomed large, we immediately mobilized our employees to work from home, until further notice. The employees were kept updated on the latest developments and kept connected to foster the feeling of being 'One team. One focus'. We installed sanitization facilities and temperature checks at factory gates. We have initiated vaccination drive for our employees and their family members.

- **People welfare and sanitisation**

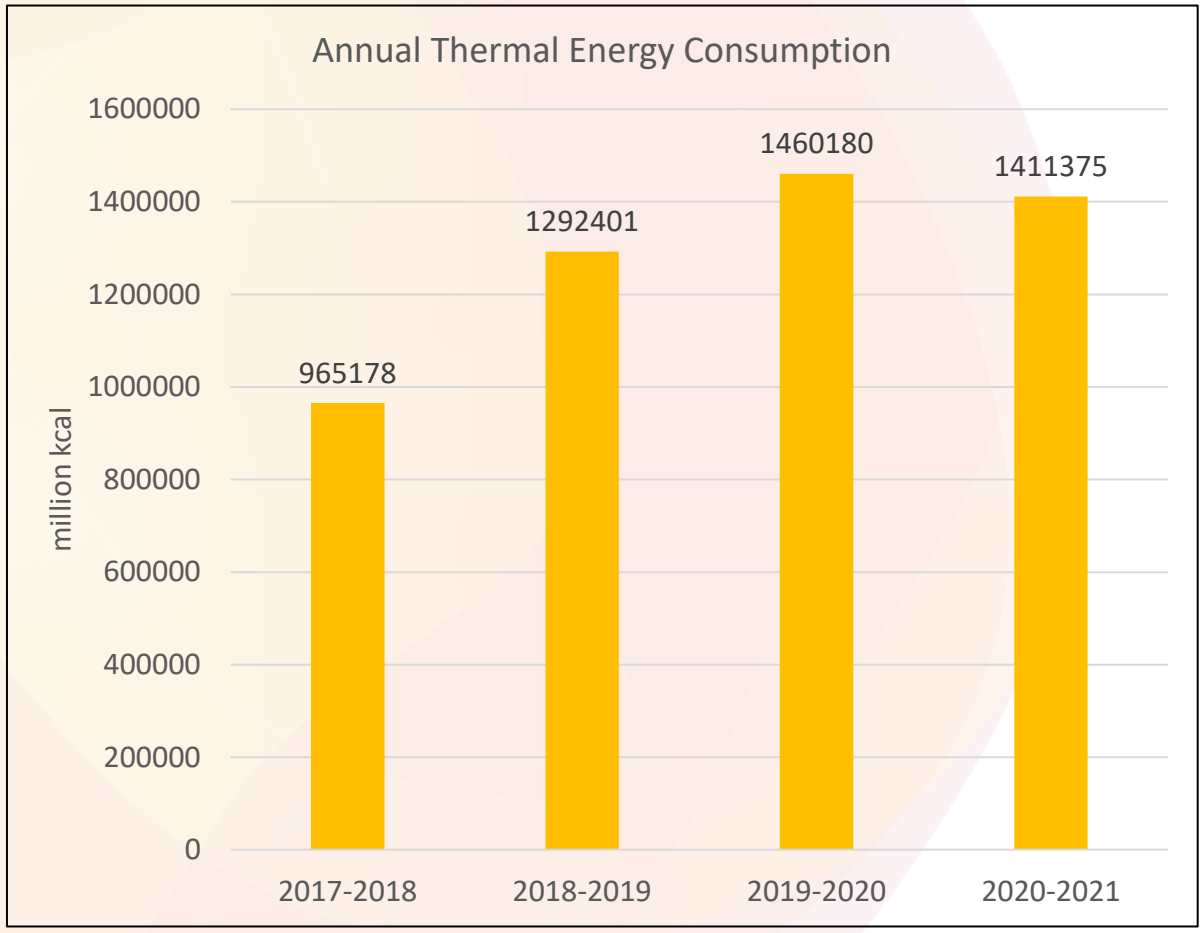
  To counter the pandemic-related challenges, we collaborated with people, organizations and governments around the world. We supplied sanitizing solutions, PPE kits, face masks and food packages to help the community navigate through the crisis.

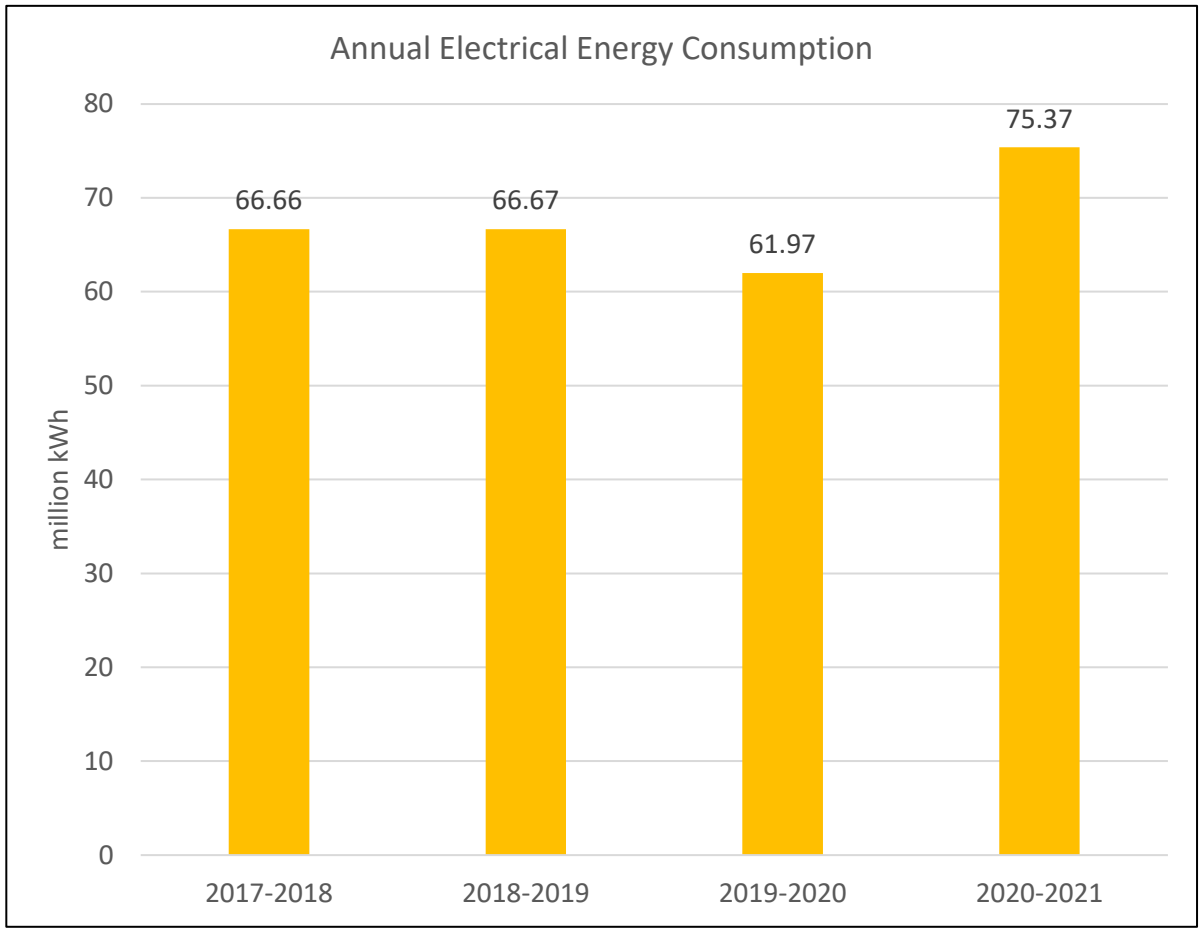
4. Energy Consumption – Overall Energy & Production



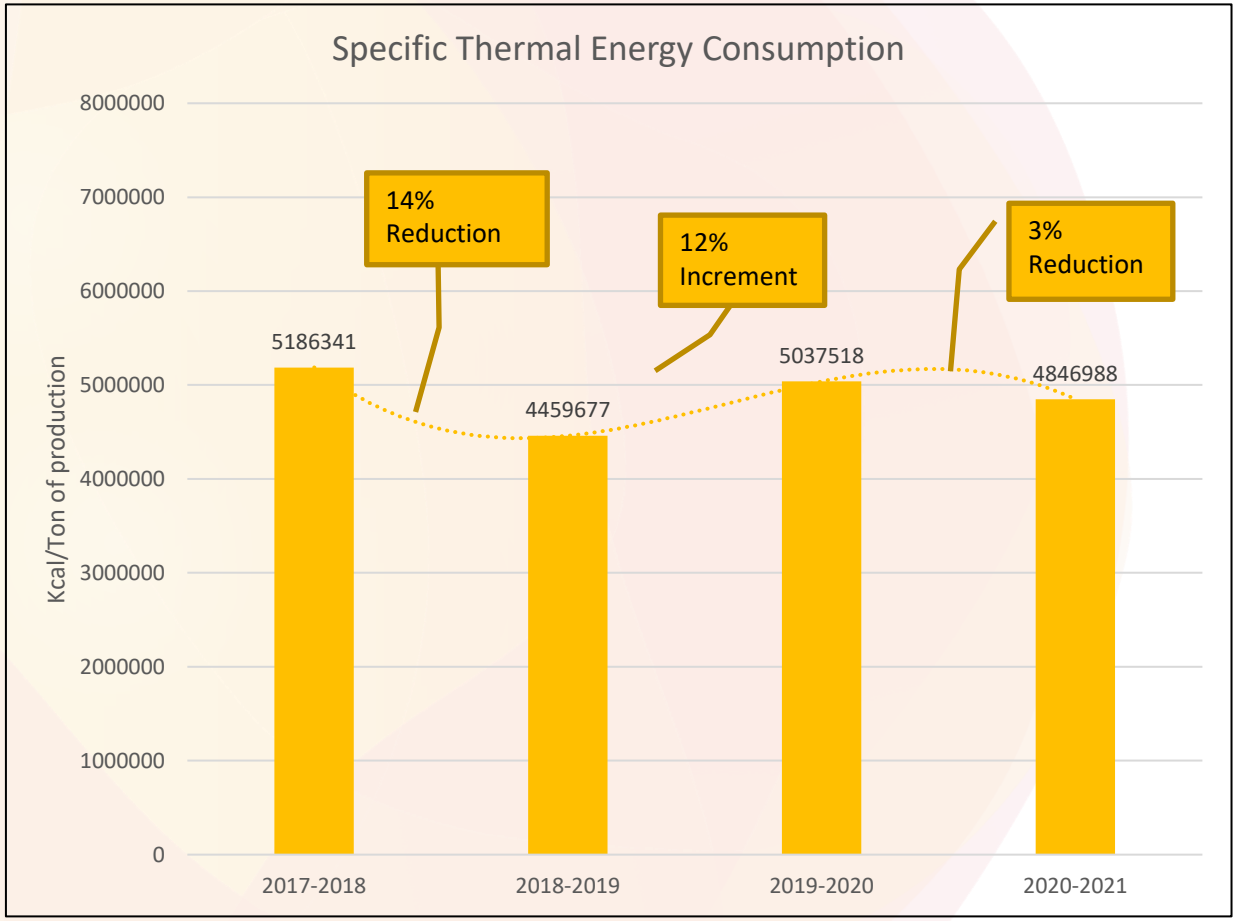


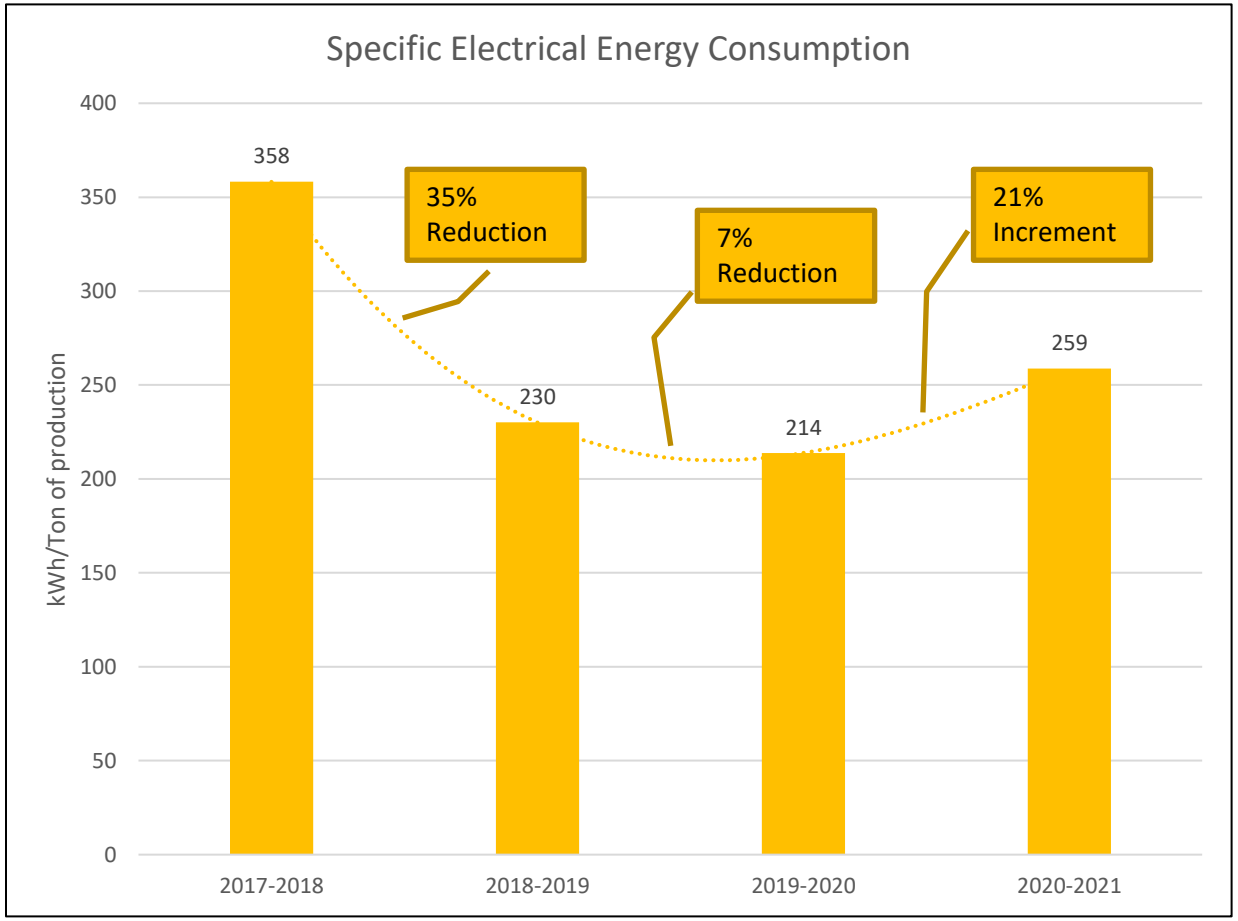
4. Energy Consumption





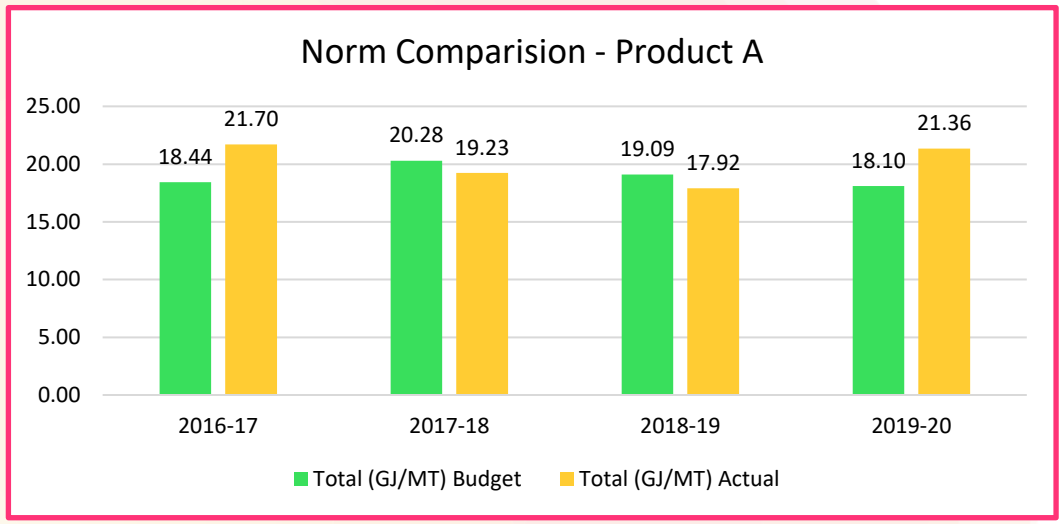
4. Energy Consumption - Specific Energy

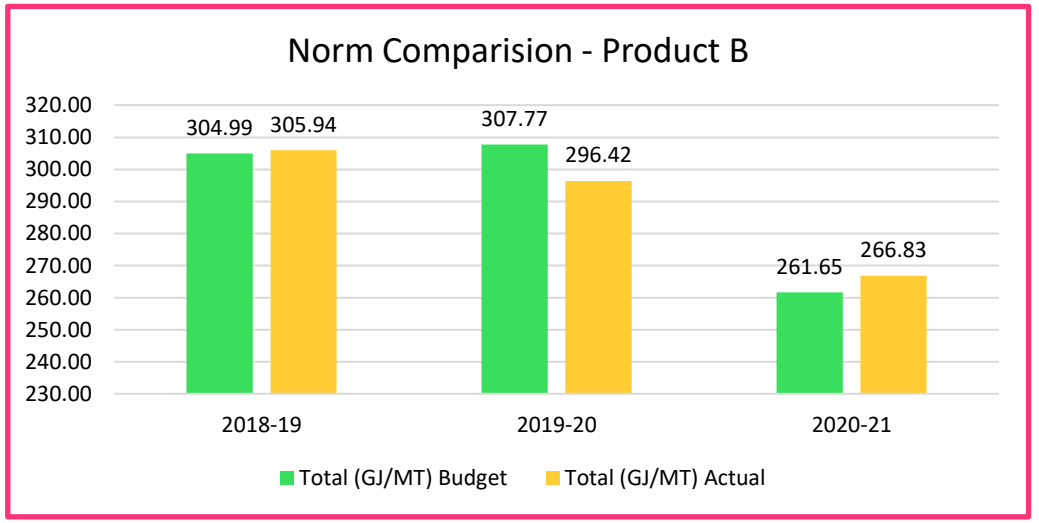


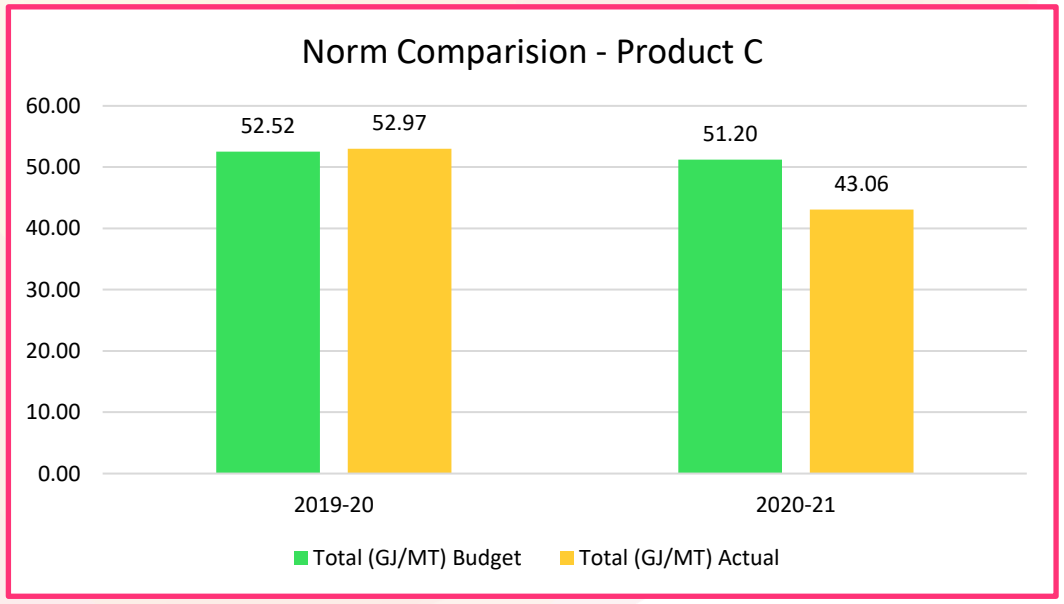


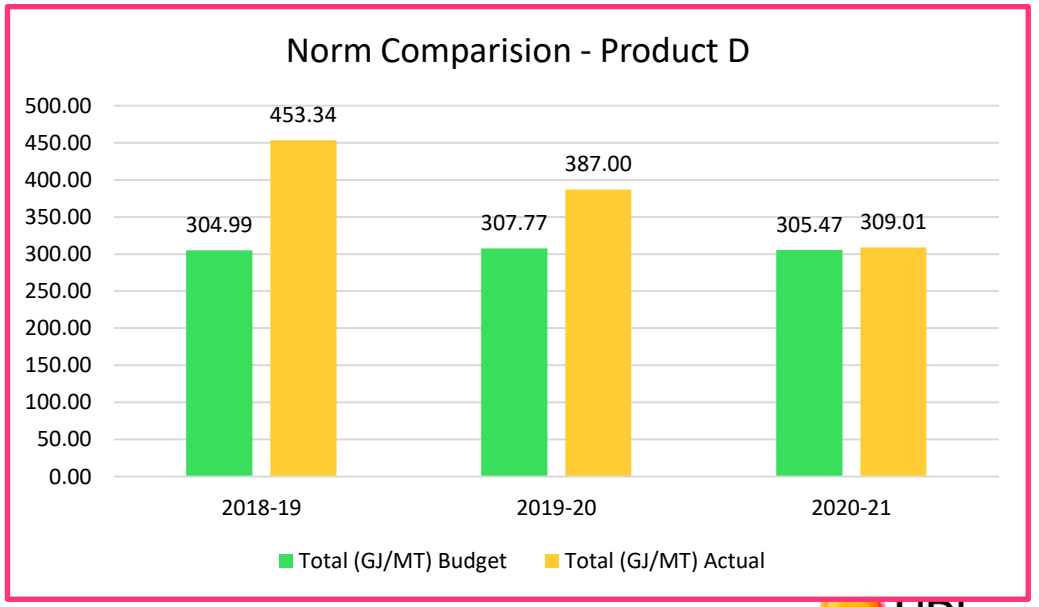
New electrical intensive product established

4. Energy Consumption - Specific Energy Productwise

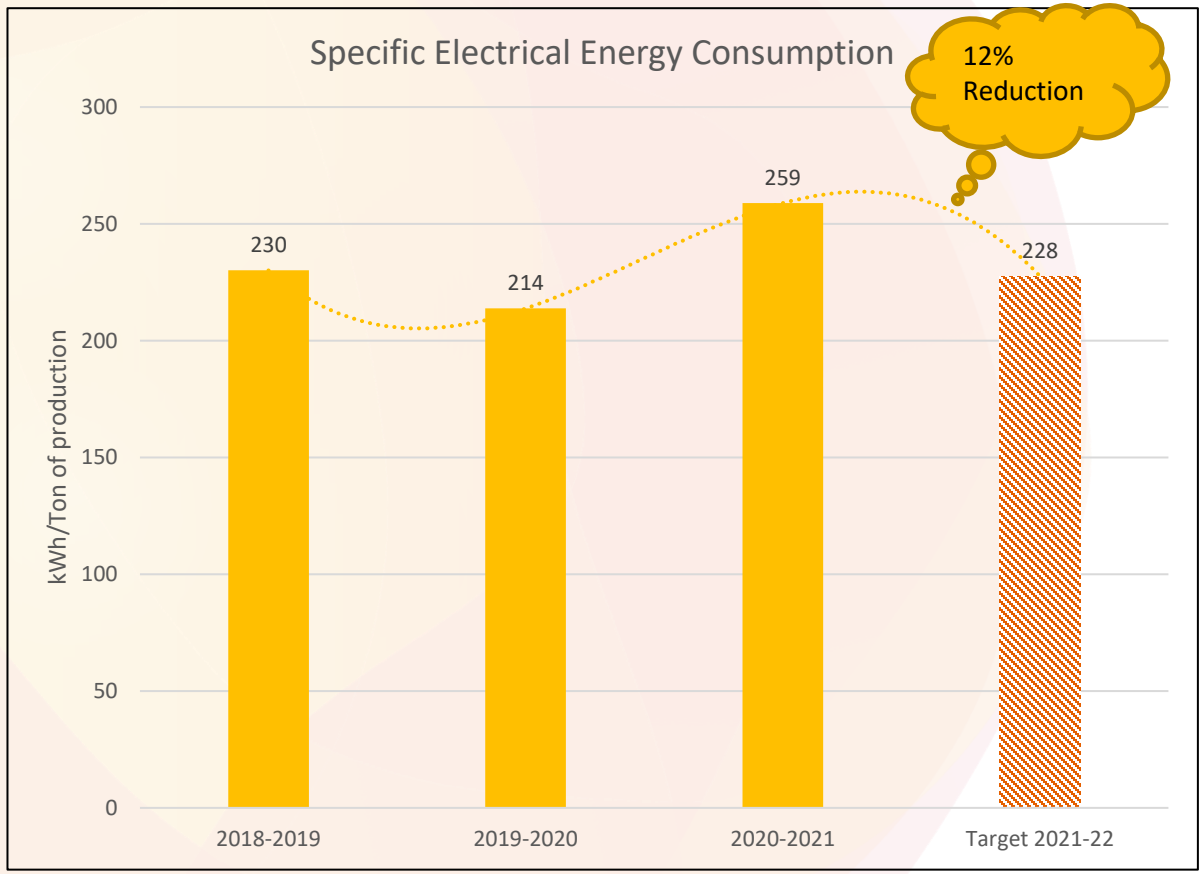


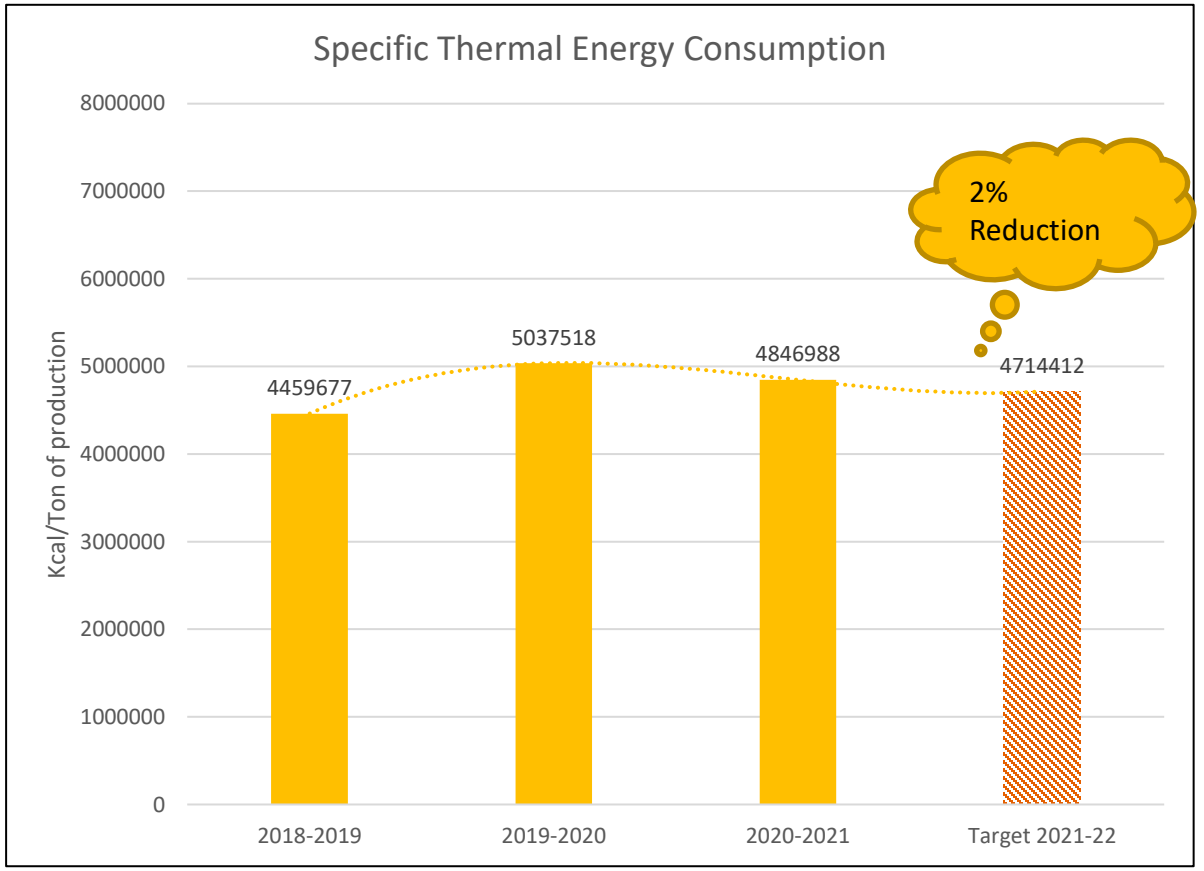






5. Information on Competitors, National & Global benchmark

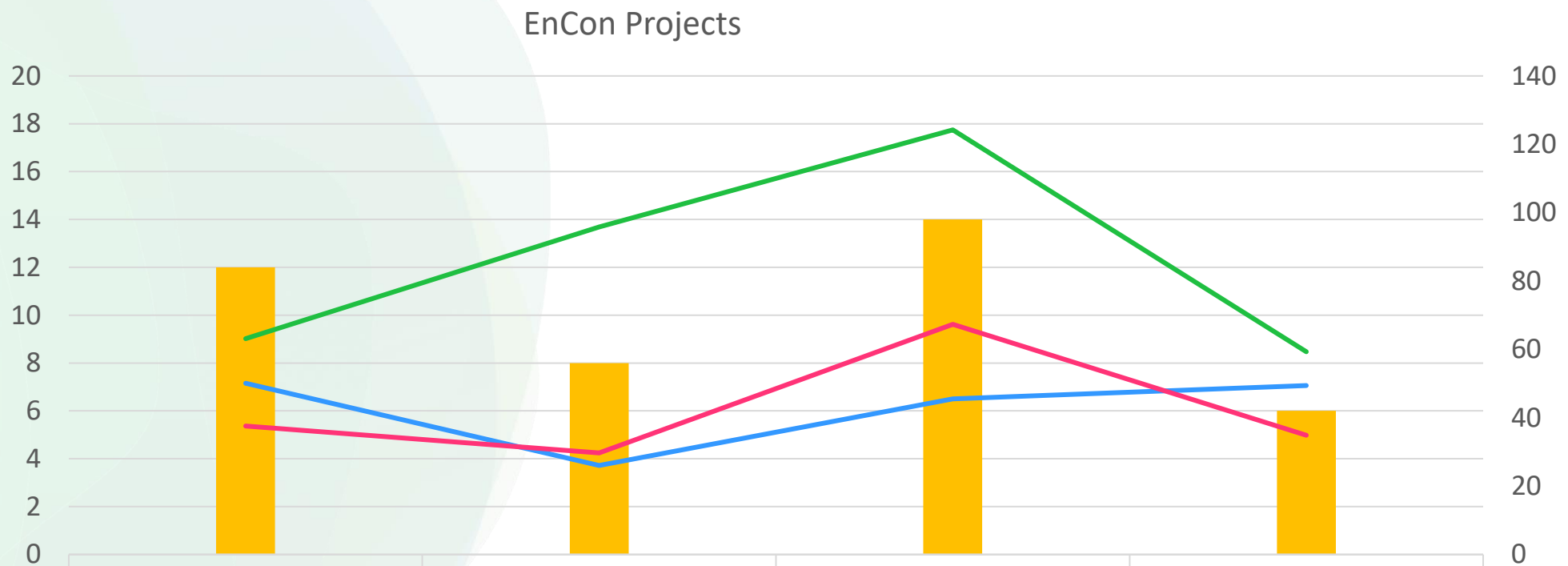




5. Information on Competitors, National & Global benchmark

Sr. No.	Title of Project	Annual Electrical Saving (kWh)	Annual Electrical Saving (Million kWh)	Annual Thermal Saving			Investment Made (Rs million)
				Quantity	Unit of Measurement	Million kcal	Rs. Millions
1	Power Saving through VFD at SA fan	338462	0.338				2
2	Blowdown flash and water heat recovery			1371810	kg of coal	5762	6
3	MEE online tube cleaning Power reduction	3400000	3.400				10
4	MEE online tube cleaning Steam reduction			4696970	kg of steam	3923	6
5	Flash Steam recovery through Variable Thermo-compressor			19545455	kg of steam	16326	30
6	Hot water VAM on waste heat.	1384615	1.385				10
7	BPT power generation increment by plant steam	3960000	3.960				30
8	Steam reduction in FCE by contaminated condensate heat recovery			9090909	kg of steam	7593	10
	Total	**9083077**	**9**	**34705144**		**33604**	**104**

6. Energy Saving projects implemented in last three years



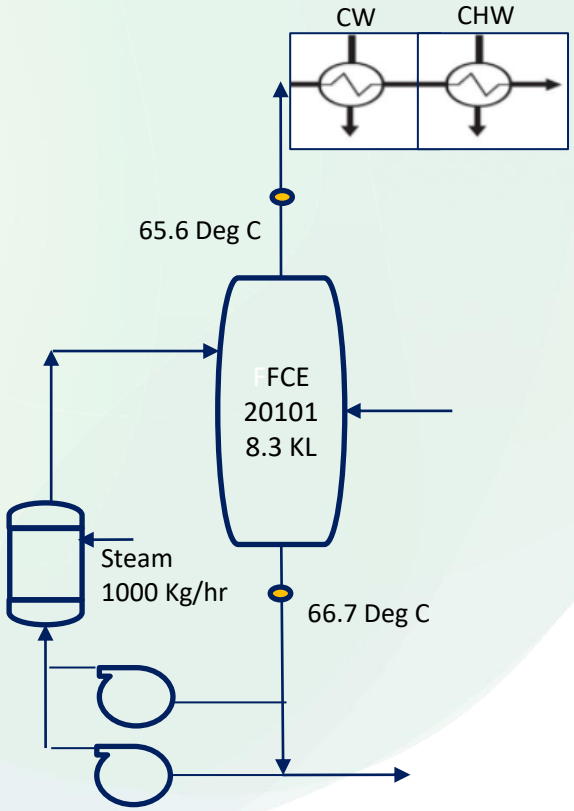
	2017-18	2018-19	2019-20	2020-21
No. of Proposals	12	8	14	6
Payback Months	7	4	7	7
Invetments (Rs million)	38	30	67	35
Savings (Rs million)	63	96	124	59

- FY 2021-22 already Rs. 100 million Invested for Encon Projects

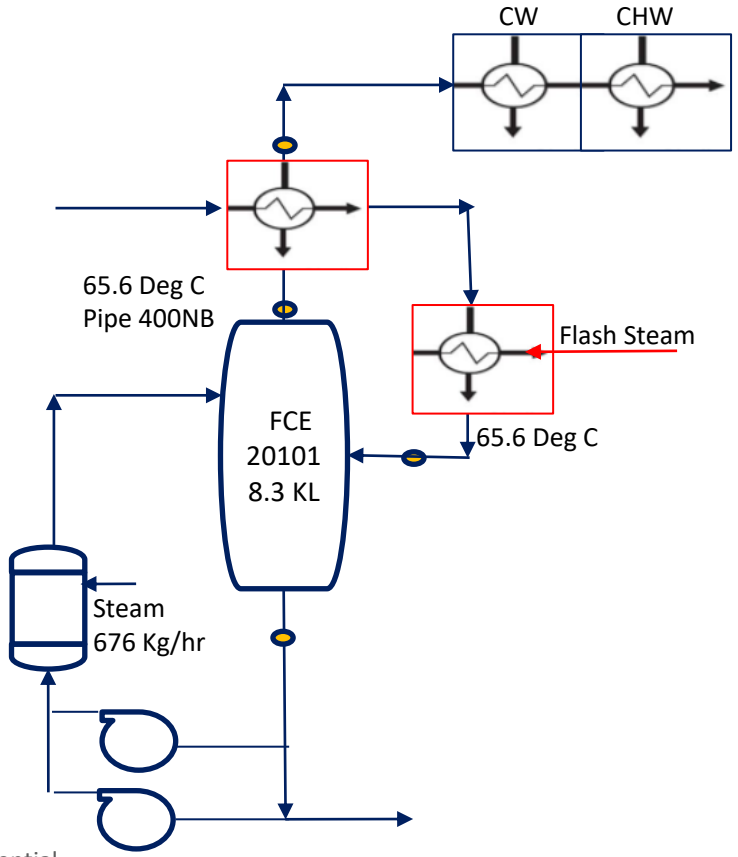
6. Energy Saving projects implemented in last three years – Key Projects

- Steam Reduction in evaporator by heat integration

Before

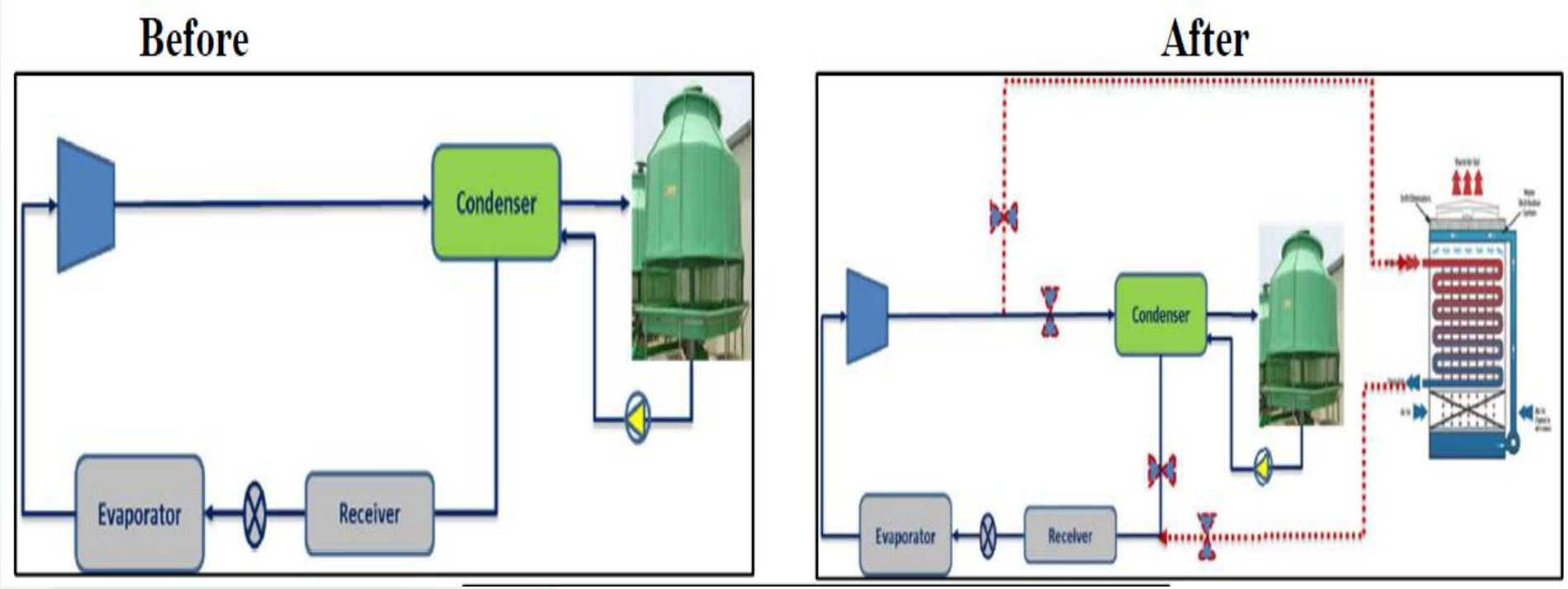


After



6. Energy Saving projects implemented in last three years – Key Projects

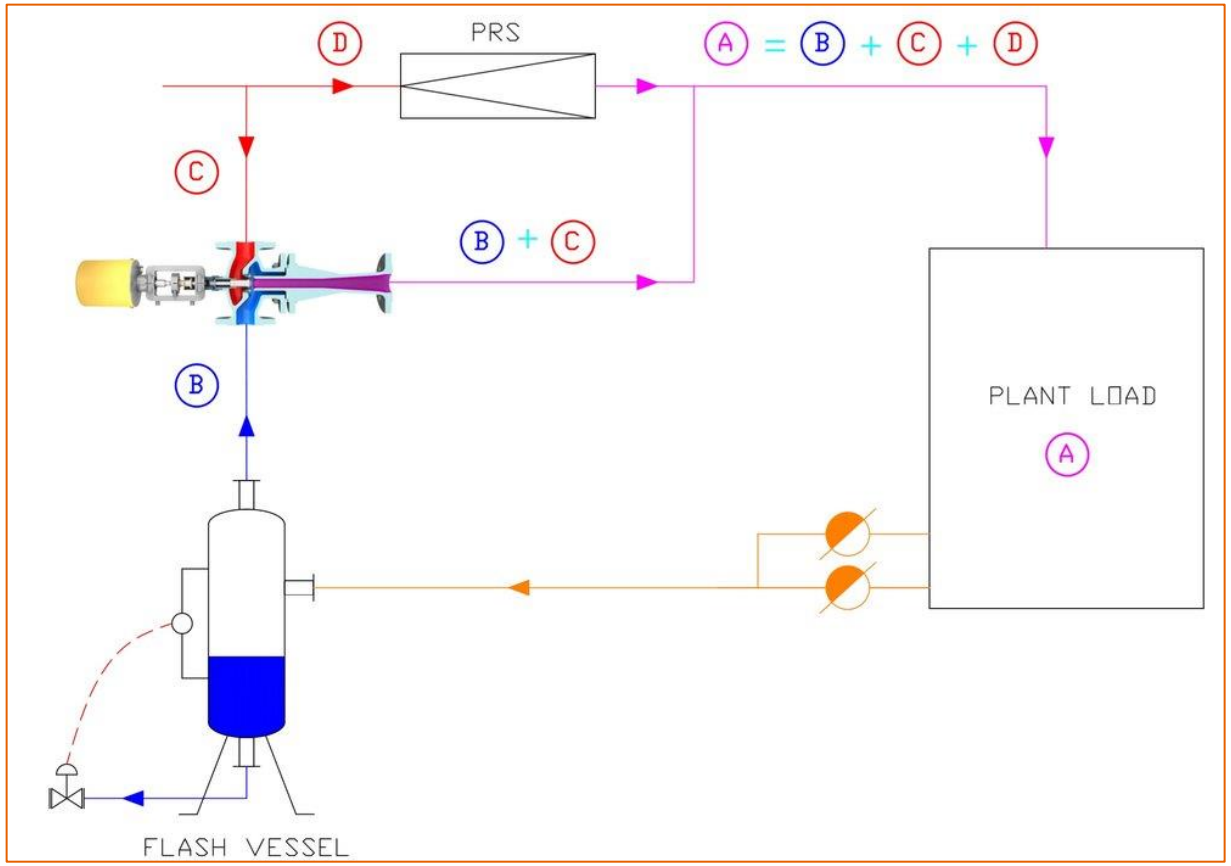
- Replacing Shell and tube condenser with Evaporative Condenser for Brine Chiller



6. Energy Saving projects implemented in last three years – Key Projects

- Variable nozzle thermocompressor installation to recover flash steam

This will work in parallel with main steam pressure reducing station. It will take motive steam (high pressure, C) , Flash Steam (B) and produce medium pressure steam (B+C) which is required in plant at desired pressure. First steam will flow from Variable area thermocompressor(VATC) and remaining requirement will be fulfilled by PRS. Set point for discharge pressure can be given to VATC to maintain the pressure for process.



6. Energy Saving projects implemented in last three years – Key Projects

- Reflux reduction in column & Stoppage of MeOH Brine Chiller by utility Changeover & integration with other plant improved SPC chiller

Before

- 3 Chillers in Operation
- 2 x Sol-A & 1 x MeOH Brine in Process
- -17 Deg C
- 830 kW (20000 kWh/day)

Actions

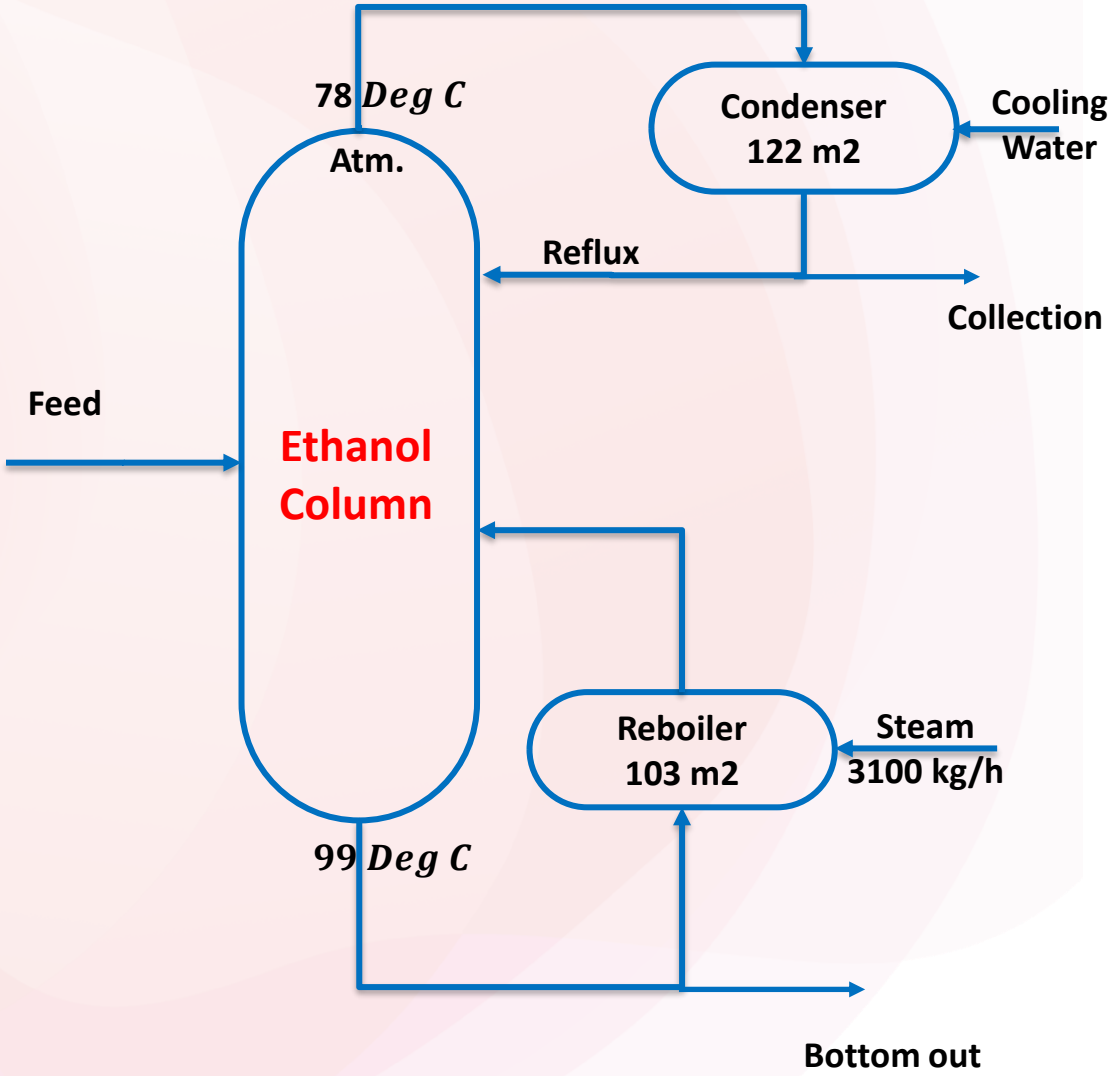
- Reflux reduction in column to reduce Sol-A brine load
- Shifting of MeOH brine load to sol-A brine load in 3 reactors
- Shifting condenser load to CHW from CHB

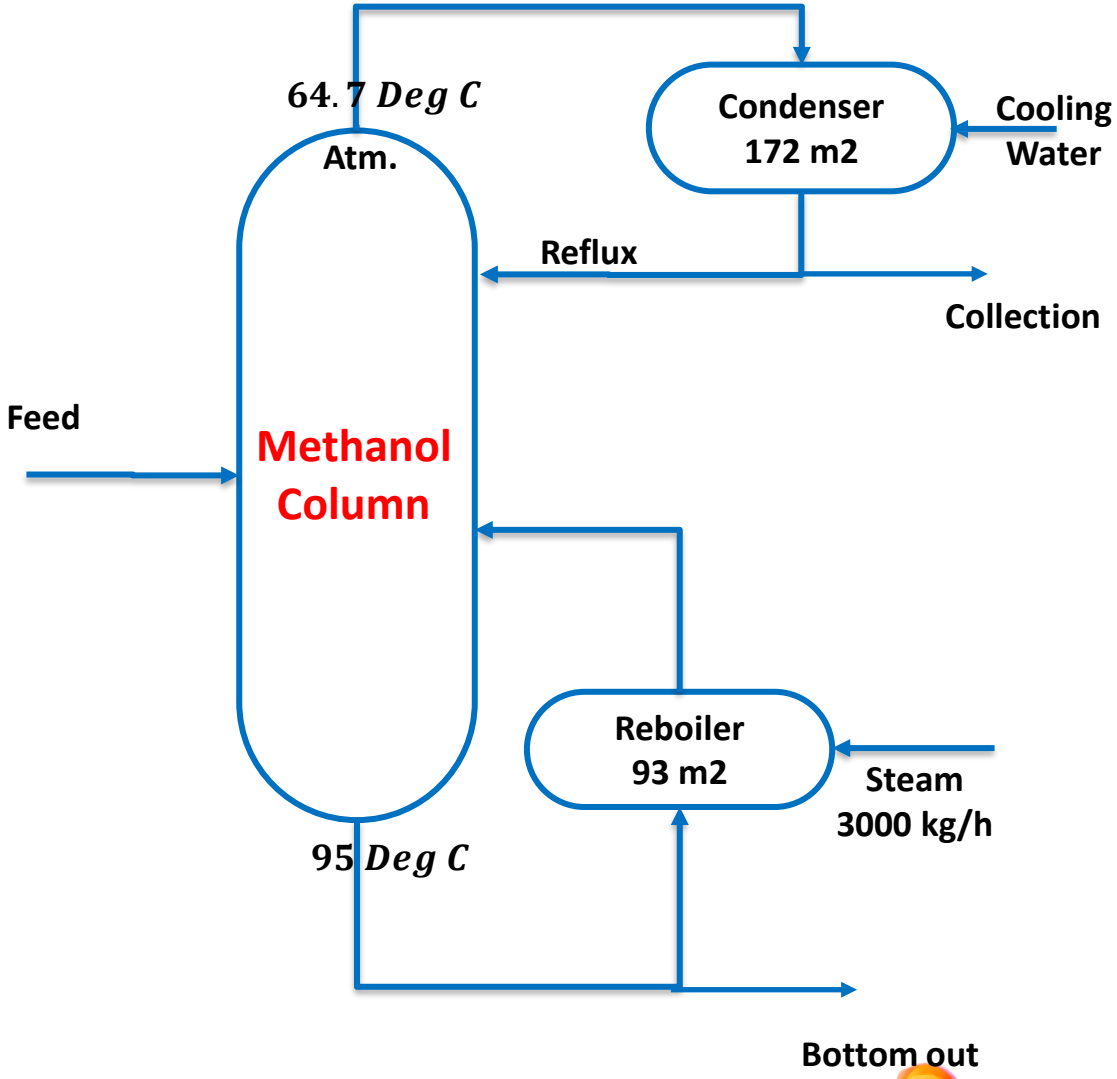
After

- 2 x Sol-A Chillers in Operation
- -17 Deg C
- 630 kW (15000 kWh/day)
- MeOH Brine pump stoppage (70 kW saving)

7.Innovative Projects implemented

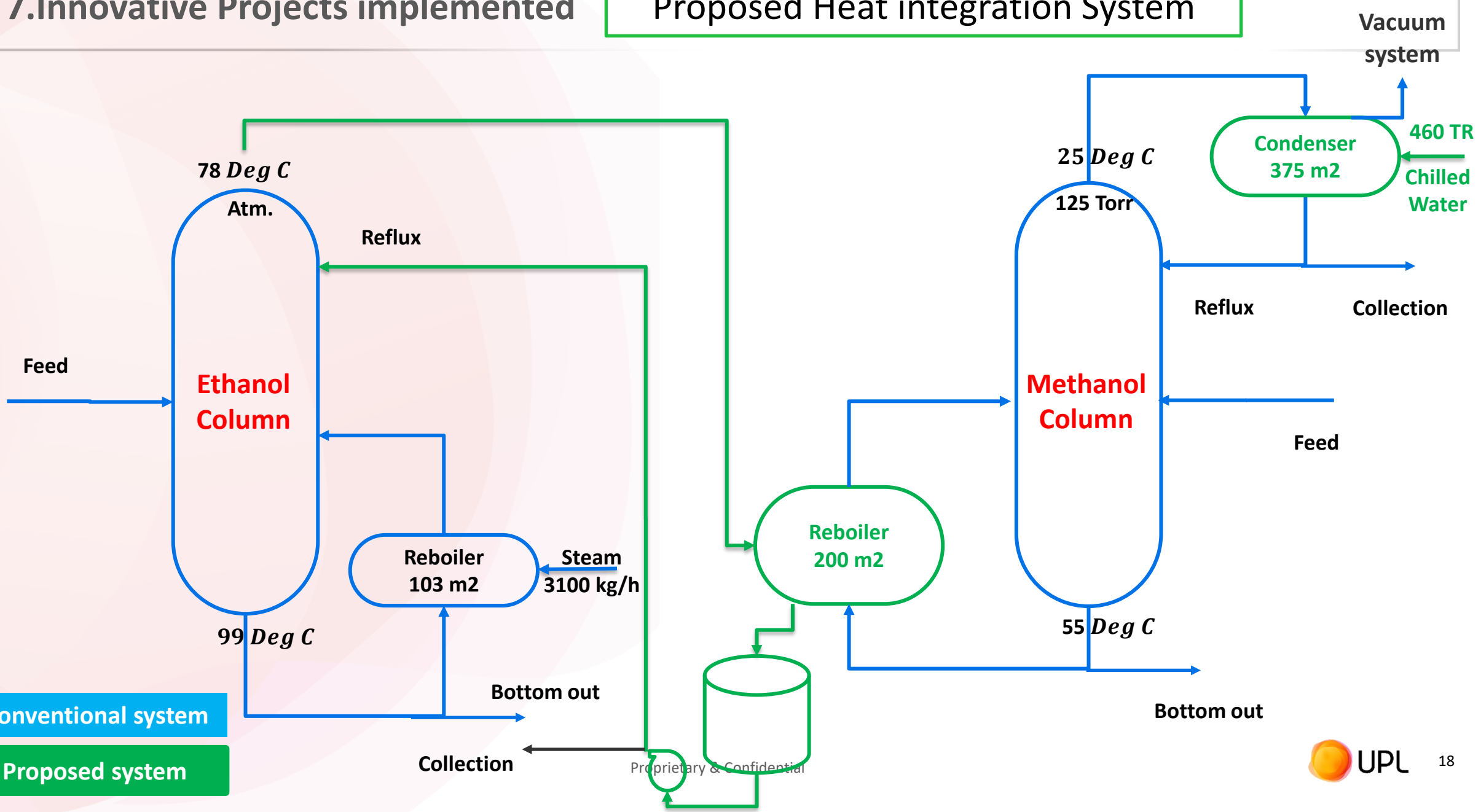
Conventional System





7.Innovative Projects implemented

Proposed Heat integration System



7.Innovative Projects implemented

In this project, we connected top vapor line of ethanol column to reboiler (bottom) of methanol column. Condensing load of ethanol vapor is used to boil up methanol liquid. As in atmospheric operation, bottom temperature of methanol column is 95 ˚C, to achieve required temperature profile, column is operated under vacuum (125 torr). This helps to down temperature profile in methanol column. Now, bottom temperature of column is 55 ˚C and top is 25 ˚C. Due to low dew point at this pressure, we changed utility from cooling water to chilled water in condenser of methanol column.

- Steam load in Ethanol column – 3100 kg/h
- Steam load reduction in Methanol column – 3000 kg/h
- Increment in steam consumption in Vapor absorption machine- 1850 kg/h
- Ejector steam consumption – 150 kg/h
- Net steam reduction due to Column Integration – 1000 kg/h
- Net cost saving – 120 LPA

8. Utilization of Renewable Energy sources

Year	Technology	Type of Energy	Onsite/ Offsite	Purchase / Own Generation	Installed Capacity (MW) (Unit Total)	Generation (Million kWh)	% of overall electrical energy
2018-19	PV Solar & Wind Turbine	Solar & Wind	Offsite	Purchase through Agreement	3.6	3.44	5%
2019-20	PV Solar & Wind Turbine	Solar & Wind	Offsite	Purchase through Agreement	10.6	10.49	17%
2020-21	PV Solar & Wind Turbine	Solar & Wind	Offsite	Purchase through Agreement	14.8	24.61	33%

Renewable power purchase through "Long term Agreement"

Group Capacity : 26.4 MW
Unit Capacity : 14.8 MW

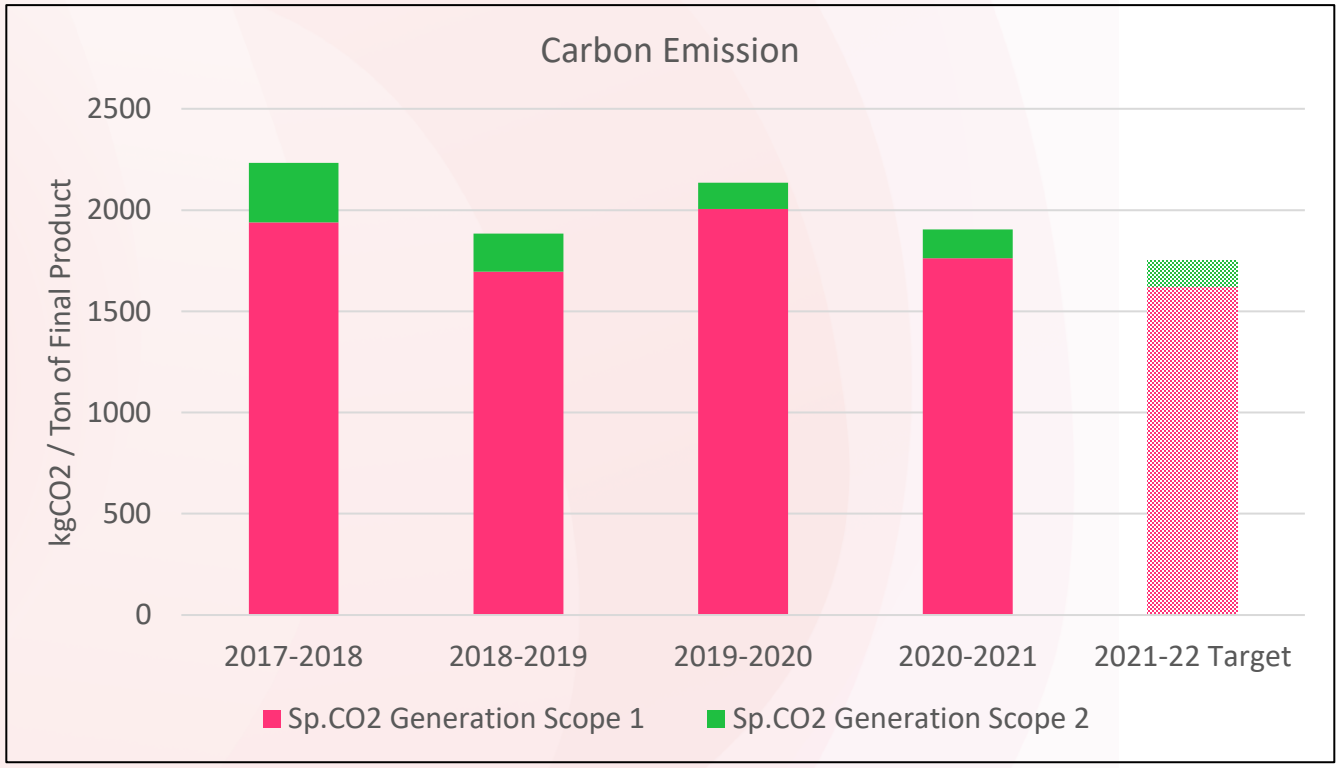
9.Waste utilization and management

2018-2019			2019-2020			2020-2021		
Type of waste generated	Quantity of waste generated (MT/year)	Disposal method	Type of waste generated	Quantity of waste generated (MT/year)	Disposal method	Type of waste generated	Quantity of waste generated (MT/year)	Disposal method
Solid	45514	Landfill	Solid	69844	Landfill	Solid	85360	Landfill
Liquid	5463	Incineration	Liquid	6753	Incineration	Liquid	14481	Incineration

- We have common hazardous waste treatment facility called as BEIL, Bharuch . BEIL promoted by Industries in Bharuch District with major shareholding by Tatva Global Environment Private Limited (known as 'Tatva' group), the Company promoted by the Directors of UPL Limited.

- In 2020-2021, Incinerable liquid 9845 MT/year (68% of total liquid) send to cement industries.

10. GHG Inventorisation



Sustainability ratings and recognitions

#1

Global ranking in the agrochemical sector for ESG risk management

Sustainalytics report dated 25 Sept 2020

Inclusion

In DJSI Sustainability Yearbook 2021

BBB

Rated by MSCI ESG

Certified logo holder

FTSE4Good

Responsible Care

Striving towards a greener tomorrow

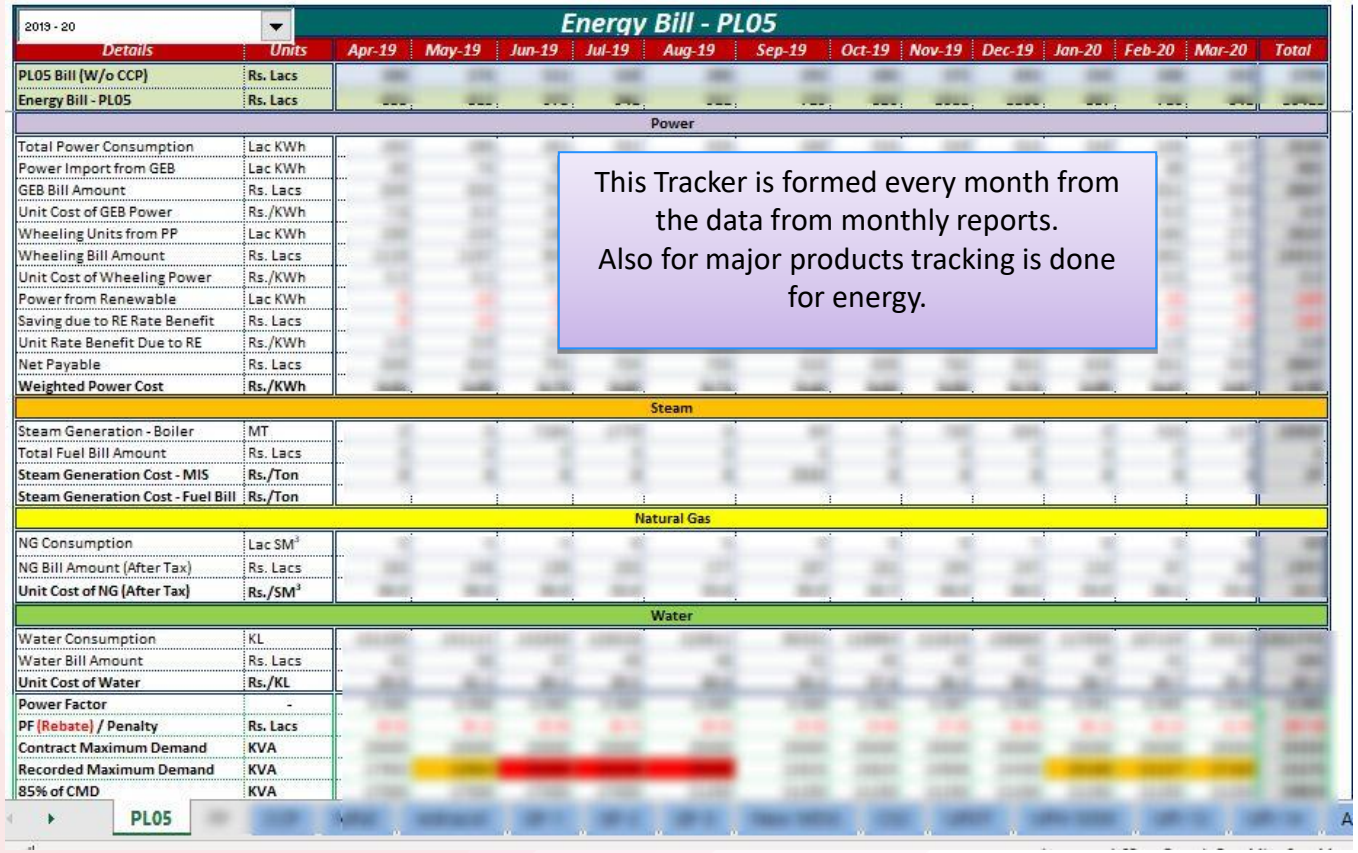
We are adopting a low-carbon pathway for our operations and for the agriculture ecosystem at large. Our structured risk-management framework allows us to identify the potential environmental risks arising out of our business operations and devise appropriate solutions to mitigate those.

United Nations Global Compact (UNGC)

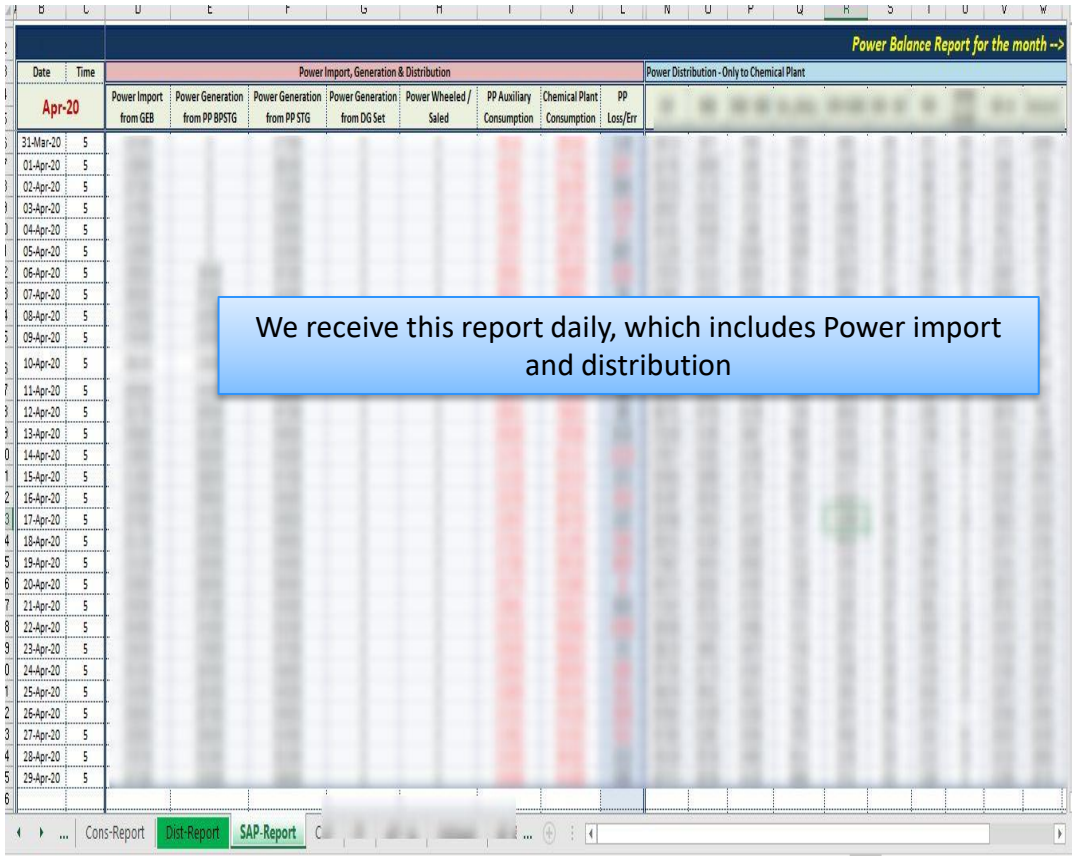
Committed to Set Science Based Targets

12. Teamwork, Employee Involvement & Monitoring

1. Daily Monitoring system: Utility Report, Power distribution report, Energy Tracker (monthly).
2. Review Meeting chaired by :
   - Monthly Review meeting: Energy Cell, group production head, maintenance head, Unit Head & Director .
3. Separate Capex is allotted to energy conservation projects



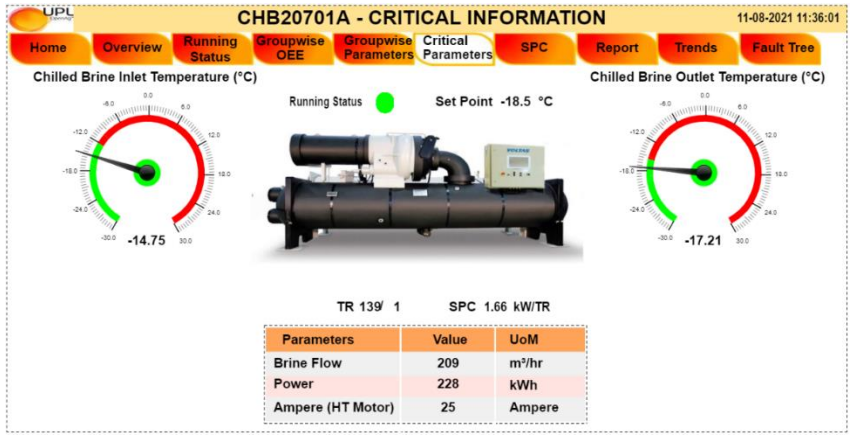
This Tracker is formed every month from the data from monthly reports.
Also for major products tracking is done for energy.

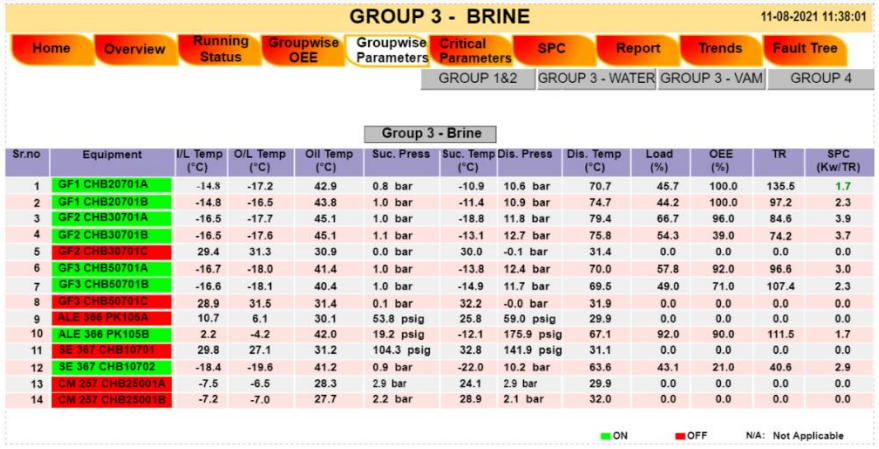


We receive this report daily, which includes Power import and distribution

12. Teamwork, Employee Involvement & Monitoring

Central Chiller monitoring System - IOT

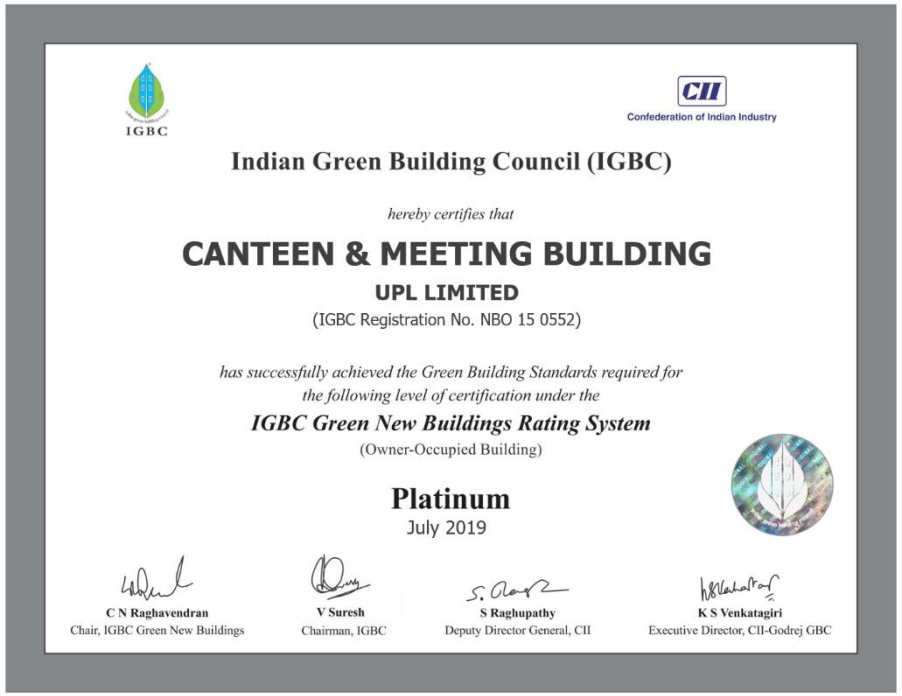




13. Implementation of ISO 50001/Green Co/IGBC rating

1. Implemented ISO 50001 at Unit -2, in process for Unit-1. In Unit-5 new project is coming up and under stabilization.
2. Investment over turnover % (Excluding Plant Expansion Investment)
    1. 2016-17 : 0.80 %
    2. 2017-18 : 0.93%
    3. 2018-19 : 0.85%
    4. 2019-20 : 0.42%
    5. 2020-21 : 0.07 %

UPL Unit-5 Canteen and Meeting building is certified by IGBC



14. Learning from CII Energy Award 2020 or any other award program

1. Utilization of incinerable waste
2. Process heat integration
3. Glass coated FRP fan for Cooling tower
4. Use of solar energy for heating

Milestones & Achievements

24. CII 20th National Award for Excellence in Energy Management 2019 For PL05
- Excellent Energy Efficient Unit
- Innovative Project

21.ISO 50001:2011, Energy Management System - First Unit in Agrochemical Sector to be certified

25. CII 21st National Award for Excellence in Energy Management 2020 for PL05 -Excellent Energy Efficient Unit

13. UPL Excellence Award
14. Steam Tech Award – PL02
*** F&S Mfg. Excellence –**
15. PL01 (Challengers)
16. PL02 (Challengers)
IGMC Silver Award 2015 by IRIM

22. Future of Energy management submit & award - 2018
23. ISO 50001 surveillance audit Completion at PL02

5. UPL Mfg. Excellence Award – PPA
*** F&S Mfg. Excellence for**
6. PL01
7. PL02
8. PL05
9. FICCI Award – PL02

17. FICCI award for energy efficiency PL02
18. QCFI award for PL05
19. BEE First prize for PL02
20. BEE COM for PL01

EC cell formed 2009

2. UPL Mfg. Excellence Award - Savings

10. UPL Mfg. Excellence Award - PPA
*** F&S Mfg. Excellence for**
11. PL01 (Challengers)
12. PL02 (Challengers)

3. UPL Mfg. Excellence Award – Savings
4. ICC Award – PL02

1. National Energy conservation award – PL00

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

Awards & Recognitions

GOVERNMENT OF INDIA
MINISTRY OF POWER

ENERGY IS LIFE
BEE
CONSERVE IT

BUREAU OF ENERGY EFFICIENCY
Government of India, Ministry of Power

THANK YOU

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