CII NATIONAL AWARD OR ENVIRONMENTAL BEST PRACTICES 2024

Confederation of Indian Industry

Mondelēz International

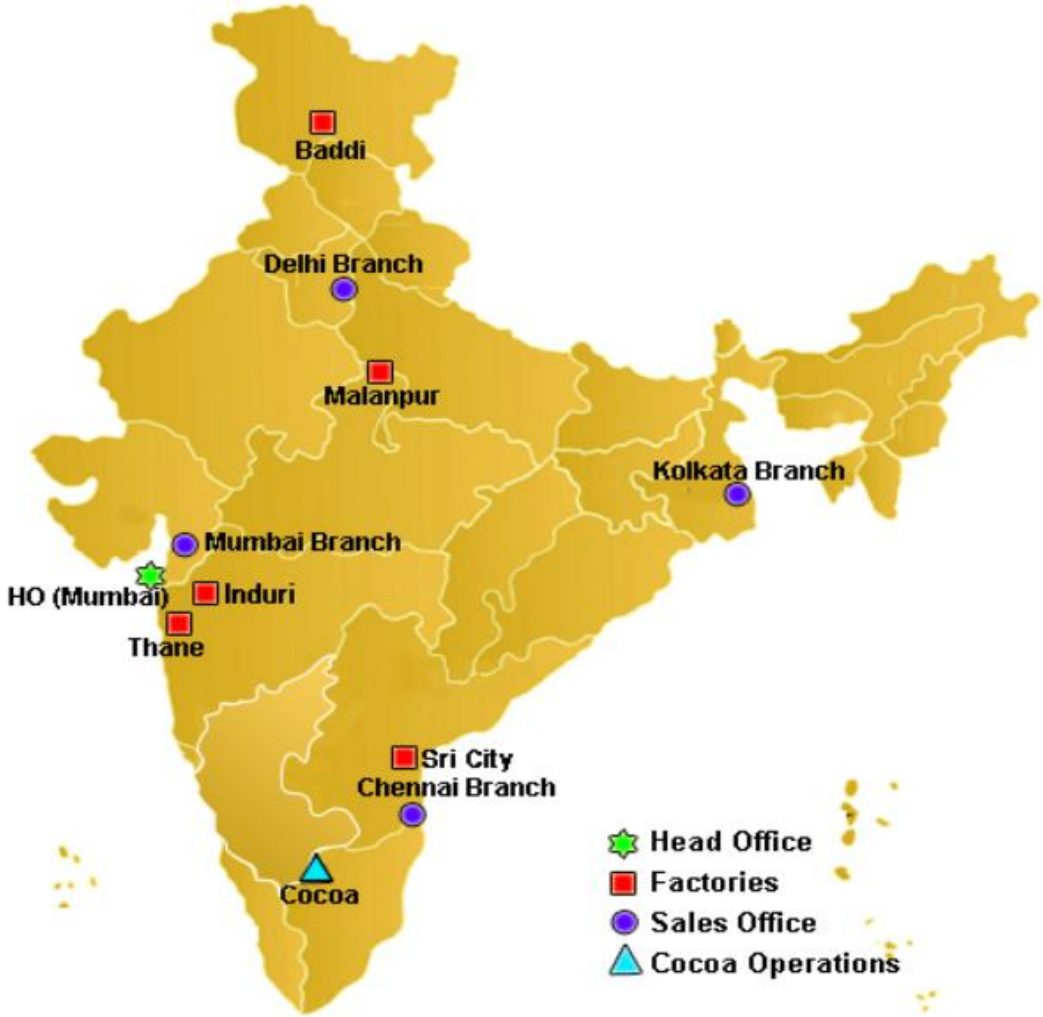
MONDELEZ INDIA FOODS PRIVATE LIMITED, SRICITY

14 May 2024

COMPANY PROFILE

Name:	Mondelez India Foods Private Limited
Address	6055, Central Expressway, Sector-25 Sricity, Varadaiahpalem Mandalam, Chittoor District-517544, Andhra Pradesh
Sector	Manufacturing
Company Scale:	Large
CII membership ID	9862
List of Products Manufactured	1. Cocoa Products & Sugar Confectionery(including sweet meats) 2. Powdered Beverages

OUR LOCATIONS IN INDIA



Mondelez India is a part of Mondelēz international, one of the world's largest snacking companies, empowering people to snack right in over **150** countries around the world. We have journeyed with India and its consumers for close to **75 years** – as part of all their daily moments of snacking and celebrations through every occasion, every festival, every moment of joy.

From providing the **first taste of chocolate** to Indian consumers in 1948, through our iconic brand – **Cadbury dairy milk**, we have walked miles to create products that are truly Indian – 5star, silk, gems, Bournvita, perk, and so many others. We are the undisputed market leaders in the chocolate category in the country, enjoying a wholesome **65+% market share** (as per Nielsen), with Cadbury dairy milk alone commanding a market share of over 40%.

At the heart of everything we do is our most important asset—our people. Mondelez India has more than **3500 employees**, spread across locations. **Headquartered in Mumbai**, Mondelez India foods private limited has sales offices in New Delhi, Mumbai, Kolkata, and Chennai. Our manufacturing facilities are place at Induri, Malanpur, Baddi and Sri city. We also have a Global Research & Development Technical Centre at thane.

For more details visit https://in.Mondelezinternational.Com/about-us

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Cadbury Fuse

Bournvita Biscuits

5 Star

Bournville

Bournvita

Cadbury Celebrations

Cadbury Dairy Milk

Cadbury Dairy Milk Silk

Choclairs

Gems

Halls

Oreo

Perk

Tang

OUR ICONIC BRANDS IN INDIA

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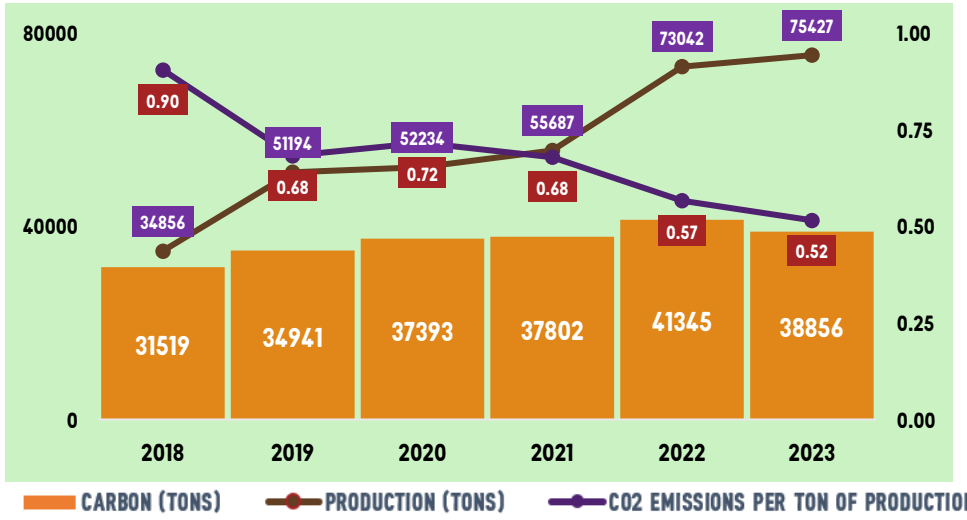
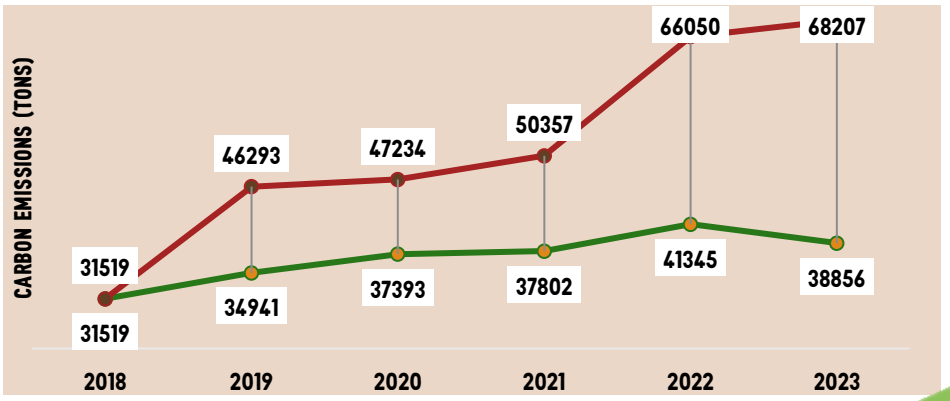
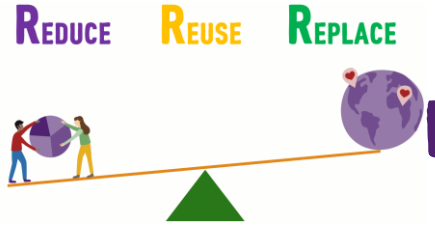
TRIGGER FOR THE PROJECTS

WITH INCREASING EXPANSION OF THE SITE, IT WAS IMPERATIVE TO REDUCE OUR CARBON FOOTPRINT







2018 — 34.9 KT
- ✓ SUSTAINABILITY BASELINE

2019 — 51 KT
- ✓ 2 MW SOLAR
- ✓ PLANT START UP
- ✓ HEAT PUMP PH-1

2020 — 52.2 KT
- ✓ PRIMARY PUMP ELIMINATION

2021 — 55.6 KT
- ✓ L2 ENERGY MONITORING

2022 — 73 KT
- ✓ PPA
- ✓ RWH PH-2

2023 — 72.2 KT
- ✓ L3-ENERGY MONITORING
- ✓ HEAT PUMP PH-2,HEAT PIPE PH-1
- ✓ EC+FAN PH-2, CONDENSATE RECOVERY
- ✓ VPPA-PILOT, NEW PPA, IEX

PRODUCTION

2030 GLOBAL COMMITTMENT — ~50% CARBON REDUCTION OVERALL

2050 AMBITION — NET ZERO CARBON

13 CLIMATE ACTION · 12 RESPONSIBLE CONSUMPTION AND PRODUCTION · 7 AFFORDABLE AND CLEAN ENERGY

INCREMENT AGAINST 2018 BASELINE

REDUCTION OF 43% OF CARBON EMISSION PER TONNE OF PRODUCTION AGAINST BASELINE

PRODUCTION 116%

CO2 EMISSION PER TON -43%

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SUSTAINABILITY INITIATIVES – IMPLEMENTING BREAKTHROUGH CLEAN ENERGY SOLUTIONS

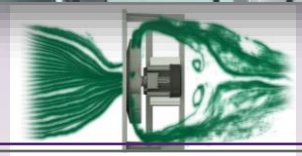
INNOVATIVE METHODS IN OUR HVAC TO DRIVE ENERGY EFFICIENCY & SUSTAINABILITY

EC PLUS FANS

- Replacement of the fans in DHU/AHU with EC plus fans
- Increasing efficiency of fans upto 88-92% against the
- The motors are PM based with IE5 class efficiency
- 48 EC plus fans installed replacing the existing fans

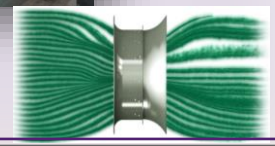
CO_2
1200 ↓
Tons/Annum

FROM 40 KW



Centrifugal fan Air flow

TO 10 KW ENERGY



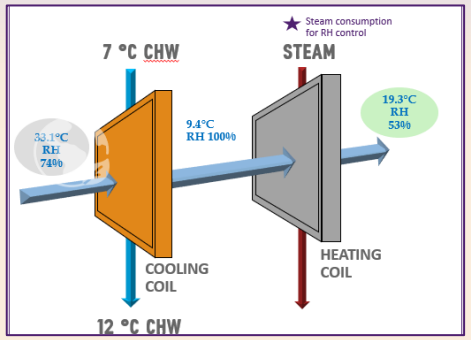
Axial fan Air flow

HEAT PIPE

- Use of the heat pipe reduces cooling and heating load required achieve the desired temperature/humidity
- They are used for enhances dehumidification and can also be used for heat recovery
- Temperatures of 19 degree Celsius & relative humidity of 55 %(+/-5) can be very well achieved using heat pipe in existing AHU/DHU.

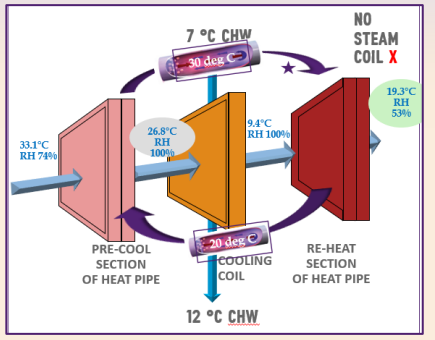
CO_2
700 ↓
Tons/Annum

CONVENTIONAL RH CONTROL



AHU/DHU operations through conventional method of dehumidification

RH CONTROL THROUGH HEAT PIPE

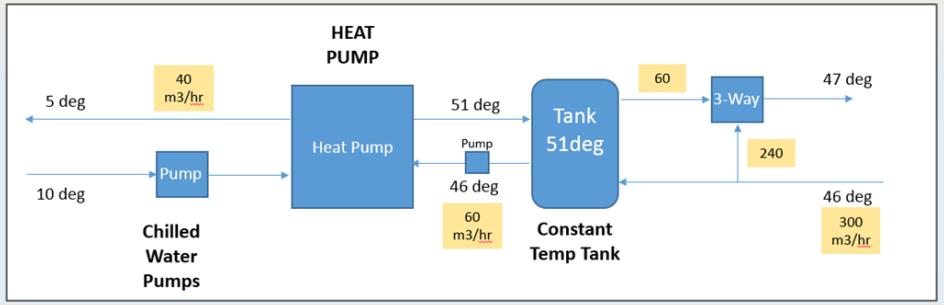


AHU/DHU operations with heat pipe (heat circulation between 1st & 3rd plate)

HEAT PUMP

- Using heat pump generates hot water and chilled water **simultaneously** using electricity
- This reduces the load on the boiler thus aiding in fuel saving.

CO_2
5000 ↓
Tons/Annum



Kindly note, this is for all three phases combined (319 KW, 350 KW & 560 KW)

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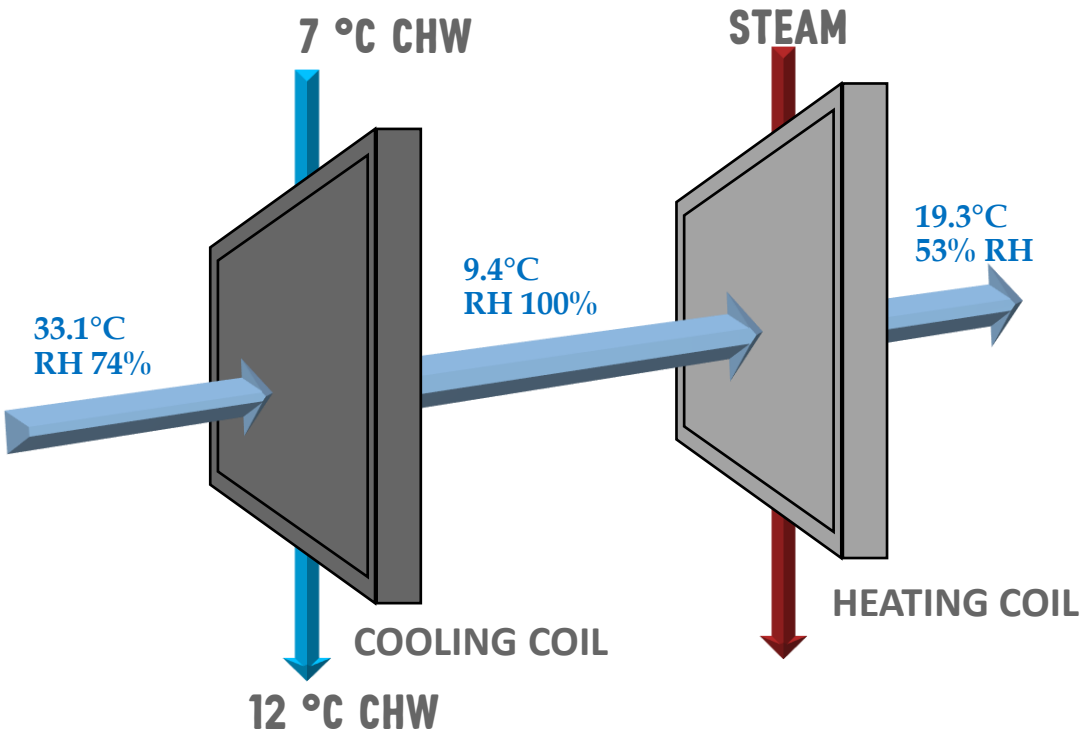
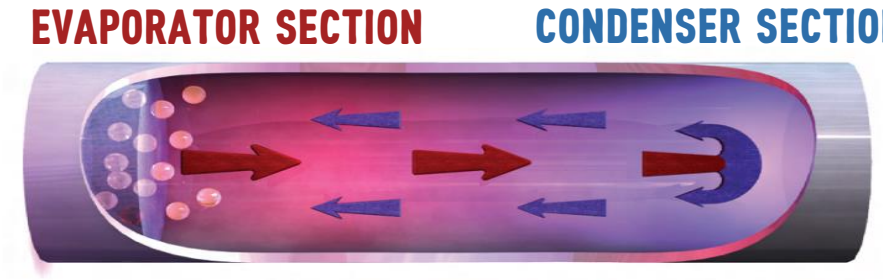
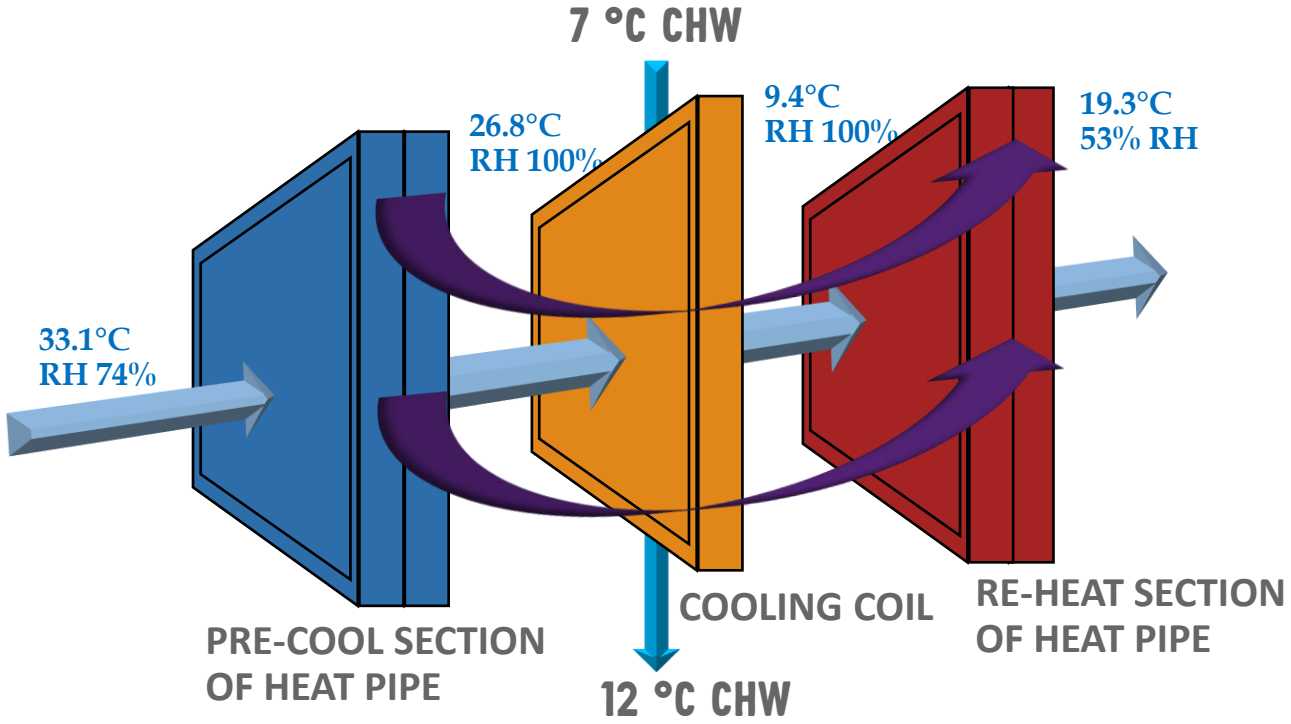
HEAT PIPE TECHNOLOGY



CONVENTIONAL RH CONTROL





RH CONTROL THROUGH HEAT PIPE

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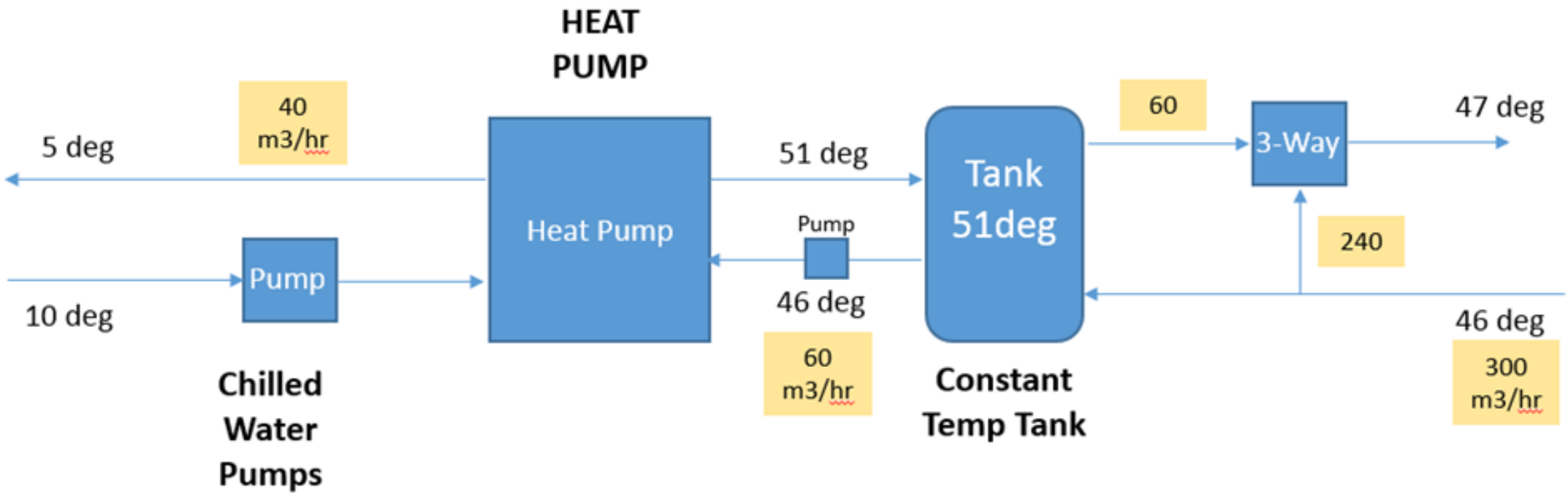
HEAT PUMP TECHNOLOGY



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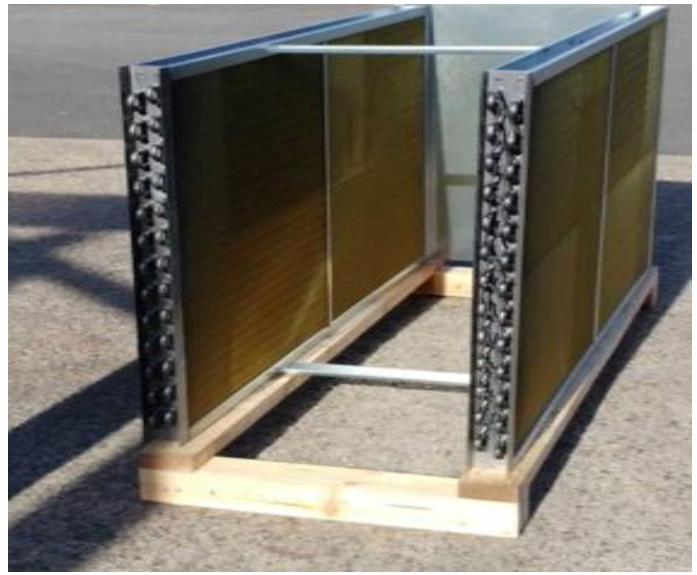
IMAGES

BEFORE – Conventional fan

AFTER- EC Plus Fan

Heat Pipe : TFA

HEAT PIPE



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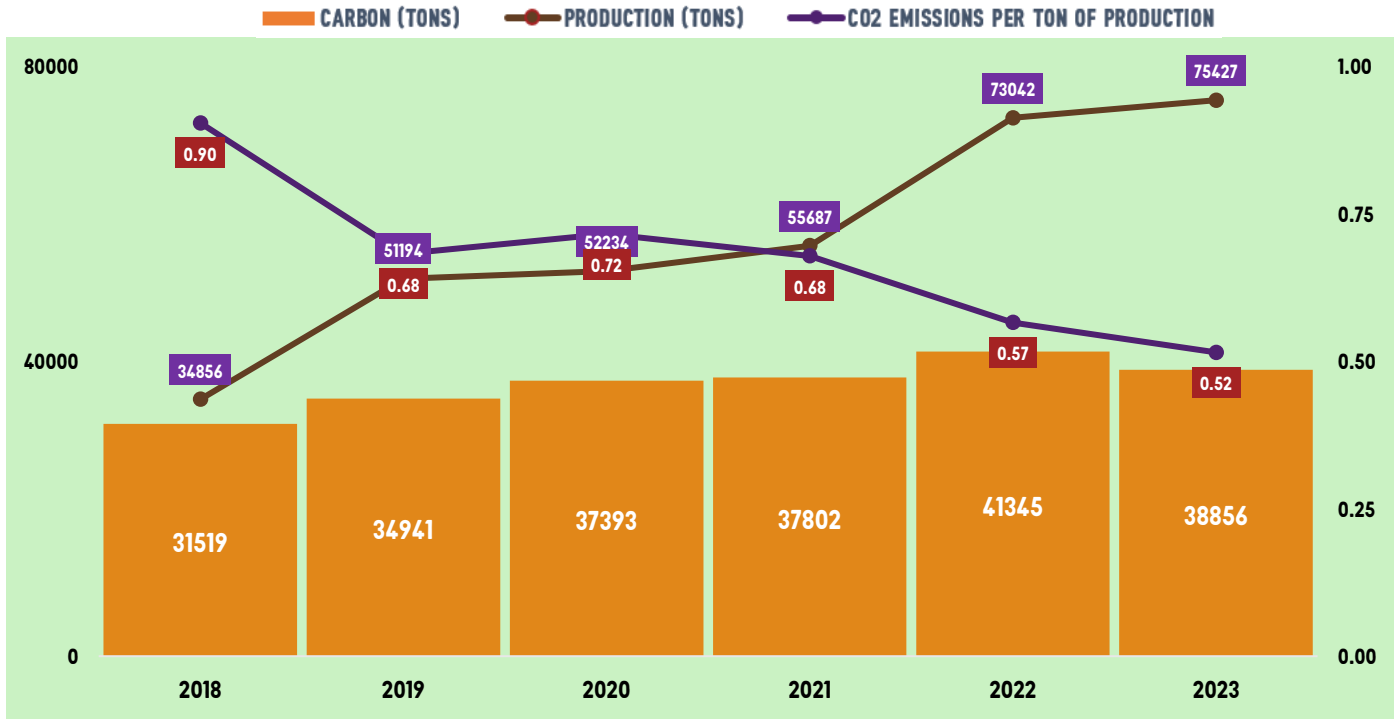
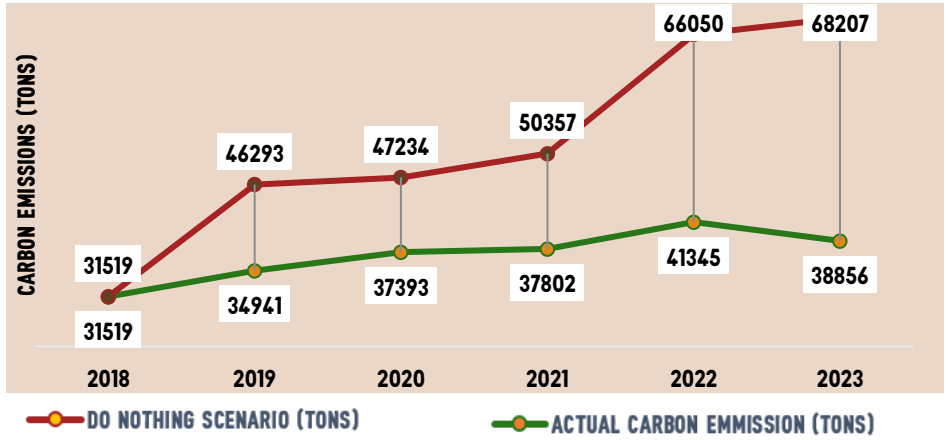
BENEFITS

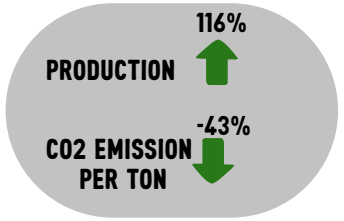


DO NOTHING SCENARIO VS CURRENT SCENARIO



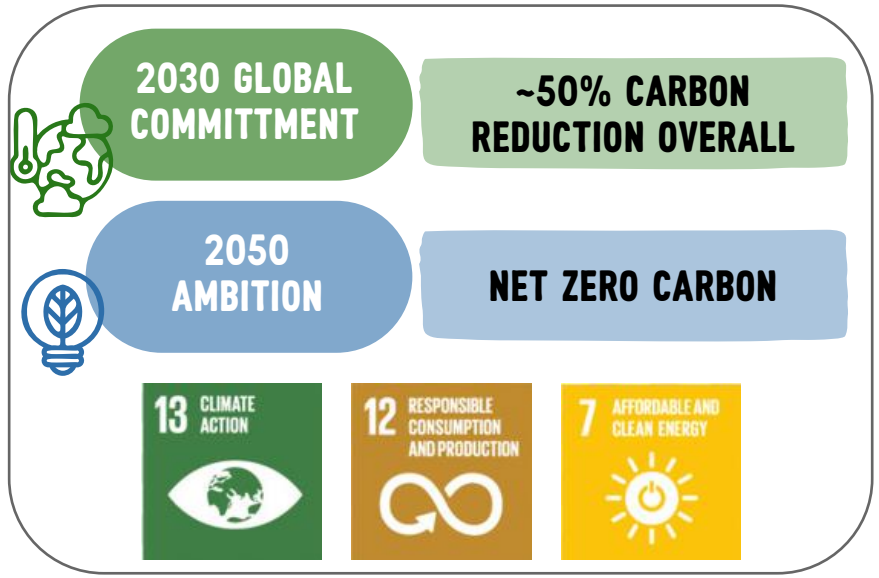
MONDELEZ REDUCED ~30,000 TONNES OF CARBON AGAINST BASELINE DUE TO INTERVENTIONS

INCREMENT AGAINST 2018 BASELINE



PROJECT	ANNUAL CARBON SAVINGS (TONS)
EC+ Fans	1200
Heat Pipes	700
Heat Pumps(all three phases, 319KW, 350 KW, 560 KW)	5000

REDUCTION OF 43% OF CARBON EMISSION PER TONNE OF PRODUCTION AGAINST BASELINE



*AS PER THE 2030 GLOBAL COMMITMENT, THE PRIMARY FOCUS TO REDUCE CARBON/ENERGY FOOTPRINT IS TO FOCUS AND PRIORITISING IMPROVING OPERATIONAL EFFICIENCY OVER CARBON OFFSETTING

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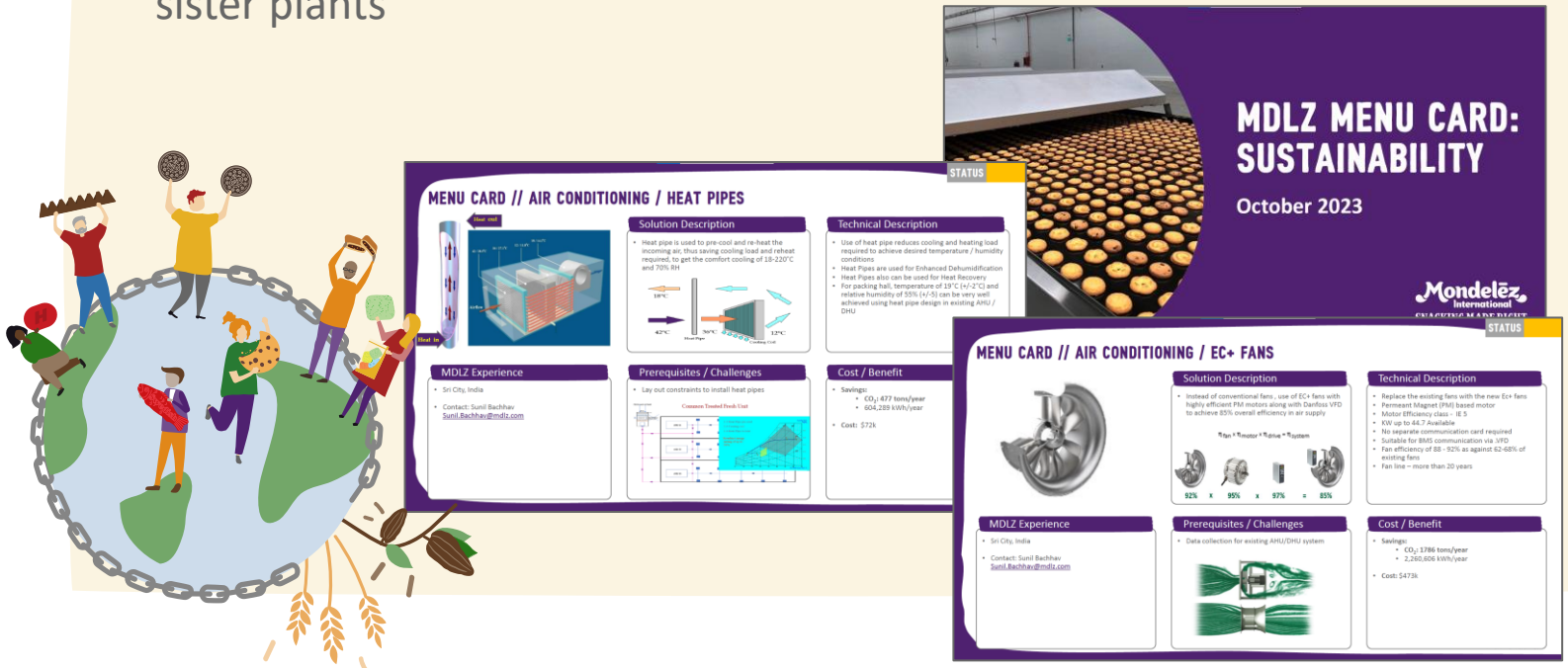
KNOWLEDGE SHARING

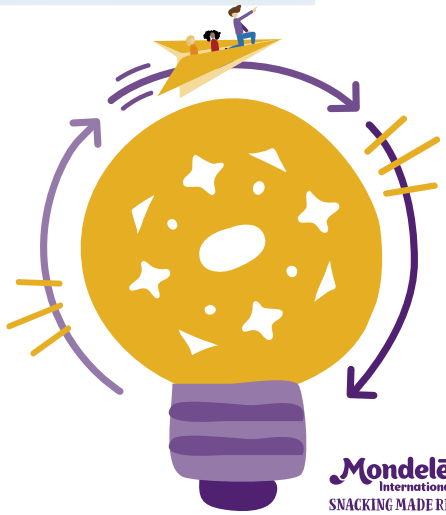
GLOBALLY WITHIN MONDELEZ

1. These best practices are shared internally within Mondelez Globally in a playbook called as " Sustainability Menu Cards". This file is a file accessible by all the **Global** Mondelez sites which contains the project briefs and the SPOC of the Project.
2. Heat Pump & Heat Pipe projects have been implemented in one of the sister plants and for other sister plants, evaluation is currently being done.
3. Horizontal Deployment of EC Plus fans project has been initiated for all the sister plants



WITH OTHER INDUSTRY

The Heat pump was presented with the larger group to other industries in the CII National Energy Efficiency Circle



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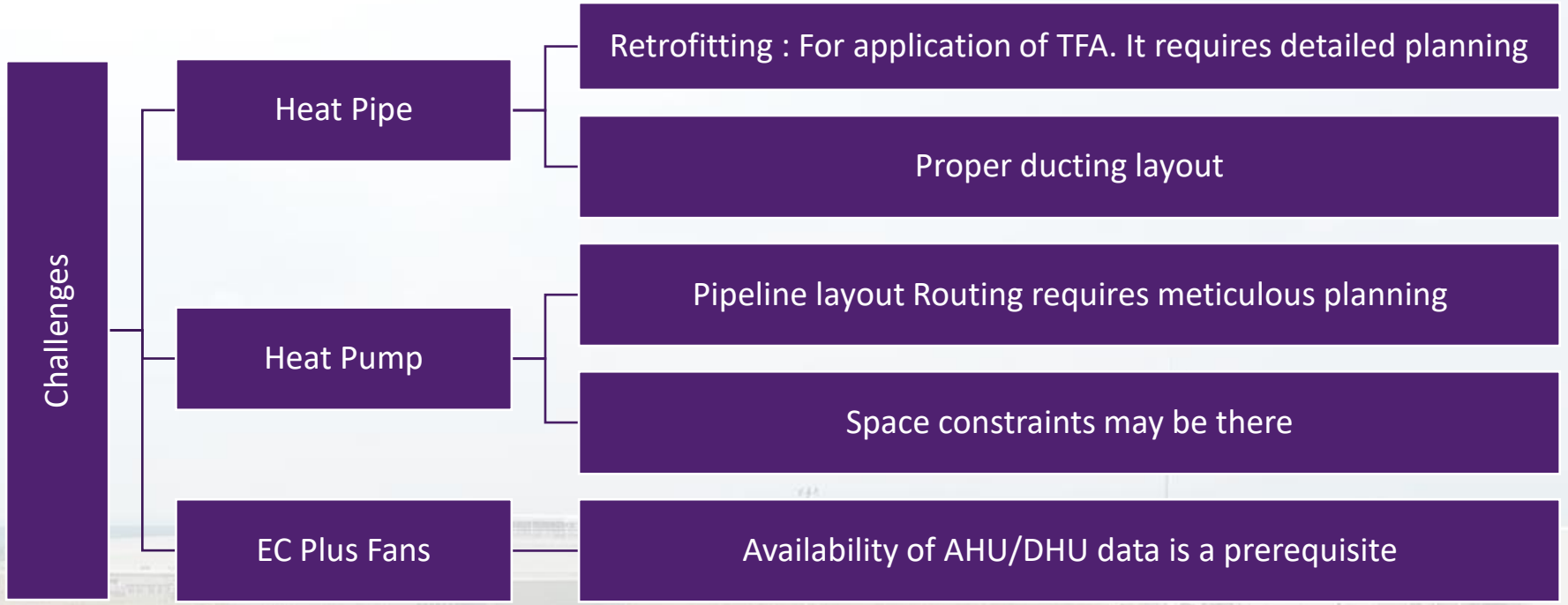
REPLICABILITY

The Heat Pump can be replicated in industries which used boiler and where the fuel used in the boiler is relatively moderate or higher. It may be used instead of a boiler.

The Heat Pipe Project and EC Plus fan Projects are replicable in industries where dehumidification of air is required in HVAC system.

CHALLENGES/ PRE-REQUISITES



LESSONS LEARNT

1. Higher row deep heat pipes to be used for higher temperature of chilled water.
2. Solution to be implemented basis value engineering and DBT & WBT of the area.
3. Heat pipes useful in tropical/dry countries.
4. EC+ fans can ne implemented due to laminar flow and higher static.

WHAT STANDS OUT?

Objective

Aiming to reduce the carbon footprint and energy efficiency of the site through clean energy solution

It's here to stay

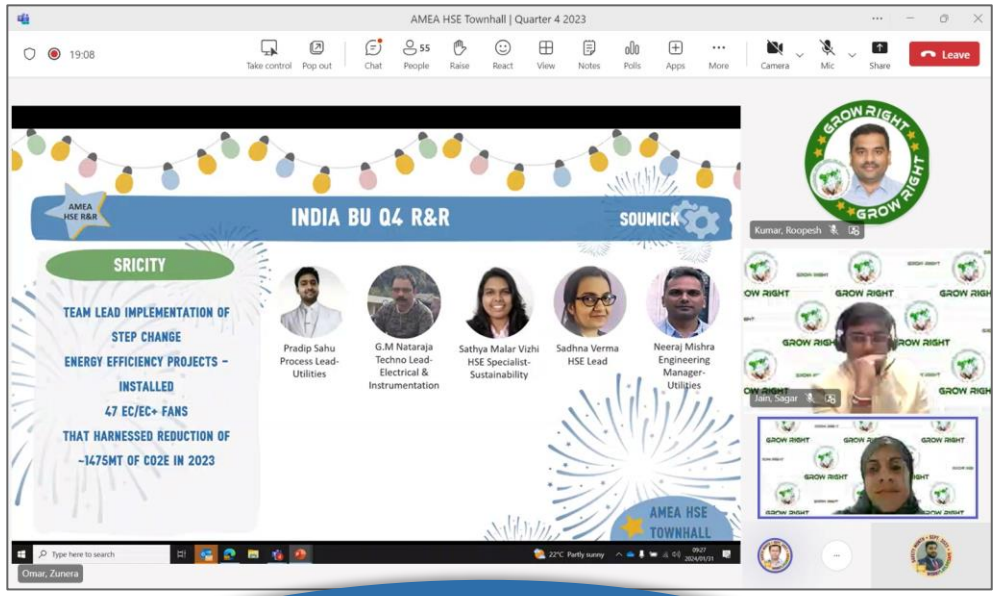
3RD GLOBALLY

Mondelez, Sricity has been ranked as the 3rd best site in terms of Direct Variable Energy ($/ton)

Uniqueness

The Heat pipe is a one of a kind of a project, which realises simultaneous savings in both hot water and chilled water generation

Acknowledgment of carbon reduction projects



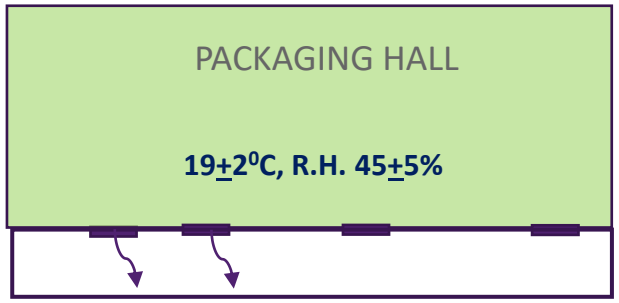
Regionally recognised and rewarded amongst the Mondelez Global fraternity

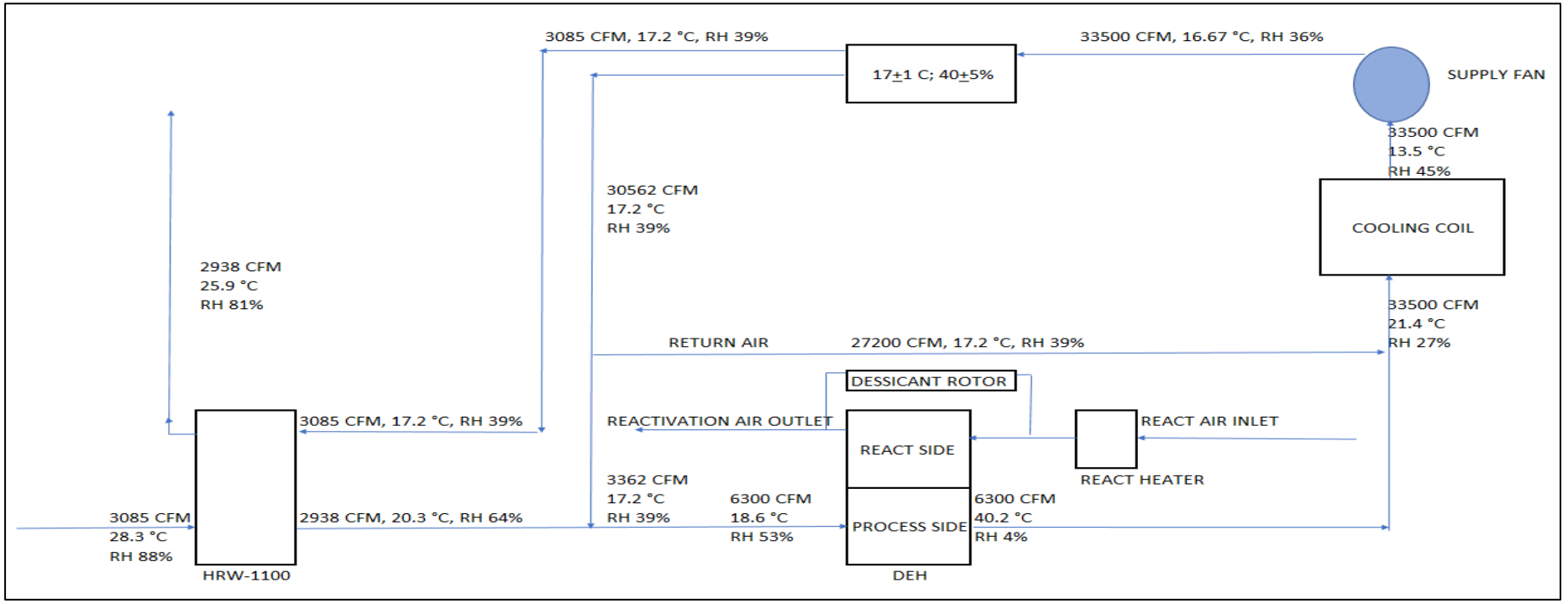
THANK YOU

ANNEXURES

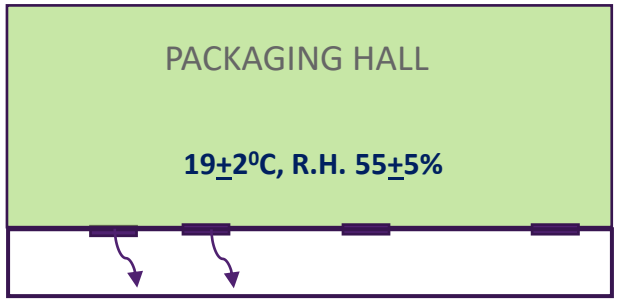
CHANGES EXECUTED

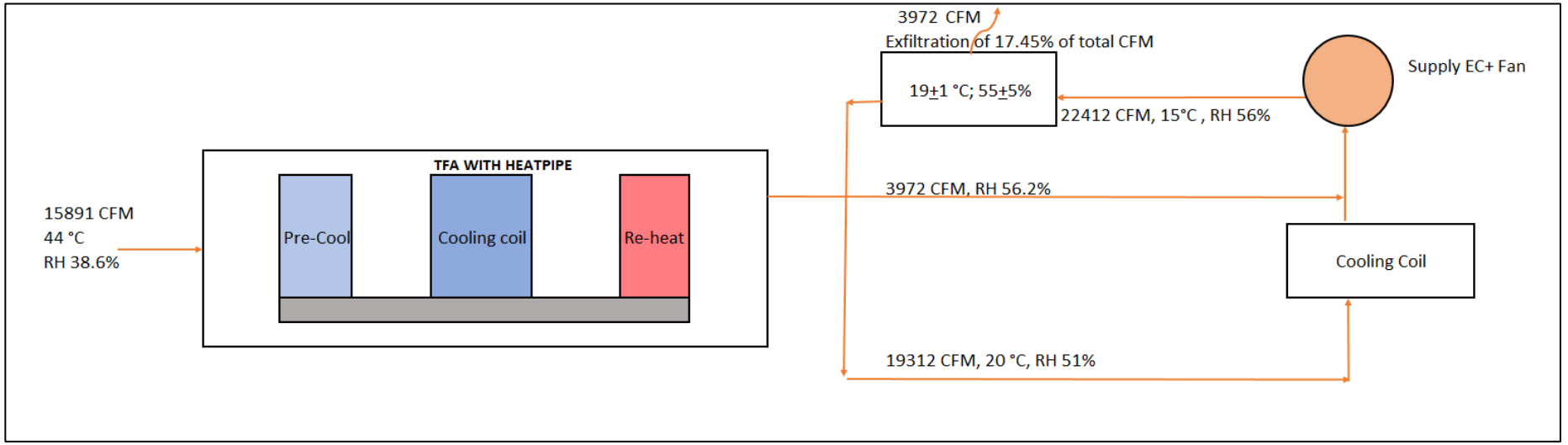
BEFORE





AFTER





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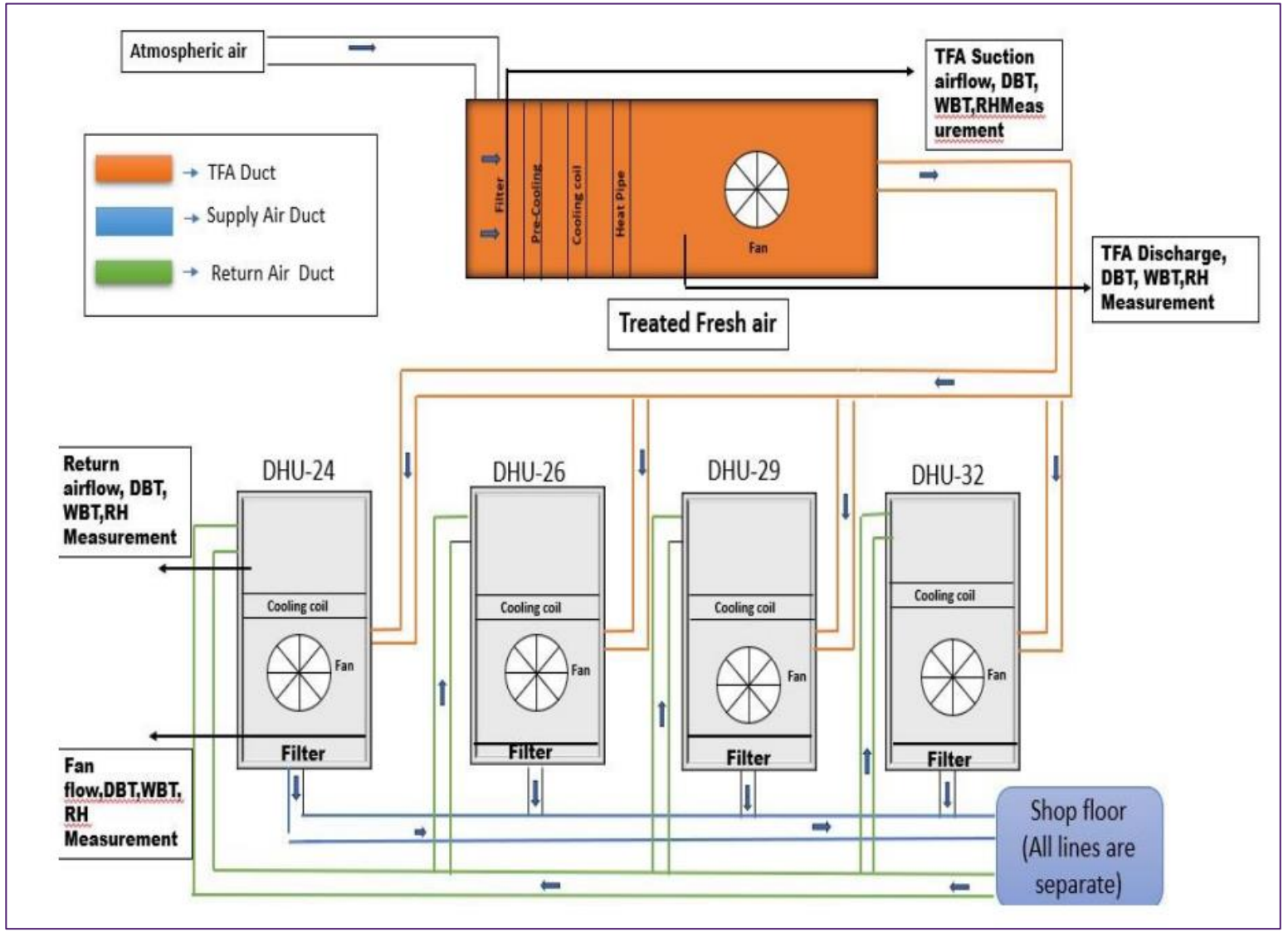
CURRENT SETUP AFTER RETROFIT



POC

STEAM COST	5.5 RS/KG
ELECTRICITY COST	6.9 RS/KWH
HOURS OF WORKING	8000 HR/YEAR

STEAM CONSUMPTION

DESCRIPTION	UNITS	VALUE
STEAM CONSUMPTION	KG/HR	41.41
RUNNING COST FOR STEAM	LAKHS/ANNUM	18.22

ELECTRICITY CONSUMPRTION

DESCRIPTION	UNITS	VALUE
4 DHUs	KW	74.72
RUNNING COST OF 4 DHUs	LAKHS/ANNUM	54.85

CHILLED WATER CONSUMPTION

DESCRIPTION	UNITS	VALUE
DAHU CHILLED WATER	TR/HR	103.7
RUNNING COST OF CHILLER	LAKHS/ANNUM	45.80

TOTAL RUNNING COST **INR 118.8 LAKHS/YEAR**
$ 0.14 MN/ANNUM

STEAM SAVING

DESCRIPTION	UNITS	VALUE
STEAM CONSUMPTION	KG/HR	0
STEAM COST	LAKHS/ANNUM	0

POWER SAVING

DESCRIPTION	UNITS	VALUE
4 DHUs + 1 TFA	KW	4.3
RUNNING COST	LAKHS/ANNUM	2.37

CHILLED WATER SAVING

DESCRIPTION	UNITS	VALUE
4 DHUs + 1 TFA	TR/HR	84.1
CHILLER RUNNING COST	LAKHS/ANNUM	38.87

NET SAVINGS **INR 77.6 LAKHS/ANNUM***
$ 0.08 MN/ANNUM

TOTAL CAPITAL COST **INR 95 LAKHS**
$ 0.11 MN/ANNUM

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