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# REFRIGERANTS PHASE OUT: CHALLENGES AND OPPORTUNITIES IN MALAYSIA



## MALAYSIA HPMP STAGE 1: PILOT END-USER DEMONSTRATION PROJECT

**BY : Yahya Atan**  
**DOE MALAYSIA**  
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**[yahya@doe.gov.my](mailto:yahya@doe.gov.my)**

# BACKGROUND

- Demonstration project under HPMP Stage 1 approved by MLF
- Objectives: To reduce ozone depletion substances and GHG emission through the installation of Zero-ODP and low-GWP refrigerant (R 744-CO<sub>2</sub> refrigerant) for refrigeration unit in commercial sector
- Government and private sectors working together to phase out the use of fluorocarbon refrigerants.

# CO2 DEMONSTRATION PROJECT

- Location : Mutiara Tropicana, Petaling Jaya
- Contractor : Coolcare (M) Sdn Bhd.
- Technology : Panasonic Japan
- Assisted funding by MLF
- Started : Dec 2016
- Commisioned: May 2017
- Can reduce CO2 emissions by 54.3% and cut power consumption by 12.8% a year compared to a freezer using R404A refrigerant.





# CO2 DEMONSTRATION PROJECT

The host company criteria are as follows:

- Should own and be a continuous operator of HCFC-based air conditioning or refrigeration equipment
- Be in a stationary business at the particular location since establishment
- Financially viable and have competent technicians
- Undertake to complete permanent retrofitting or replacement (as applicable) of the baseline HCFC-based air conditioning or refrigeration equipment and render inoperable, the replaced HCFC-based equipment (in case of replacement)
- Should undertake to provide free access to the retrofitted/replaced equipment to DOE/UNDP for demonstration or similar information dissemination activities, for at least 1 years.







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# CO<sub>2</sub> refrigeration system installation at Jaya Grocer

## Coolcare's workshop and Jaya Grocer



Storage at Coolcare's workshop (showcase)



Storage at Coolcare's workshop (CO<sub>2</sub> CDU)



Storage at Coolcare's workshop (CO<sub>2</sub> gas)



Pre-setup at workshop (showcase)



Jaya Grocer  
– Mutiara Tropicana shop



Jaya Grocer  
– Mutiara Tropicana shop



# CO<sub>2</sub> refrigeration system installation at Jaya Grocer

## Delivery of goods



Delivering showcase



Unloading showcase



Delivering CO<sub>2</sub> CDU



Unloading CO<sub>2</sub> CDU



Unpacking CO<sub>2</sub> CDU



Unloading transformer  
for CO<sub>2</sub> CDU



# CO<sub>2</sub> refrigeration system installation at Jaya Grocer

## CO<sub>2</sub> CDU Installation on rooftop



Stand for CO<sub>2</sub> CDU



Stand for CO<sub>2</sub> CDU



Stand for CO<sub>2</sub> CDU



Stand for CO<sub>2</sub> CDU



Stand for CO<sub>2</sub> CDU



Stand for CO<sub>2</sub> CDU



# CO2 refrigeration system installation at Jaya Grocer

Project completed



Setup controller system



Ruining test



Project completed



Project completed



Project completed





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Thank you very much!



In cooperation with  
Panasonic



## **Some additional issues requested in this presentation**

1. can you please include slide with overview or HVAC industry in Malaysia and current and projected use of HCFC and HFC?
  - *HVAC in Malaysia mostly using R22. But since HPMP Malaysia has reduce according the schedule, starting January 2016, no more importation of HCFC based equipment to Malaysia.*
  - *Currently HFC used are R134A in MAC and a lot of R410A in RAC. This is yet to be control as yet to ratify Kigali Amendment. Malaysia is in Group 1 and baseline will start from 2020, 2021 and 2022 and freeze 2024.*



2. After Kigali Agreement - what are your intended measures to control and reduce growth of HFC?

- *at this moment, we are still in study and do some survey to traders and industries before start to enforce them to follow our HFC reduction plan.*

3. could you please add some information about other natural refrigerant projects in the country?

- *At the moment we only have one..CO2 project.*

4. is there other possibility of funding from government or UN / MLF pilot projects with CO2 or NH3? that would be welcomed by the industry

- *My colleague Madam Norzilla will explain.*