



# **FROM COMMITMENT TO ACTION : MONTREAL PROTOCOL IN MALAYSIA'S RAC LANDSCAPE**

**CHINA REFRIGERATION EXPO (CRH2024)  
8 – 10 APRIL 2024, BEIJING**

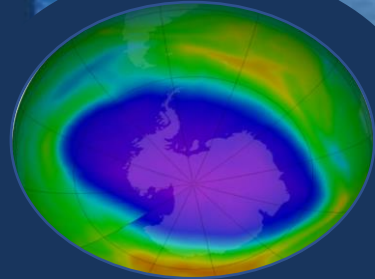
# Introduction ●

- Malaysia classified as a party under Paragraph-1, Article 5 of the Montreal Protocol and qualified for technical & financial assistance, including transfer of technology through the financial mechanism of the Montreal Protocol
- Malaysia has consistently complied with the Protocol as well as establishing regulatory framework for controlling ODS. Malaysia had successfully phased-out the importation of CFC, Halon and CTC in 2010.



29 August 1989

Vienna Convention  
1985  
Montreal Protocol  
1987



16 June 1993

London  
Amendment 1990



5 August 1993

Copenhagen  
Amendment 1992



26 October 2001

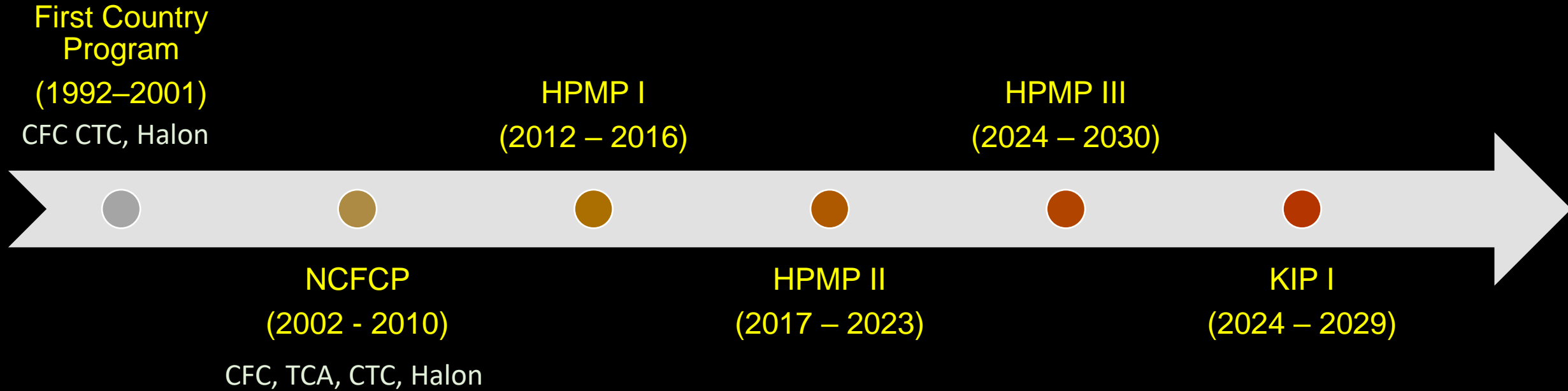
Montreal  
Amend. 1992  
Beijing Amend. 1999



21 October 2020

Kigali  
Amendment 2016

# The Implementation of Montreal Protocol In Malaysia



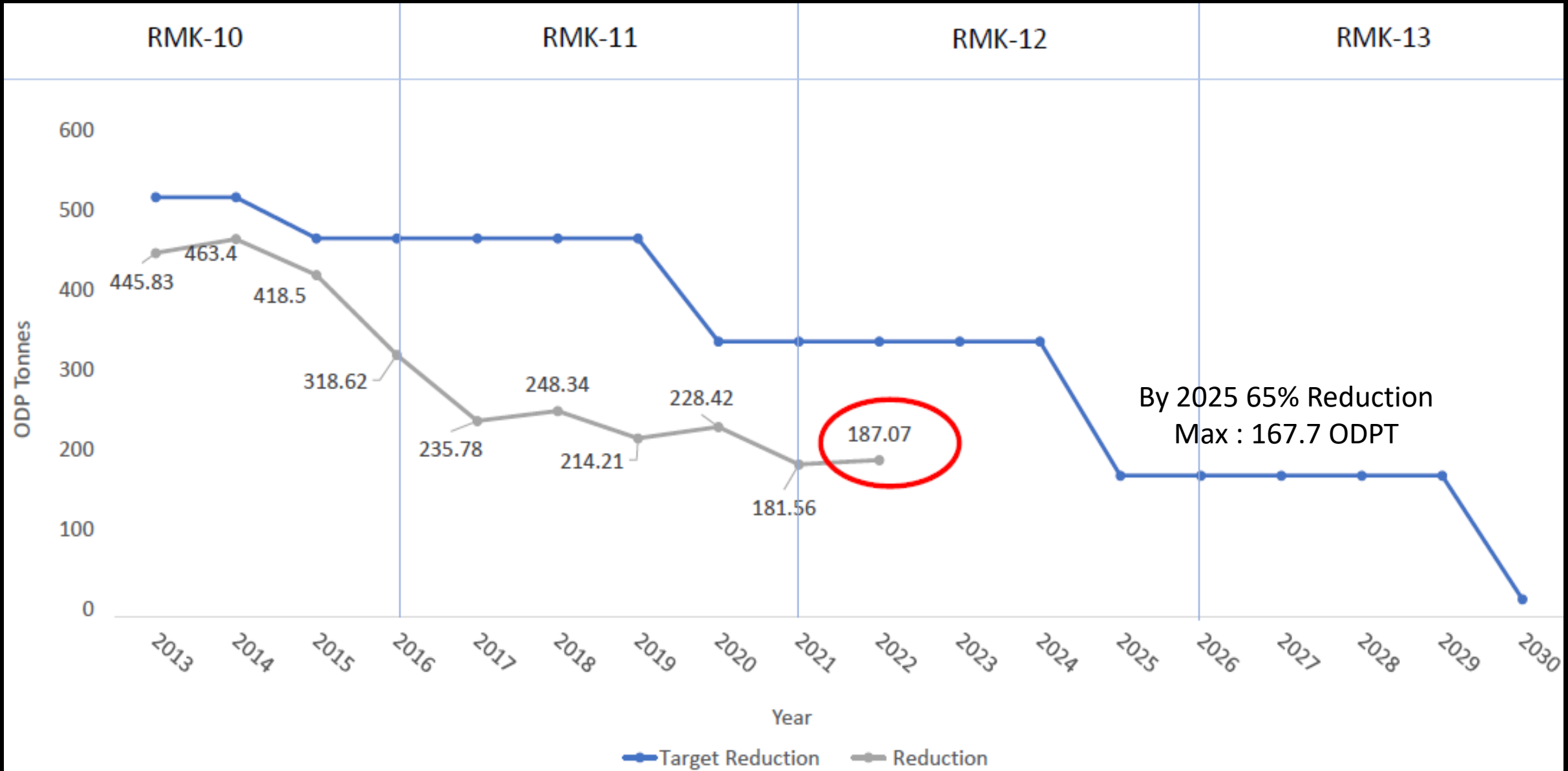
Total phase-out					Target phase-down 2.67 million tCO <sub>2</sub> eq
3,010 ODPT	2,147.5 ODPT	111.85 ODPT	146.24 ODPT	257.67 ODPT	

Implementing Agency (IA)				
World Bank (Lead), UNDP, UNIDO, UNEP	World Bank	UNDP		World Bank

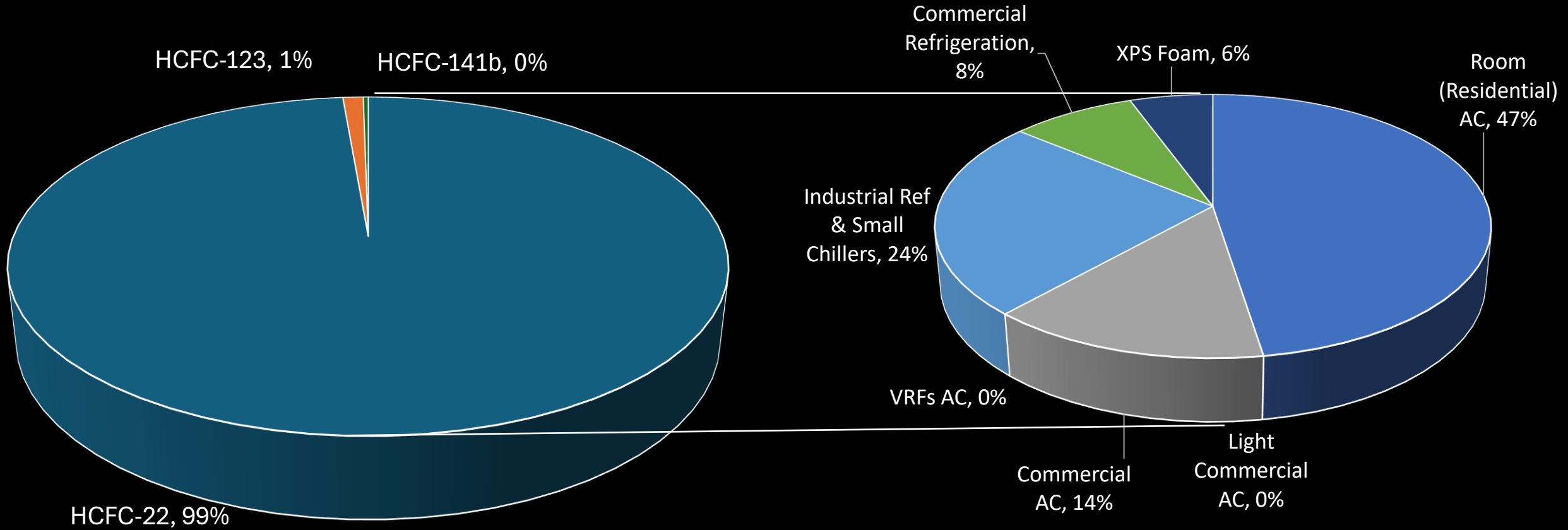
HCFC PHASED OUT  
MANAGEMENT PLAN  
(HPMP)

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# HCFC Reduction & Achievement



# HCFC Consumption By Subsectors In Year 2022



# HPMP Regulatory Actions

 2012	Establishment of AP import quota system on HCFC Baseline 515.8 ODPT
	Amend regulations for controlling use, imports, manufacturing, assembly and installation of products
 2013	Licensing re-export of HCFCs
	Enforcement of AP quota system
	Prohibition of establishment and expansion of new HCFC-based manufacturing capacities
	Establish incentive system for promoting use of alternatives
	Certification of technicians for handling HCFCs
 2015	Prohibition of manufacturing, assembly and import of HCFC-based air conditioners (2.5 HP and lower) for use in Malaysia
	Prohibit imports of polyols pre-blended with HCFCs
	Include HCFCs in the list of restricted gases
 2020	Prohibit the manufacture, assembly and import of all products and equipment using HCFC (except for essential use)
	Prohibit HCFC 141b as blowing agent
	Prohibit the use of HCFC in the manufacturing and installation of new fire extinguishing systems
2025	No more installation of new products and equipment using HCFCs
2030	AP is limited to 2.5% of the baseline for 10 years average for servicing use only
2040	Total ban on the import and use of HCFCs

# Legislative Framework

1

Environmental Quality (Prohibition On The Use Of CFC And Other Gases As Propellants And Blowing Agents) Order 1993

- Ban on the use of CFCs, and others gases in the foam and aerosol manufacturing sector
- This order is currently being amended

2

Environmental Quality (Refrigerant Management) Regulation 2020

- to control the use, handling, venting, and movement out of the country of refrigerants designated as “environmentally hazardous substances” in the act.

3

Environmental Quality (Halon Management) Regulations, 1999

- prohibited installation of new halon fire protection systems (with possible exemptions)

4

Environmental Quality (Delegation of Powers: Halon Management) Order, 2000

- made to delegate powers to the Fire and Rescue Department (Bomba) to investigate halon regulation offenses.

5

Customs Duties Orders 2017, Amendment 2020 and 2022

- More detailed HS codes prescribed in the 2022 order have also been adopted by ASEAN member countries under the ASEAN Harmonized Tariff Nomenclature (AHTN)

6

Customs (Prohibition of Imports)(Amendment) Order 2020 and Customs (Prohibition of Exports)(Amendment) Order 2020

- Banned on import and export of CFC, Halon and CTC;
- Import/ Export AP requirements for HCFC and HFC substances.



# Import / Export Control Mechanism



## GUIDE FOR IMPORTERS AND EXPORTERS IN MALAYSIA NATIONAL HS CODE FOR CONTROL SUBSTANCES UNDER MONTREAL PROTOCOL



Importer/  
Exporter

1. Pemohonan Permit
2. Kelulusan
3. Pendaftaran



2. Kelulusan (5 Hari Bekerja)
3. Pendaftaran



Jabatan Alam Sekitar  
(Seksyen Perlindungan Ozon)

2. Kelulusan
3. Pendaftaran



4. Pengesahan Permit / Pengikraran

Sistem Maklumat Kastam



ASHRAE DESIGNATION	CHEMICAL NAME	HS CODE 2017	NEW HS CODE 2022
HCFC-22	Chlorodifluoromethane	2903.71.00 00	2903.71.00 00
HCFC-123	Dichlorotrifluoroethanes	2903.72.00 00	2903.72.00 00
HCFC-141,141b	Dichlorofluoroethanes	2903.73.00 00	2903.73.00 00
HCFC-142,142b	Chlorodifluoroethanes	2903.74.00 00	2903.74.00 00
HCFC-225, 225ca, 225cb	Dichloropentafluoropropanes	2903.75.00 00	2903.75.00 00
Other	Perhalogenated only with fluorine and chlorine	2903.77.00 00	2903.77.00 00

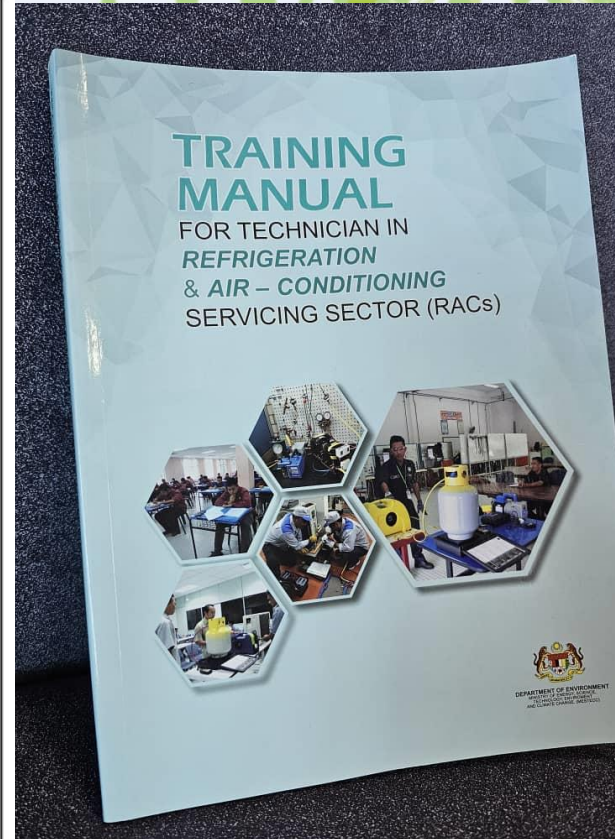
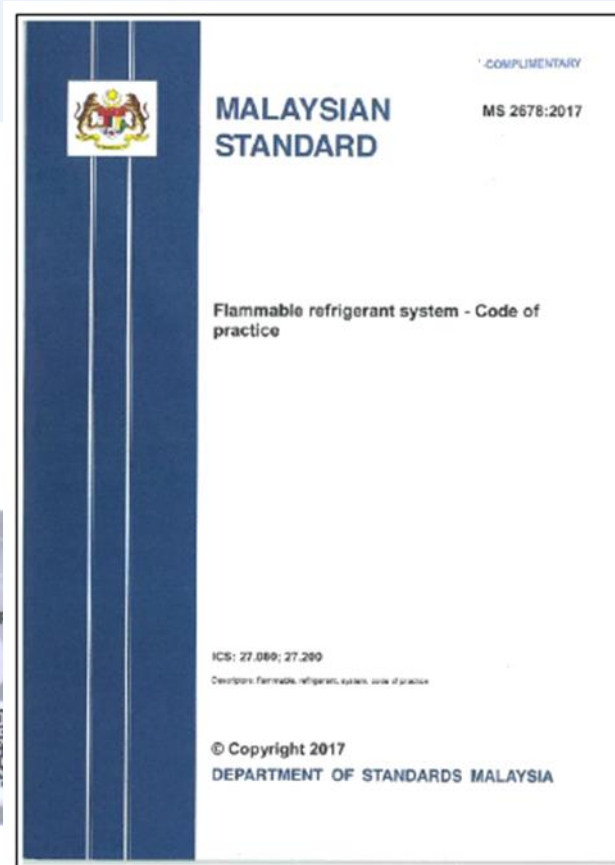


Technology conversion from HCFC-141B to Hydrocarbon (Cyclopentane)

# Technology Conversion Project Under HPMP

## Welcome to Electronic Certification Service Technician Programme

System e-CSTP was designed for planning of the training schedule, training registration for technician and certification upon passing the exams. The system will assist the ATC in conducting the CSTP in a holistic manner.



### CERTIFICATION SERVICE TECHNICIAN PROGRAMME

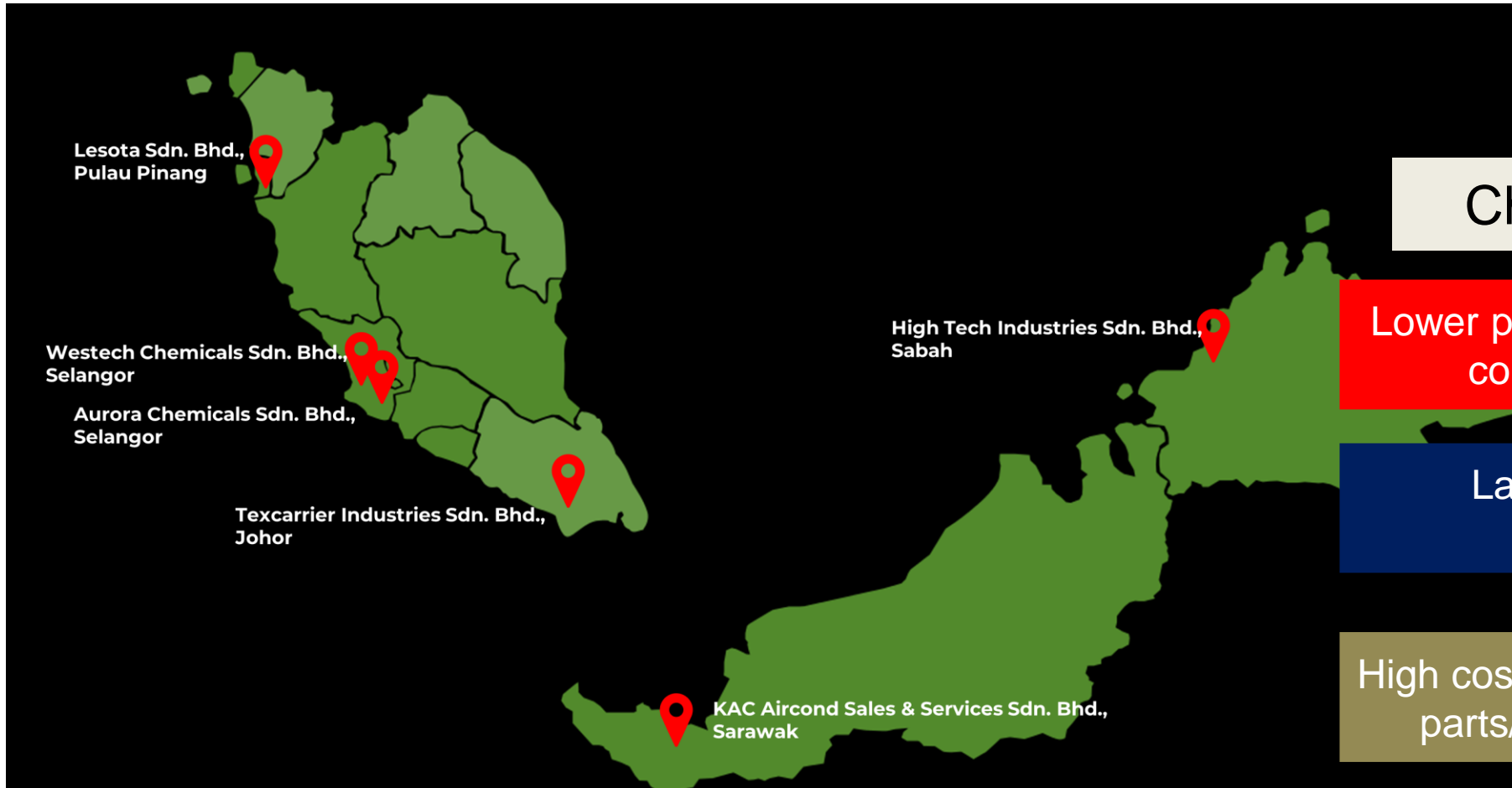
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# Recovery And Reclamation Centres



## Challenges for R&R

Lower price of virgin gas in the market compared to reclaimed gas

Lack of control mechanism of HCFC release

High cost of reclamation machine spare parts/ consumables replacement

# COMMUNICATION, EDUCATION & PUBLIC AWARENESS (CEPA)

- World Ozone Day Celebration
- Seminars / Workshops with relevant stakeholders
- Awareness program at the state level
- Brochures / Posters (electronic)
- Booklets, eg: HPMP I and HPMP II to provide information to the public



# Proposes HPMP Stage III subsector Plan

HCFC-22 (255.46 ODP tons)

HCFC-123 (1.13 ODP tons)

## RAC Servicing Sector Plan (HCFC-22)

- expand the trainings on Good Practices and Refrigerant Management to 10,000 technicians;
- harmonization of the National Certification under the Skills Training Programme and MP-related Technician Certification Schemes;
- continue strengthening the ATC training by delivering fit-for-purpose AC-R Trainer Units and improve basic training tooling of new ATCs;
- establishing new bans on use of HCFCs & HCFC based equipment & products;
- Ban on HCFC-141b use in AC-R flushing; (1 ODPT)
- Improve Recycling and Reclaim Centers Capacities;
- expand Custom Officers, Port Authorities and National Control and Enforcement Officers capacities; and
- continue raising awareness to sustain the HCFCs phase-out.

## Chillers Servicing Sector Plan (HCFC-123)

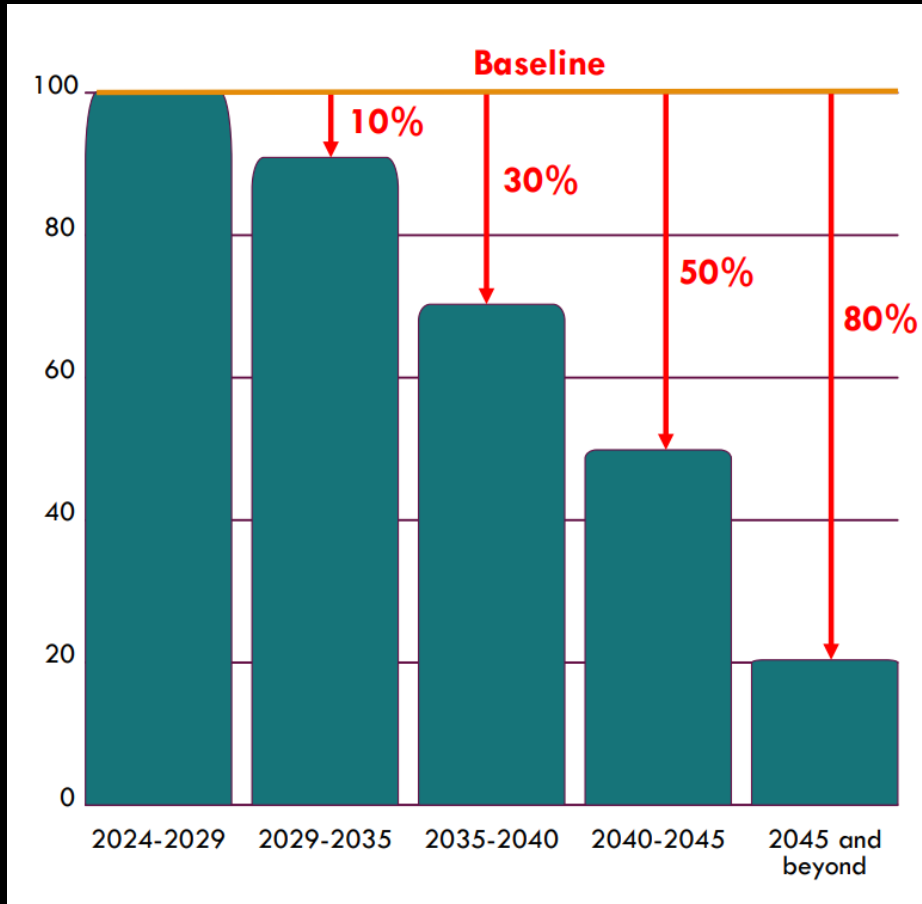
- to map the installed capacity of HCFC-123 chillers in the country;
- support a national strategy to manage remaining chillers; and
- establish bans on new installation of HCFC-123 based chillers.



# KIGALI AMENDMENT

OZONE2CLIMATE AGENDA

# Implementation of The Kigali Amendment In Malaysia



- Malaysia's KIP preparation was initiated **in 2017** and was completed by August 2023 with the support of the World Bank.
- Malaysia ratified the Kigali Amendment on the **21st October 2020**.
- KIP Stage I (2024 – 2029) was approved for funding by the 93<sup>rd</sup> ExCom meeting.
- The Policy, Plan & Strategy of HFC Phase-down have been approved by the Cabinet;
- Malaysia has started freeze the importation of HFC at a baseline of **26.7 million tCO<sub>2</sub>eq** on **1st January 2024** with the quota allocation system.



# HFC Phasedown Scenario: Business as Usual

million tCO<sub>2</sub> eq

250.00

200.00

150.00

100.00

50.00

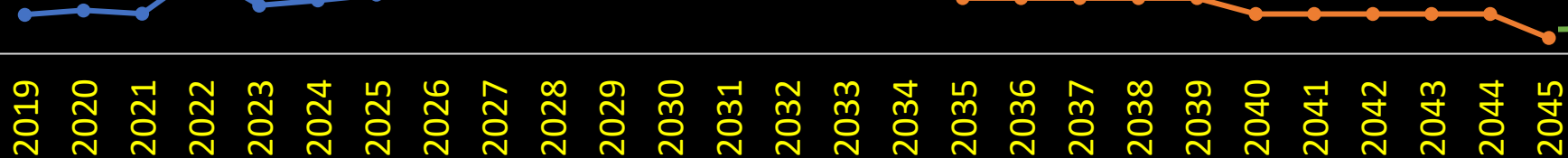
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2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045

● HFC Consumption ● KA Max. Allowable

**227.7 million tCO<sub>2</sub> eq.** emissions avoided with Kigali against BAU by 2045

Significant contributor to net zero carbon emission in 2050 while meeting Montreal Protocol obligations **2024-2045**



# Sector Profile of HFC Consumption In Malaysia



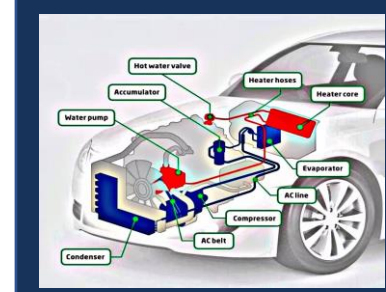
**Air Conditioning** – Residential Air-Conditioning and Heat Pumps, Commercial AC and Chillers



**Refrigeration** – Commercial and Industrial Refrigeration (standalone ref., large display units & centralized ref. systems)



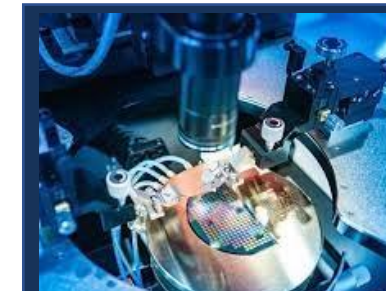
**Aerosol** – pharmaceutical industry, metered dose inhalers (MDIs), aesthetic application



**Mobile A/C** – mobile air conditioning, public transport cooling,



**Fire Suppression** - manufacturers, suppliers, and service providers of fire suppression systems



**Solvents & Foam** - production of semiconductor devices and electronic components

# Strategic Vision for Malaysia's Kigali Implementation Plan (KIP)

Actions required to meet the Kigali Amendment obligations and national commitments for CO<sub>2</sub> emission reductions

Actions that promote and sustain economic growth and development of Malaysia's key industrial sectors



## MP MOP Decision XXVIII

“Flexibility in implementation that enables parties to select their own strategies and priorities in sectors and technologies.”

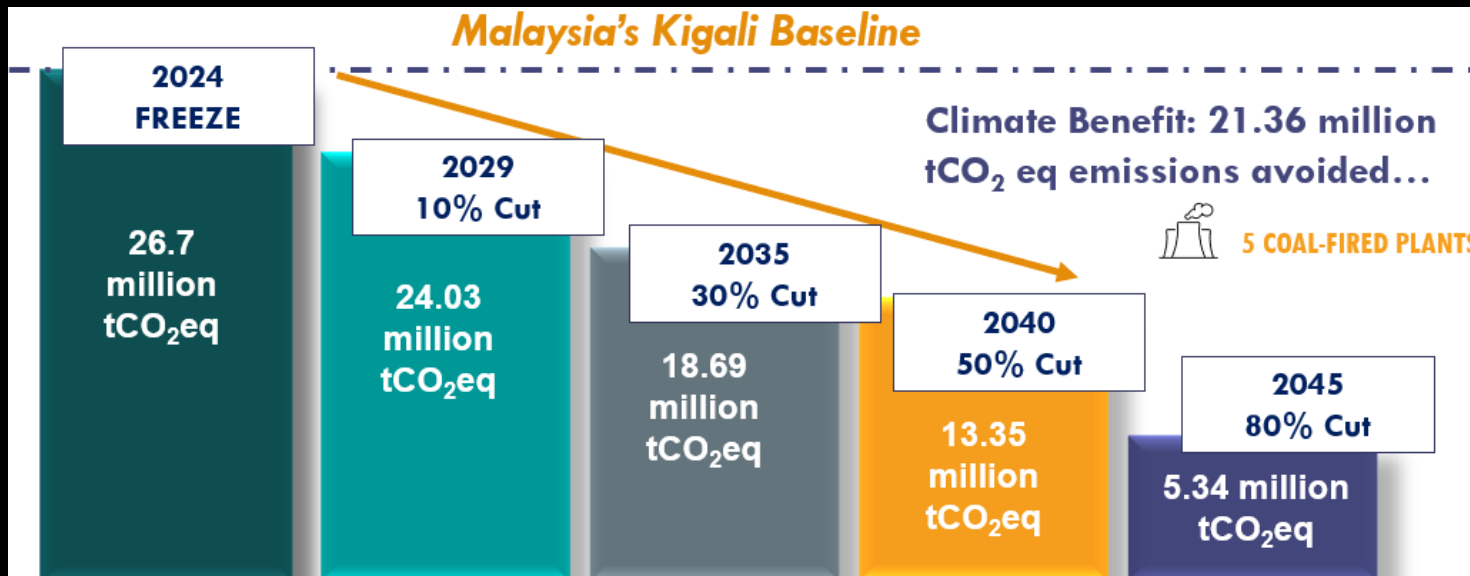
## Kigali Compliance

Reduce climate impact from the use of HFCs by curbing the use of high GWP HFCs in sectors where viable alternatives are readily available.



## Economic Development

Employ the flexibility provided by the Kigali Amendment to allow the use of low and lower GWP HFCs until zero-GWP alternatives are available.



6.9 million tCO<sub>2</sub> eq. of emissions avoided by 2029 (against BAU scenario)

Emissions from 1.5 coal fire powerplants in 1 yr

# KIP Stage I Project Components

## Investment

- Commercial refrigeration manufacturers: 2 conversion projects from HFC-134a and R-404A to R-600a and R-290; & energy efficiency (EE).
- Pilot conversion project at local automobile manufacturer to convert HFC-134a to HFO-1234yf.

## Servicing

- Refrigeration AC servicing sector activities; &
- Mobile AC servicing sector activities.
- Training the trainers on safe mgmt. /handling of HC refrigerant
- New curricula – R-134a good practice + electronics for EE
- Technician training
- Training equip.
- Small tools for technicians

## Technical Assistance

- Sector training seminars on alternatives (fire suppression, RAC);
- Study tours for targeted sectors (public rail, com ref and fire suppression);
- Technical expertise support on alternatives for fire suppression/com ref.;
- TA and training to facilitate HFC import control (Customs);
- Feasibility studies public rail (R&R, green procurement) & MAC carbon footprint/MAC leak testing;

## Policy and Regulation

- Quota management
- Develop SOP and online system for importers;
- Agency coordination and consultations;
- Public awareness and outreach;
- Bans (at least 4): high GWP HFCs in new installs (Fire Sup), HFCs in dom. ref, com. ref, transport ref. manufacturing.

# KIP Stage I Project Outputs

## Investment Projects

- to convert from/ cease installation with HFCs in stand-alone commercial ref. and
- Pilot conversion in MAC

## HFC Servicing Sector Work

- **New curriculum** for vocational schools, DOE, students, technicians in MAC and ref.
- **Trained trainers and technicians** in MAC and ref servicing sectors
- **Qualified technicians** for sound HFC and EE maintenance

## TA and Policy Support

- **EE guidelines** for testing, placing on market stand-alone com ref.;
- **Draft MEPS** stand-alone com ref.;
- **Final feasibility studies to inform future MAC policy**, public procurement & refrigerant management;
- **Bans in HFC use** in manufacturing & import of stand-alone com ref., domestic ref., transport ref. manufacturing;
- **Online quota mgmt system**;
- **SOP/guidelines** on quota allocation;

# KIP Stage I HFC Phase-down Action Plan

2024

- **Quota allocation** on HFC importation annually;
- Phasedown through the quota system by **decreasing imports** of high-GWP HFCs;
- No consideration for additional quotas of HFC with **high GWP >2,000**;

2026

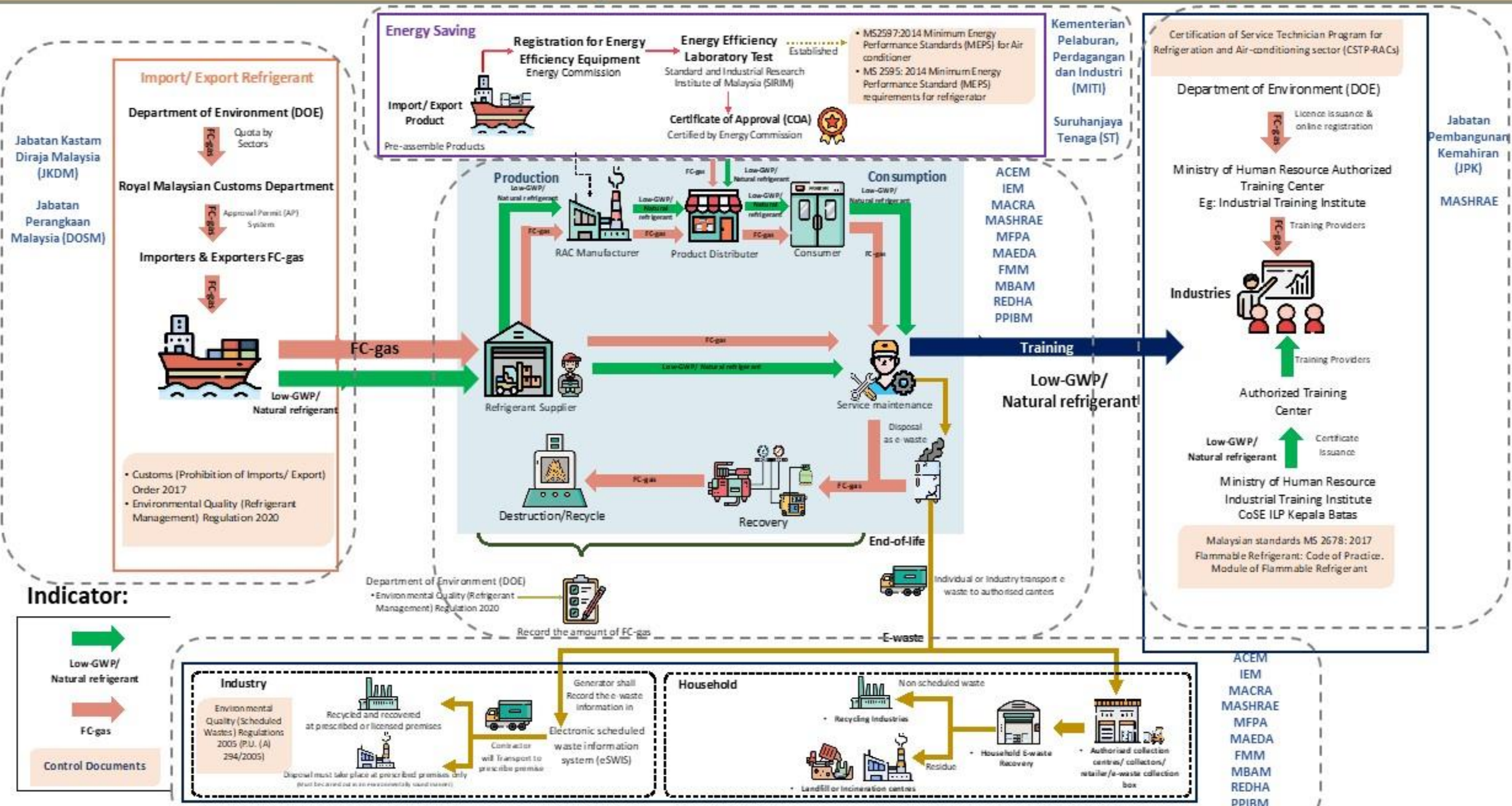
- Ban the installation of new HFC-23- and HFC-125-based **fire suppression systems**;
- Updated “**Green Procurement Guidelines**” based on technical review with additional lower-GWP products and equipment;
- Revise specifications for **new procurement of public transportation rail and buses** to exclude high-GWP refrigerants in AC systems.
- Review and improvement in fiscal measures **to encourage importation of low-GWP** alternatives, technologies and equipment.

2029

- Ban the manufacturing & import of :
  - HFC based **stand-alone commercial refrigeration** equipment;
  - HFC based **domestic refrigeration**;
  - HFC-134a, R-452A & R404A based components for **transport refrigeration**;
  - R-407C based **split AC & heat pumps**;
- Ban of R-407C-based **new installations chillers**.
- Guideline for **minimum energy performance (MEPS)** for stand-alone commercial refrigeration.

Amendment to related Environmental Quality Regulations to control the consumption of HFCs

# HCFC & HFC Management & Framework in Malaysia





# THANK YOU

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