



Sustainable Financing for ODS & HFC Bank Management

MOP37 Side Event (05/11/2025)

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Cecilia Mercado (Independent Expert)

Duncan Brack (Independent Expert)



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Frieda Goagoses (National Ozone Officer, Namibia)



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Kylie Farrelley (Refrigerant Reclaim Australia)

INTRODUCTION



Oceans
Wildlife
Forests
Climate





Global Banks of ODS and HFCs

5 November 2025

2025-04 COPA Global Banks ODS HFC update.pdf

Prepared by **HEAT**

**GLOBAL BANKS OF OZONE
DEPLETING SUBSTANCES (ODS) AND
HYDROFLUOROCARBONS (HFCs)**

A COUNTRY-LEVEL ESTIMATE 2024

Climate and Ozone Protection Alliance (COPA)
April 2025

DATA SOURCES

Methodology

1. DATA REPORTED UNDER ARTICLE 7 OF THE MONTREAL PROTOCOL FROM ALL COUNTRIES

- **Refrigerant data:** import virgin, export virgin, production for all uses, destruction, feedstock use, process agent use, QPS use, Lab use, essential and critical uses, import recycled/recovered/reclaimed, export recycled/recovered/reclaimed.

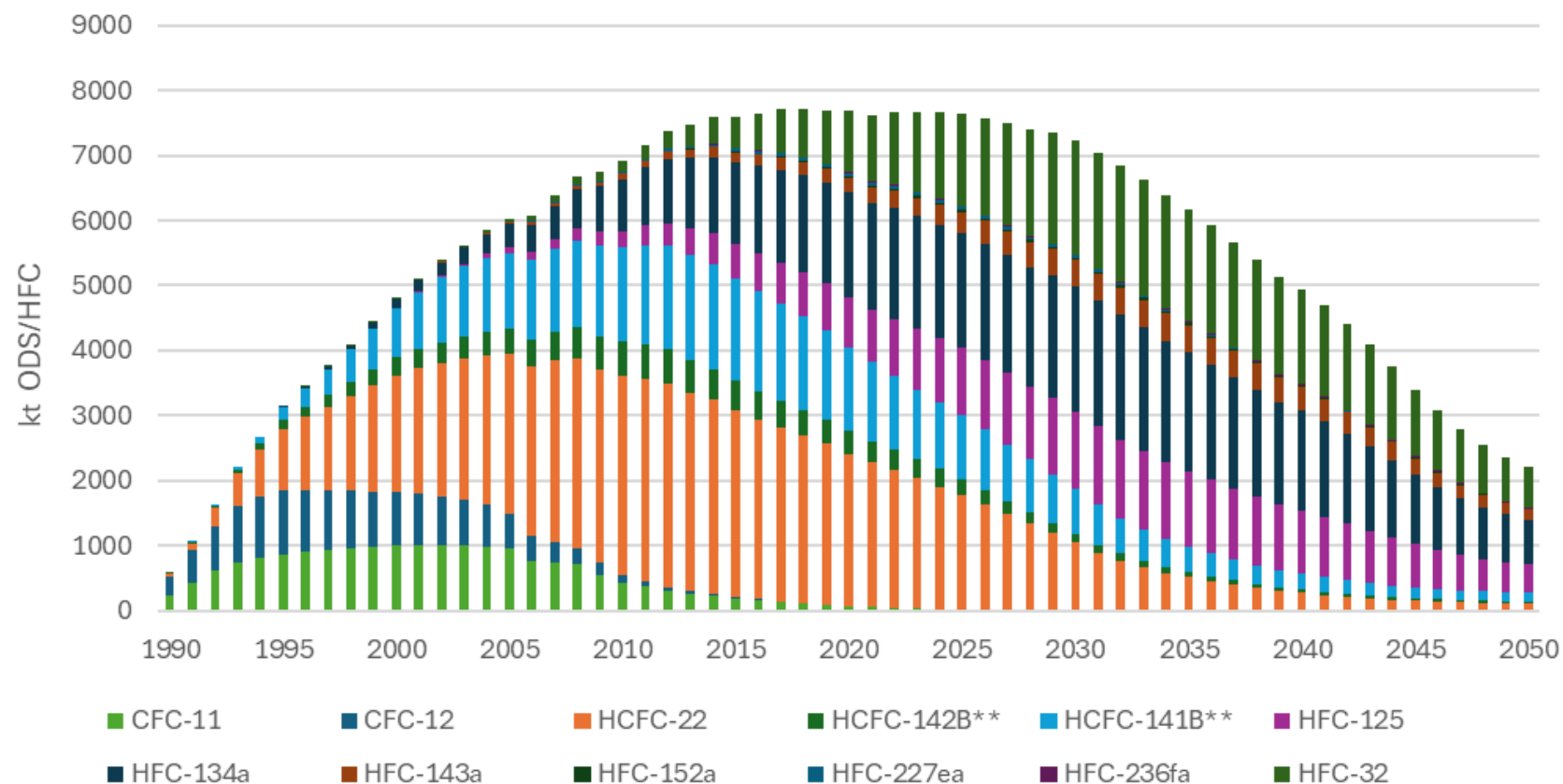
2. SECTORAL DISTRIBUTION OF THE ODS/HFCs

- With the aim of allocating the consumption to the different sectors for proper modelling
- Categories: manufacturing RAC, servicing RAC, foam and other uses.

3. UN COMTRADE DATABASE USED TO EXTRACT IMPORTS AND EXPORTS

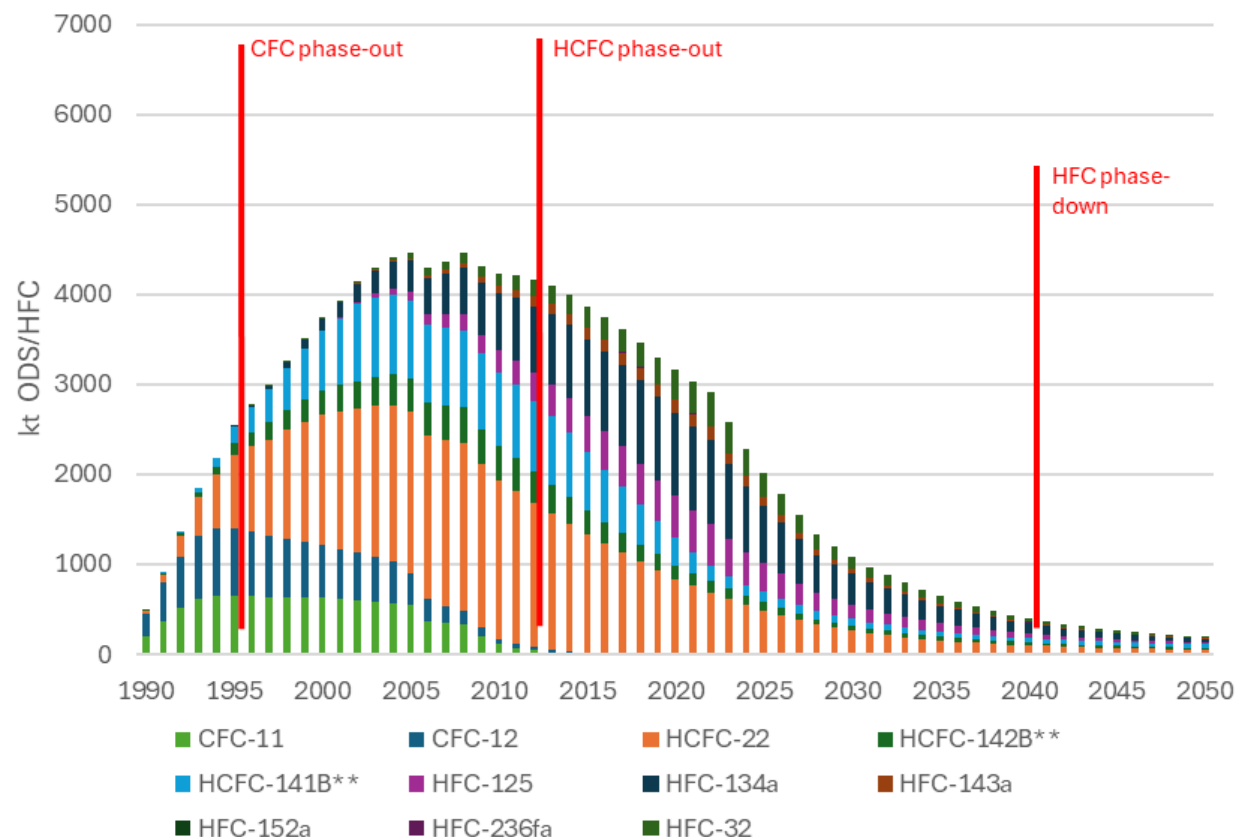
- Data for import/export of refrigerators and air conditioners
- Used to correct the consumption of large manufacturers (e.g., China) that export the refrigerant in pre-charged equipment (e.g., Split ACs)

RESULTS – BANKS (METRIC TONNES)

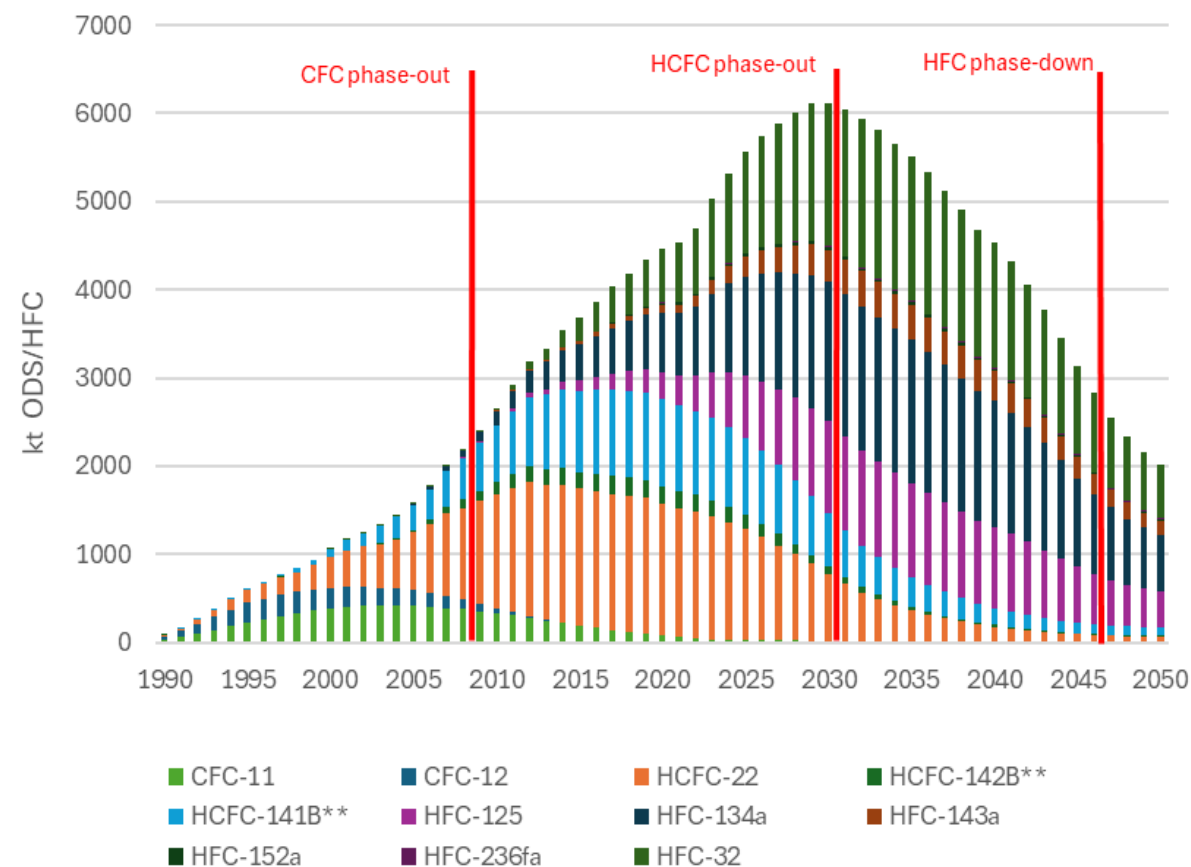


RESULTS – BANKS (METRIC TONNES)

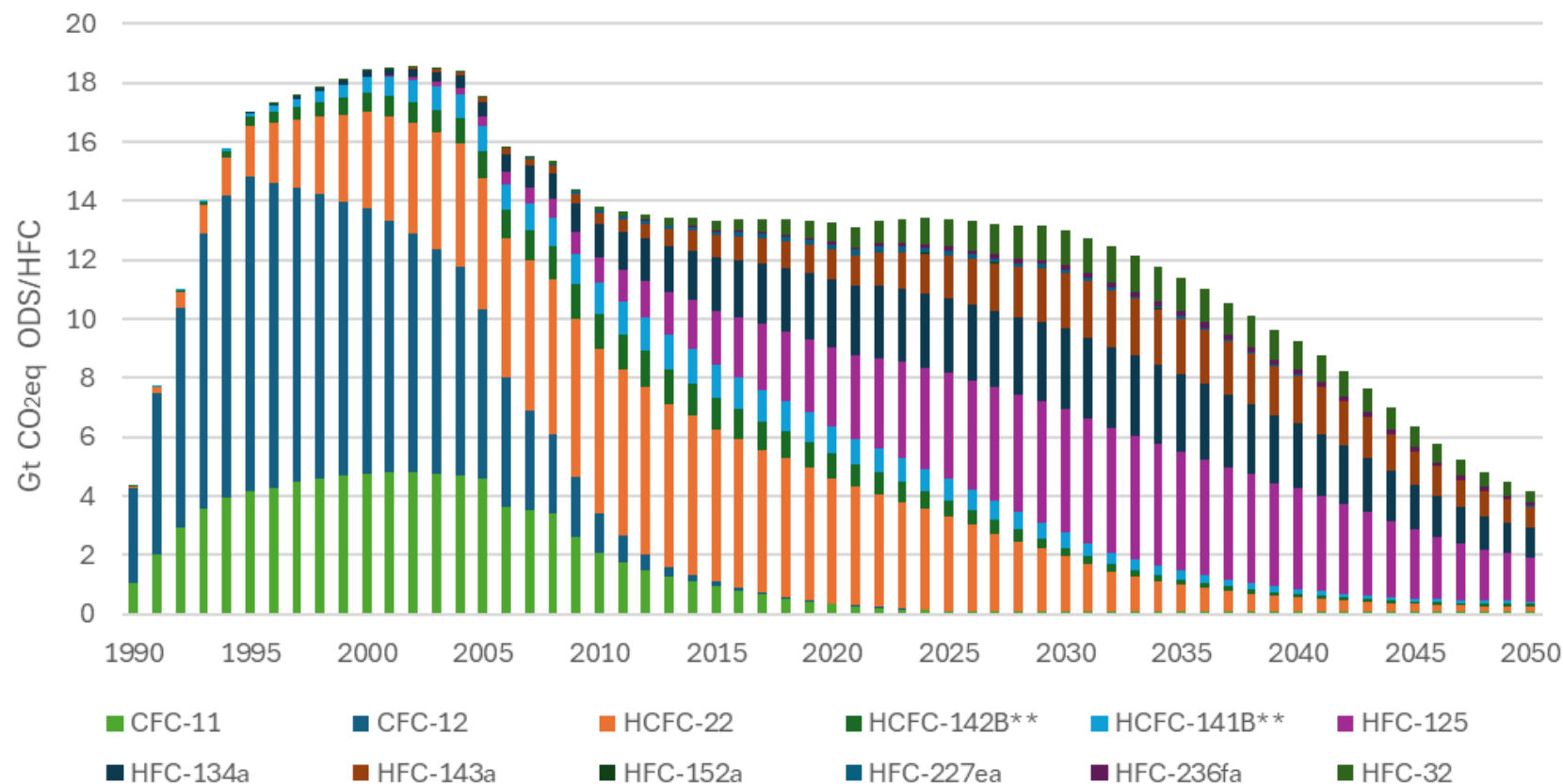
Non-Article 5 Countries



Article 5 Countries

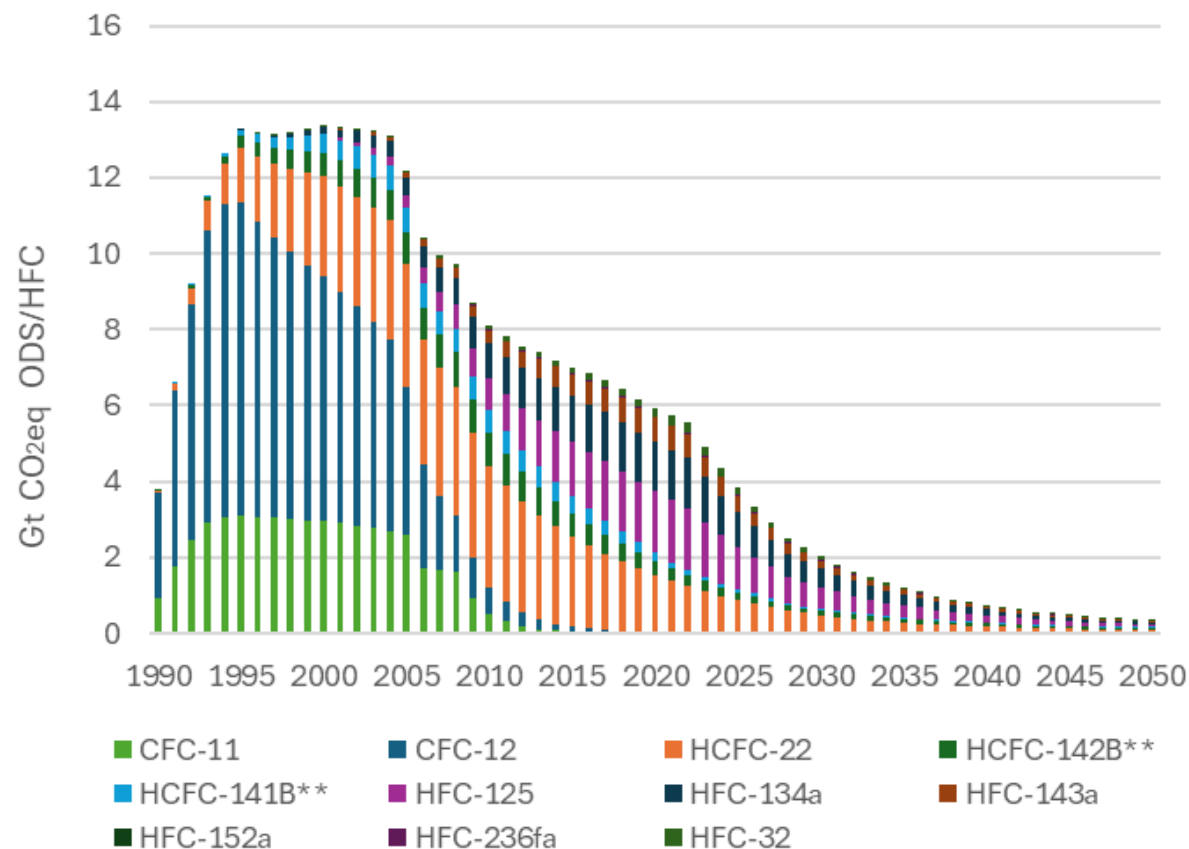


RESULTS – BANKS (CO₂eq)

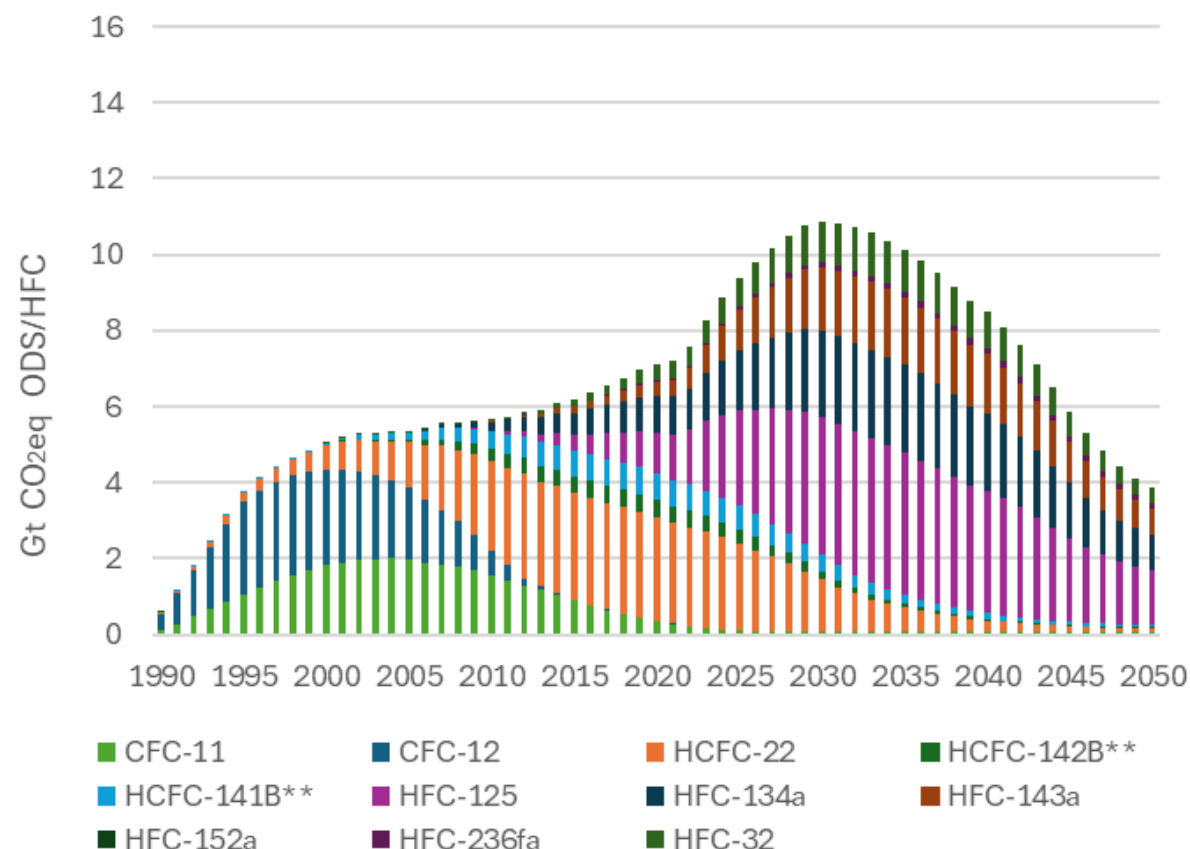


RESULTS – BANKS (CO₂eq)

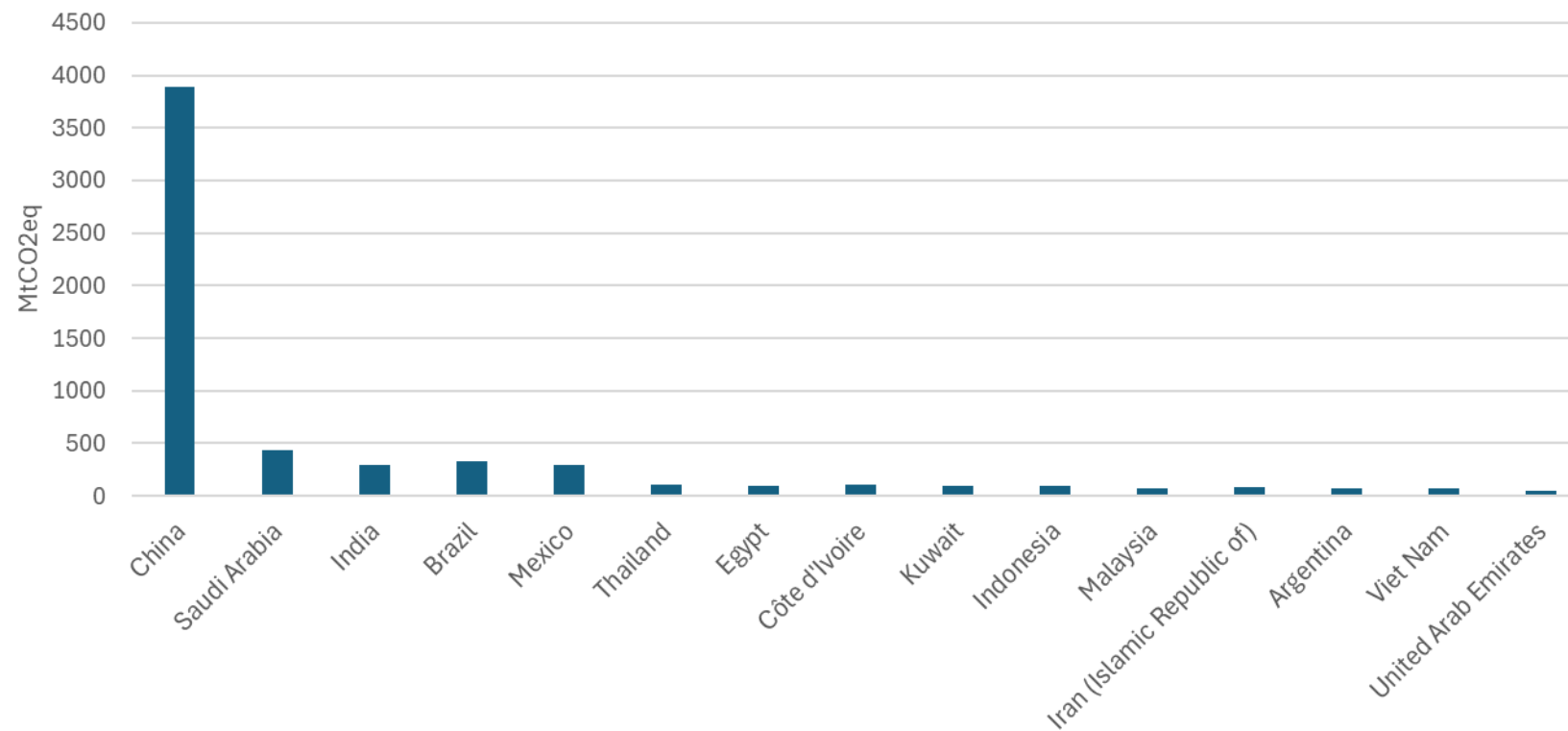
Non-Article 5 Countries



Article 5 Countries



RESULTS - LARGEST BANKS



CALL FOR ACTION

- ODS and HFC banks are as high as never before – with an all-time high of potential emissions
- Banks will decline – either due to emissions or as a result of lifecycle refrigerant policies along the policy hierarchy
- Concerted Action is required to recover, recycle and reclaim/destroy ODS and HFC
- A global registry of banks would aid policy making and financing
- Efforts to support Art. 5 countries to undertake inventories and develop action plans are ongoing
- More efforts are needed to include the supply chain – including producers and manufacturers into finding sustainable solutions

HFC Bank Management Hierarchy





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Financing Options for ODS and HFC Banks

Cecilia Mercado

Duncan Brack

Objective

- Share findings and data from the report currently under preparation on Evaluating Options for Sustainably Financed Action on ODS and HFC Banks
- Get feedback, identify information gaps, and refine the report

Why are we discussing this now?

- ODS and HFC banks = 13–24 Gt CO₂e
- Annual emissions \approx 1.5 Gt CO₂e (~3% of global GHGs)
- Current financing inadequate to support collection, recovery and destruction
- This year, MLF funding for inventories ends, need other funding options

Structure of the Report

1. Introduction
2. The climate and environmental threat of ODS and HFC banks
3. Key elements of Lifecycle Refrigerant Management
4. Financing options for addressing banks
5. Economic viability of bank management
6. Options for bank management and financing

TODAY'S FOCUS: Chapters 4-6

Chapter 4 Overview of Financing Pathways

- Multilateral and bilateral support
- National financing mechanisms
- Extended producer responsibility
- Carbon finance (compliance and voluntary markets)

4.1 Multilateral and Bilateral Sources

- Multilateral Fund: HPMPs/KIPs/inventories and plans for 100 countries approved; potential new funding window after 97th meeting
- Green Climate Fund: WB Green Cooling Facility
- Extended producer responsibility
- Carbon finance (compliance and voluntary markets)

4.2 National Financing Mechanisms

- Fiscal measures: loans, grants, subsidies, taxes, levies, import duties, emissions trading systems (ETS) revenues

Examples

- Denmark: HFC tax based according to the substance GWP contributed to reduction in import and use of HFCs
- Norway: excise taxes on production and import of HFCs ; recovered HFCs exempt; tax is reimbursed for HFC destruction
- New Zealand: ETS covers HFCs on new HFC by GWP, does not cover ODS, 11% refrigerant recovery rate from end-of-life equipment
- Possibly green banks?

4.3 Extended Producer Responsibility (EPR) models

- EU: WEEE Directive (Germany) – industry-financed collection
- Japan: Appliance and Vehicle Recycling Laws
- Canada: Refrigerant Management Canada – industry-funded destruction
- Australia: Refrigerant Reclaim Australia – levy + rebates to technicians
- New Zealand: Cool-Safe scheme – ETS-funded bounty system

4.3 Lessons from EPR implementation

- Success when combining regulation and industry-led funding
- Deposit-refund = direct recovery incentive
- Centralized funds ensure coverage
- Developing countries: need monitoring & auditing systems

4.4 Carbon Finance (1)

Fundamental problems with carbon markets:

- Over-crediting
- Additionality
- Leakage
- Double-counting

4.4 Carbon Finance (2)

Limitations particularly problematic in voluntary markets:

- Many offsets lack integrity and risk greenwashing or double-counting.
- Volatile carbon prices make projects unsustainable over time.
- Profits are not reinvested in host countries.
- Offsets can delay national regulation and create fragmented systems.
- Weak or no link to Paris Agreement targets reduces accountability.

5: Economic Viability of Bank Management

Cost and drivers:

- Global cost: US\$4.5–10 billion/yr (\approx US\$20–30/kg).
- Costs depend on scale, infrastructure, regulation, and technology.
- LRM abatement cost: US\$2.5–17/t CO₂-eq, among lowest globally.

Are these cost assumptions realistic for your country?

5 Viability and Financing Strategies

- Focus on aggregation, integration, and efficient technologies.
- Use phased implementation and levy systems for sustainability.
- Carbon finance may supplement but not replace stable funding.

From Costs to Solutions – Transition to Chapter 6

- How can sustainable financing be achieved?
- What regulatory models and governance systems are needed?
- How can countries cooperate regionally to reduce and optimize costs?

Core Themes of Chapter 6

- Sustainable financing
- Regulatory and governance frameworks
 - National coordination mechanisms
 - Regional and sectoral cooperation

6.1 Sustainable Financing Approaches

- Multi-layered grant and concessional financing
- International support for capital investments
- Simple levy systems
- GWP-based taxation
- Deposit-refund and bounty schemes
- Blended finance for private investment

6.1 Examples of Financing Models

- Levy systems – point-of-entry import levies using customs data
- Deposit-refund schemes – refunds upon verified disposal
- Bounty programmes – direct payments for recovery
- Regional destruction facilities – shared investment across countries

6.1 Ensuring Long-term Sustainability

- Use grants (e.g., MLF) for seed funding/start-up, transition to self-financing levy systems
- Case examples: Australia, Canada took a few years to achieve self-sufficiency
- Reduce long-term costs via regional infrastructure and standardization

6.2 Regulatory Frameworks

- Ban venting and mandate recovery and reporting
- Set quality standards for reclaimed refrigerants
- Integrate refrigerant waste in hazardous waste and EPR laws;
- Align data systems with import licensing and national databases

6.2 Governance and Capacity-Building

- Certification and training of technicians
- Transparent tracking and reporting systems
- Industry–government partnerships for stewardship backed by regulation
- National focal institutions for coordination
- Development of comprehensive national plans for LRM and banks

6.2 Regional and Cross-border Collaboration

- Shared destruction and reclamation hubs (e.g., cement kilns, reclamation facilities)
- Regional knowledge exchange and training
- Integration with energy efficiency and waste management programmes

6.2 Illustrative Phased Approach

- **Phase 1 (Years 1–3):** Commercial refrigeration in urban centres – supermarkets, hotels, restaurants. Large charges (10–100 kg), professional technicians, concentrated locations. Recovery: 20–80 tonnes annually. Funding: Multilateral Fund grants and bilateral assistance.
- **Phase 2 (Years 4–6):** Industrial cooling plus foam banks. Expand to 10–20 cities with levy revenues operational. Recovery: 100–300 tonnes annually. Funding: Multilateral Fund, Green Climate Fund and levy revenue.
- **Phase 3 (Years 7–10):** Residential appliances and mobile air-conditioning integrated with e-waste systems. National coverage with self-sustaining financing. Recovery: 300–600 tonnes annually. Funding: Levies + Green Climate Fund + reduced Multilateral Fund dependence.

Feedback

WE WOULD LIKE YOUR VIEWS ON THE FOLLOWING:

1. Most feasible financing mechanisms for your context
2. Practicality of regional facilities and levy systems
3. Role of industry stewardship
4. Data or cost gaps that should be improved
5. Any other information you want to see in the report?

Draft report open for comment

Comments very welcome, to:

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Duncan Brack

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By Wednesday 19 November



Thank you!

We will be happy to chat with
you on the margins of the
MOP.



Nairobi, Kenya
3-7 November 2025

Frieda Elizabeth Goagoses

NAMIBIA



Namibia's view on ODS and HFC bank Management

- **Climate:** Hot and arid, high dependence on refrigeration and air conditioning (RAC).
- Namibia's view on ODS and HFC bank management is **holistic and forward-looking**.
- The country recognizes the environmental risks of unmanaged refrigerant banks and prioritizes sustainable management as part of its **Vision 2030** and **climate-resilient development agenda**.



Namibia's Commitment on ODS & HFC Bank Management

- ODS and HFC management is **a national priority** aligned with Vision 2030 and climate commitments
- Namibia supports the **global phase-out and phase-down** approach under the Montreal Protocol and Kigali Amendment
- Emphasizes **environmentally sound disposal and recovery systems**
- Advocates for **international financial and technical support** for developing countries



Methodology and approach for the Inventory

Both quantitative and qualitative approach was integrated to provide a comprehensive understanding of the situation

Methodology Used:

- Equipment approach (data on RAC population 2008–2023)

Key Steps:

- Literature review and secondary data collection
- Field inspections and stakeholder interviews
- Development of geospatial database of ODS/HFC stocks



Key findings

- ODS phased out by 2010
- HCFC elimination targeted for 2024
- HFCs are the main issue now (R-134a dominant)
- Largest banks: commercial and mobile air conditioning systems
- Estimated 39,152 kg HFC bank (2025)



Challenges in the data collection process for inventory

- Slow response from stakeholders
- Questionnaires not completely answered
- Lack of awareness on HCFC/HFC and the harm they can cause
- Lack of collection points for old HVAC units
- No national disposal/recovery infrastructure
- Weak enforcement of end-of-life RAC policies
- Insufficient funding for safe disposal
- Public and municipal awareness gaps



How they will be addressed?

- Addressing these regulatory gaps will be essential for creating an enabling environment for the successful implementation of the integrated approach
- Establish a Coordinating Task Force, Include representatives from key ministries, regulators, and industry groups.
- Clear Communication Plan with Set Realistic and Firm Deadlines
- Develop a shared online system for uploading and tracking data



Final word

Addressing gaps in data collection, regulatory frameworks, collection systems, capacity building, and technology will be critical for effective management of ODS/HFC banks in Namibia

Collaboration among stakeholders such as NOU, MEFT, MIRT, Customs, municipalities, RAC businesses, training institutions, and scrapyard dealers will ensure sustainable solutions that align with Namibia's environmental goals under the National Cooling Strategy



Thank you

Frieda Elizabeth Goagoses
NAMIBIA



Refrigerant Reclaim Australia's Approach to Lifecycle Refrigerant Management

Nairobi, November 2025



About RRA

- RRA is a not-for-profit organization
- Created over 30 years ago
- Started as a voluntary program
- Supported by manufacturers/importers of ODS
- **Industry funded, Industry run & Industry led**
- Australia's solution to the safe disposal of used and unwanted refrigerants

Details of the RRA Program

Administratively
efficient

- Funded by a levy charged on every kilo of ODS or SGG refrigerant upon import into Australia
- RRA helps industry share the cost of recovering refrigerants through a rebate system
- RRA operate with 3 people
- RRA uses industries wholesale and agent network to collect unwanted ODS/SGG from >500 locations (reverse supply chain)
- The wholesaler or agent issues a rebate by way of credit to the technician for returned ODS/SGG
- The Wholesalers/Collection agents have the opportunity to retain recovered product for reclamation
- RRA pays the wholesaler a handling fee + reimburses the rebate given to technician by the wholesaler when product is returned for destruction

Supported by Robust Regulatory Landscape

Import

Refrigerant or Equipment

Must have licence

Must be member of a product stewardship scheme

Report Refrigerant kg & Species

Buy/Sell Refrigerant

Must have permit

Standards to minimise emissions

Record keeping and reporting

Obligation to collect recovered Refrigerant

Ban on discharge

Compels recovery of refrigerants

Sets expectation of avoiding emissions

Handle Refrigerant

Must have permit

Training

Qualifications

Follow standards and codes of practice

Return refrigerant

Destruction Facilities

Must be approved

Montreal Protocol approved processes

Destruction & removal efficiency

Records of refrigerants destroyed

Ban on Non-Refillable Cylinders – Since 1994

Helps prevent refrigerant emissions

Encourages recovery

Avoids waste of containers

Reduces illegal trade risks

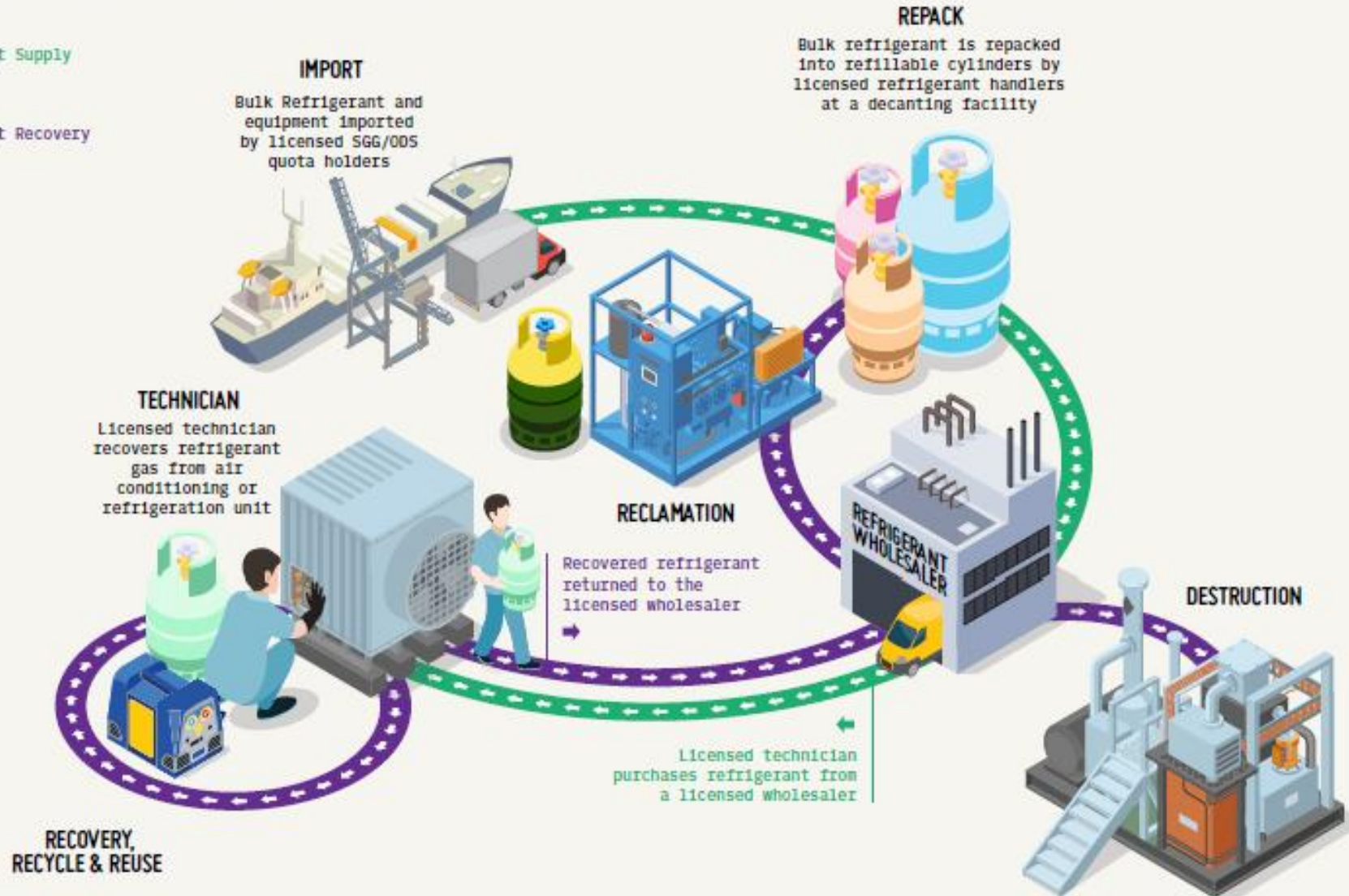
REFRIGERANT SUPPLY AND RECOVERY CHAIN

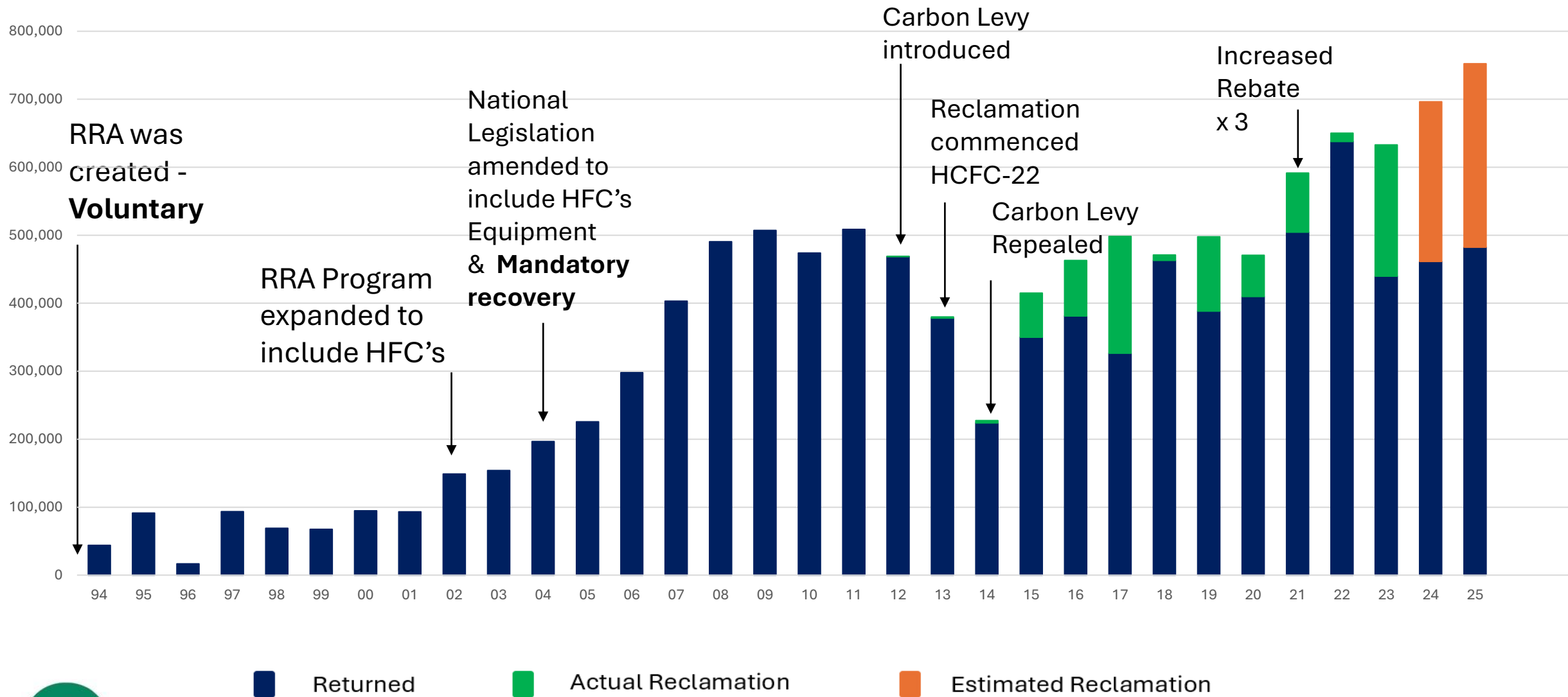


Refrigerant Supply



Refrigerant Recovery





REFRIGERANT
RECLAIM
AUSTRALIA

Impact of Regulatory Levers

Why Does the Model Work in Australia

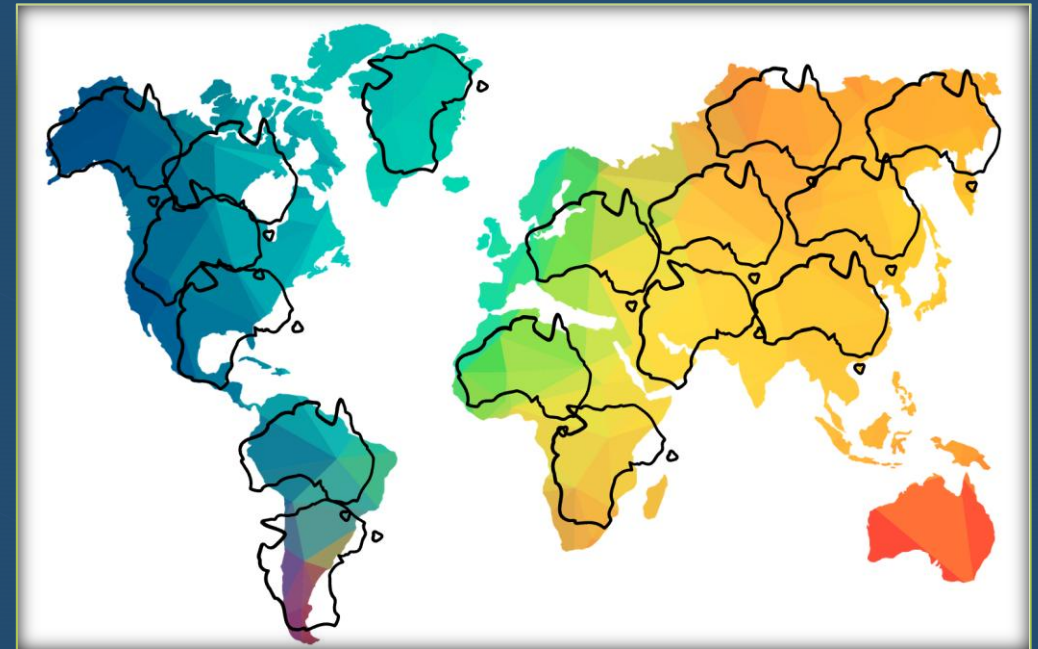
Co-regulatory approach

Australia is a big island – no producers

Disposable cylinders banned 30 years ago - gave rise to reverse supply chain

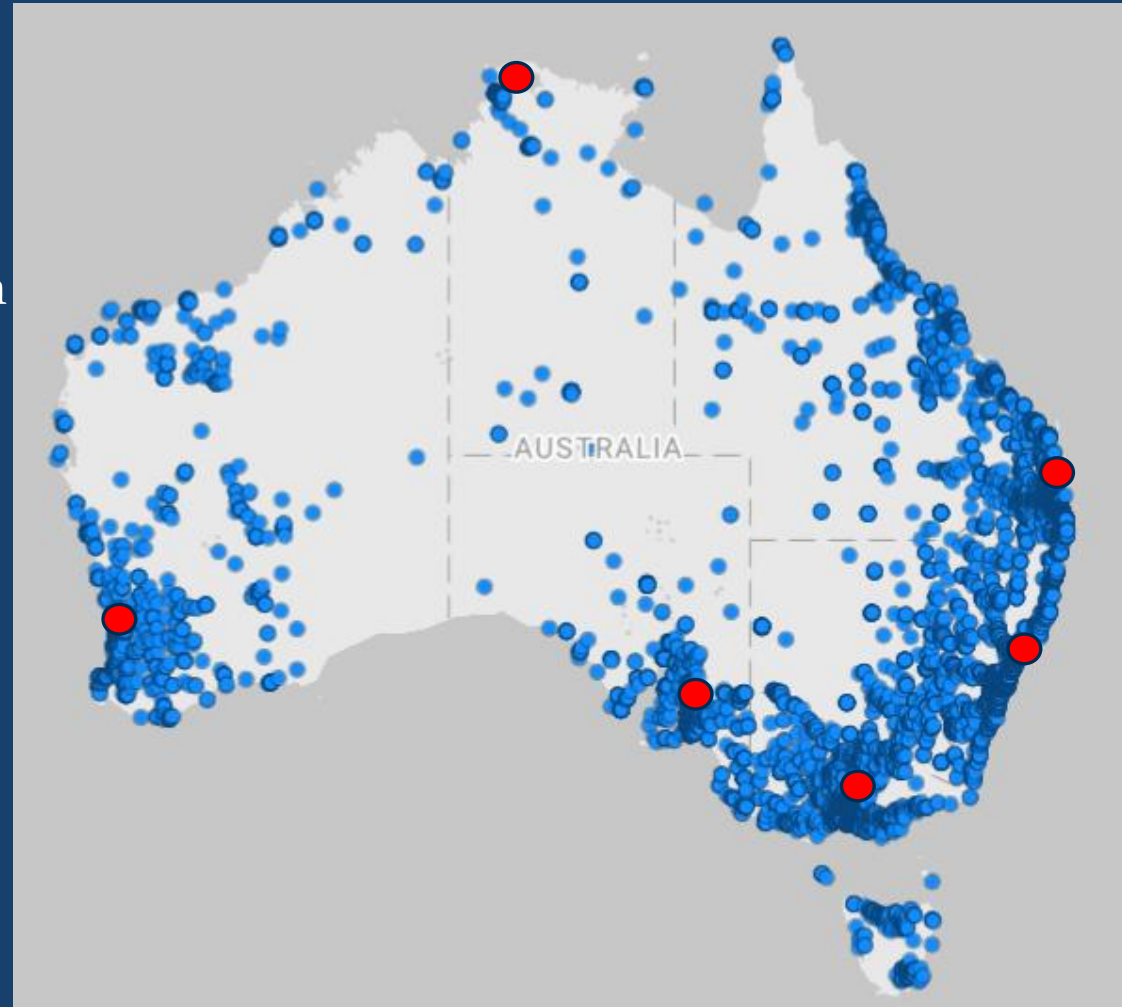
Anyone wanting to profit from sale/use of refrigerant has a responsibility in the recovery of used refrigerant

Financials only stack up because of history



Lessons Learned

- Focus was heavily on destruction
- PSS requirements for end-of-life equipment may have improved recovery rates
- Relied too heavily on the reverse supply chain only
- Encouraged recovery of all species in one cylinder – making reclamation more challenging
- Better Focus on Maintenance
- Legislation doesn't include all refrigerants
 - Safety
 - Energy Efficiency
 - Competency





Take Away Messages

- The Australian model works in Australia may be difficult to replicate
- Take what works and adapt it to your country/region
- Look if and how industry can support Government vice versa
- Clear policy position gives industry certainty
- LRM is a huge undertaking, take small steps
- Start now



RECOVERED REFRIGERANT

EVERY KG COUNTS EVERY KG COUNTS

Draft report
available for
comment

Deadline:
19/11/25



**Thank you
for attending**