

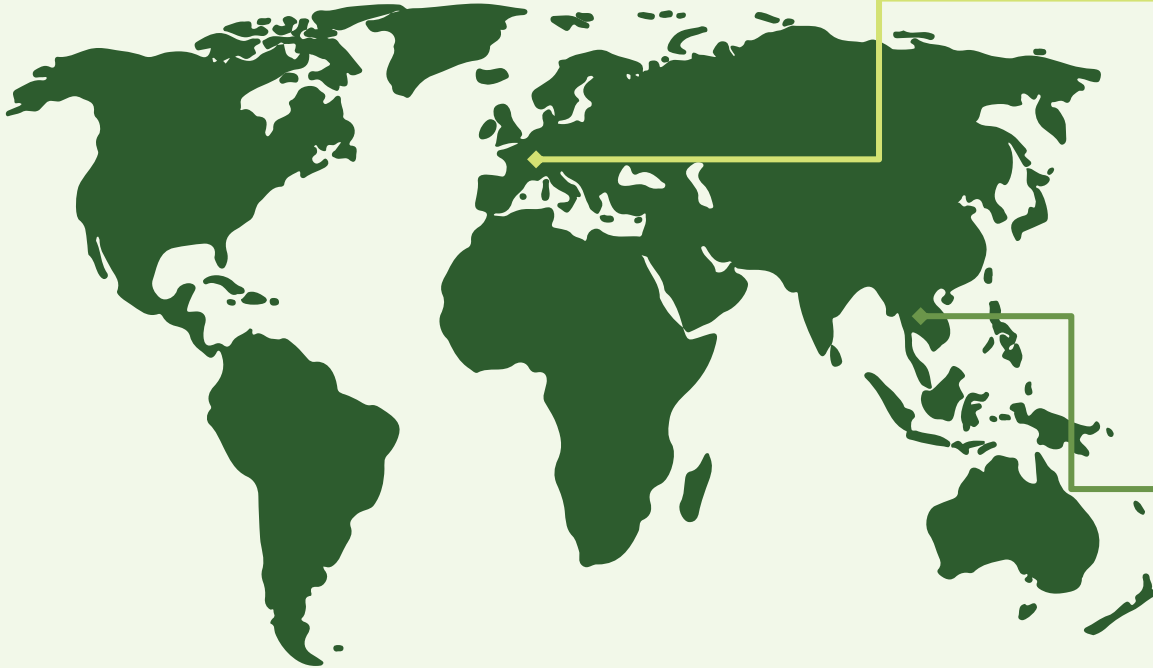


# Sustainability workshop

## Zero Carbon Program

04<sup>th</sup> October 2023

# Our Global Carbon Footprints



## PATTERER GMBH



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## Patterer Technical Parts Co., Ltd.



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Thailand  
<http://www.patterer-thailand.com/>

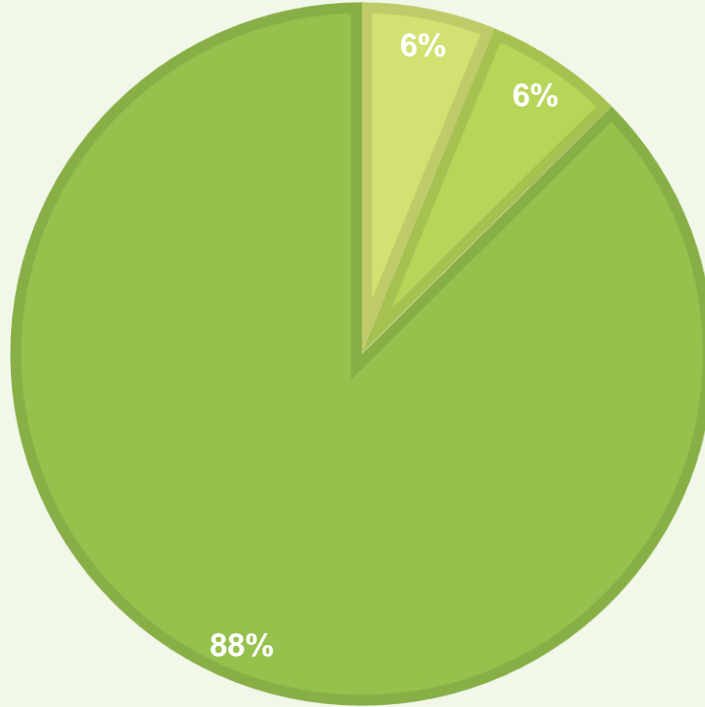
# CO2 EMISSIONS

**406T CO<sub>2</sub>**

Baseline Y2015

**50%**

By 2025



**88%**

## **ELECTRICITY**

Emission from purchased energy

**6%**

## **FUELS**

Emission from company vehicles

**6%**

## **GASES**

Emission from refrigerant gases



# PHASE-1 DECARBONIZATION ROADMAP

**2023**

25%

- START INSTALLATION OF SOLAR ROOFTOP
- SAVE ENERGY CAMPAIGN

**2024**

40%

- SOLAR PANEL BECOME OPERATIONAL AND THUS CAN REDUCE 140T EMISSION
- RENOVATE AIR-CON SYSTEM

**2025**

50%

- CHANGE TO EV AND REDUCE DIRECT CARBON EMISSION BY FUEL AND GAS



# DECARBONIZATION ACTIVITIES

## AIR COMPRESSOR



Replaced low efficient air compressor by a new energy efficient model



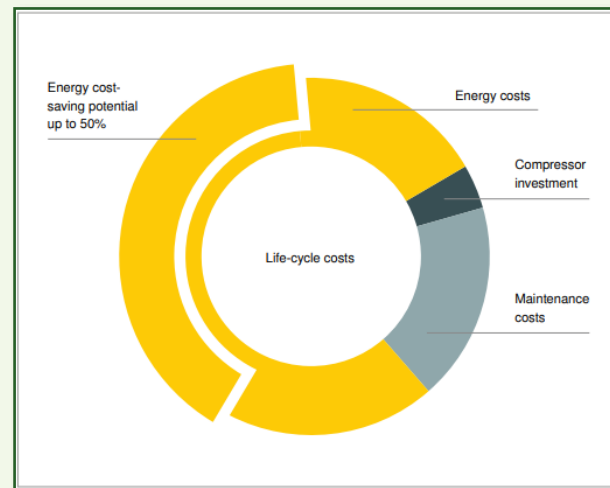
YEAR – 2019-2020



Power - 15kW



INVESTMENT – 21,600USD



# FLUORESCENT TO LED LAMPS



Fluorescent lamps were replaced by LED lamps and optimize the number of lamp



YEAR – 2017-2018



INVESTMENT – 5,703USD



ENERGY CONSUMPTION  
REDUCE BY 59,206 kWh



ENERGY COST SAVING  
6,766 USD



CO<sub>2</sub> EMISSION REDUCE BY  
30 TON

## **COLD AIR LOSS**



Curtains were installed to reduce the loss of cold air by 80-90% compared to conventional door.



YEAR – 2018



INVESTMENT – 1,500USD



ENERGY CONSUMPTION  
REDUCE BY 31,680 kWh



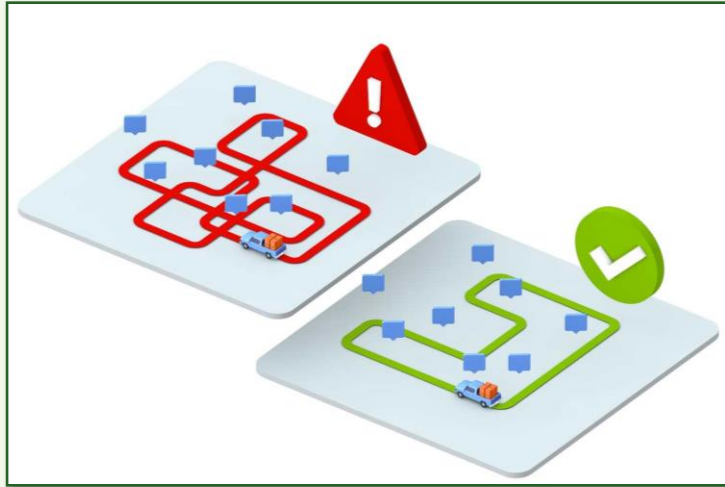
ENERGY COST SAVING  
3,621 USD



CO<sub>2</sub> EMISSION REDUCE BY  
16 TON



## FUEL CONSUMPTION



- NEGOTIATED WITH SUPPLIERS TO ARRANGE MILK RUN DELIVERY OF PRODUCTS.
- OPTIMIZE THE FREQUENCY OF DELIVERIES AND ROUTES



YEAR – 2016-2020



FUEL CONSUMPTION  
REDUCE BY 4,300 L



FUEL COST SAVING  
3,686 USD



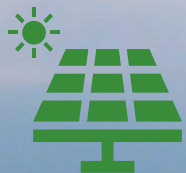
CO<sub>2</sub> EMISSION REDUCE BY  
11 TON

**DECARBONIZATION  
ACTIVITIES**

# SOLAR ROOF TOP



# SOLAR ROOF TOP



1PV Module : 575W



Investment Cost  
THB 5.9 M (USD 170,300.00)



Saving  
THB 30 M (USD 857,100.00)  
Over 25 years

# SOLAR ROOF TOP



## CHALLENGES

- Find right supplier with expertise at a reasonable cost
- Structure of the roof was not strong enough to take the load of solar panels



## WHY WE CHOOSE

- 88% of emission is from purchased energy Electricity.
- So, to switch to Green energy and thus to reduce our greenhouse gas emissions, Solar energy was the best choice.



Total install Capacity  
218.5 kWp



Install 380 Panels



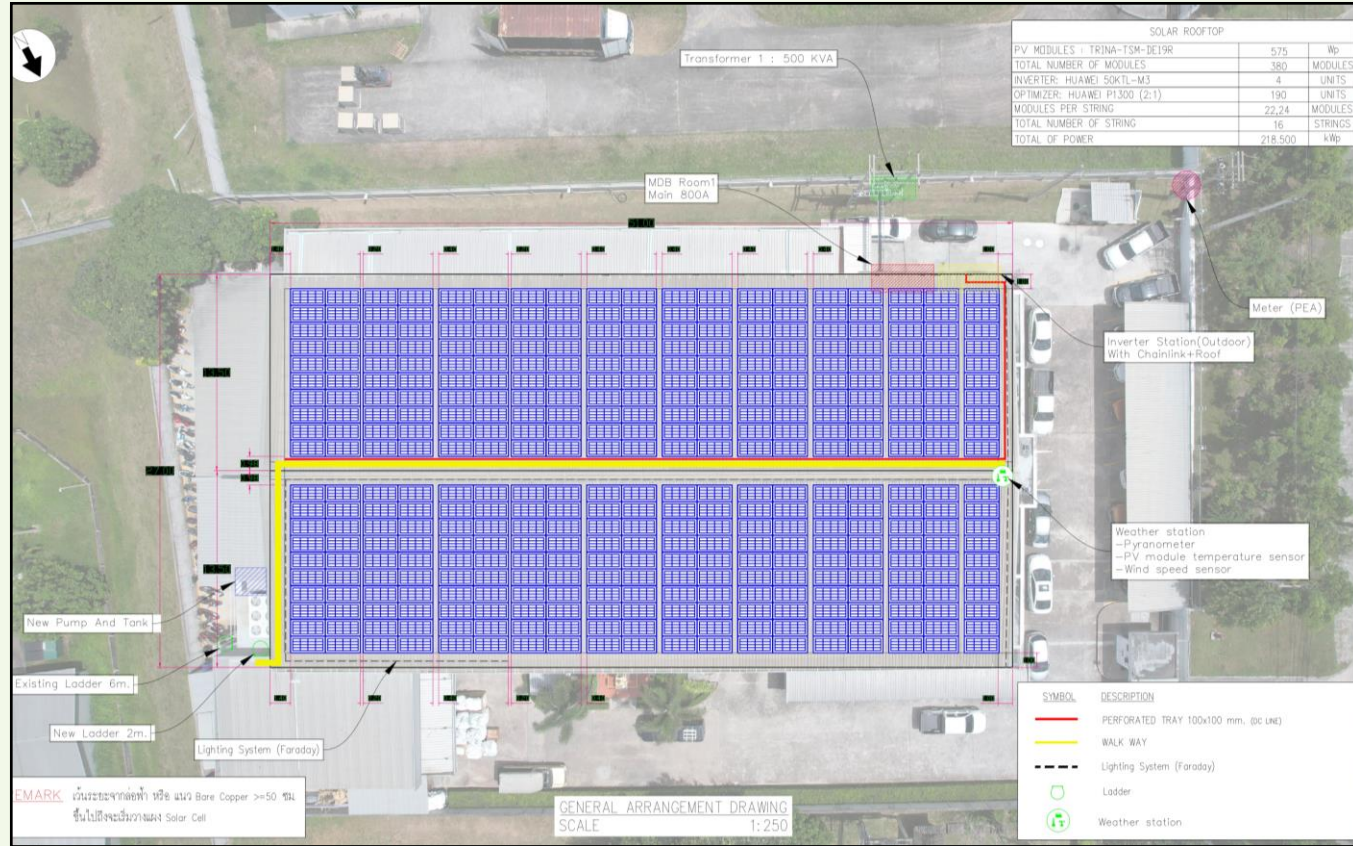
Reduce 143T/ Co2  
Emission year



280 MWh Annual  
Energy Production



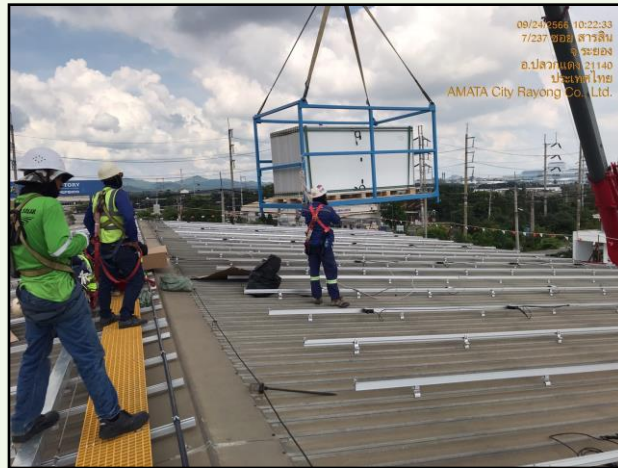
Equivalent to 11,900  
trees planted /year



# STRENGTHENING OF ROOF STRUCTURE

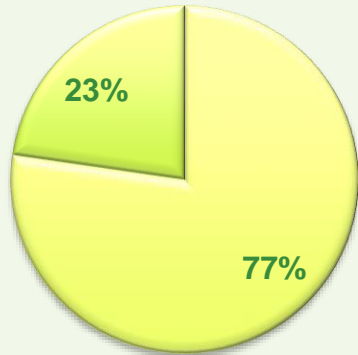


# PV INSTALLATION

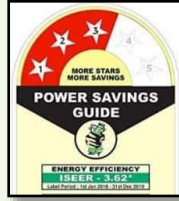


# CHANGE THE EXISTING AIR CONDITION UNIT TO A MORE ENERGY EFFICIENT SYSTEM

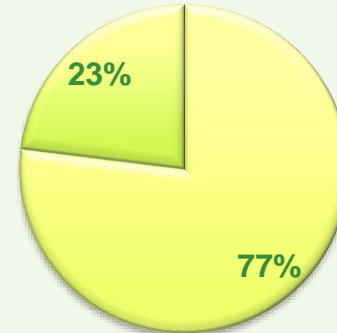
ENERGY CONSUMPTION TOTAL 230,064KWH



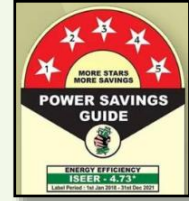
■ Estimated Energy Usage (KWH) ■ Energy saving



C02 EMISSION  
165T



■ ESTIMATED CO2 EMISSION (T)  
■ REDUCTION IN CO2 EMISSION (T)





# AIR CONDITIONER SYSTEM



## CHALLENGES

- INVESTMENT COST – 860,000 USD
- Sourcing high energy efficient model of air conditioners that suits our purpose.



## WHY WE CHOOSE

- 30~35% of our electricity usage is from the consumption by air conditioners, which is second after consumption by machines.



SAVE ENERGY



**THANKYOU**