

WORKSHOP
2 JULY 2023
BANGKOK

NEW CHALLENGES RELATING TO HFC PHASE-DOWN AND REPORTING

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New Challenges for Implementation

Simultaneous HCFC phase-out and HFC phase-down controls

- ❖ A5 Parties reduce HCFC prodn/cons to close to zero (97.5%) within the next 7 years concurrent with freeze (2024) and 10% cut (2029) in Grp 1 A5 Parties;

A growing, complex, global refrigerant market

- ❖ USD 6.2 billion in 2022 reaching USD 8.4 billion by 2027
- ❖ Large number of HFC blends (21 new blends since 2018 RTOC assessment, ~ 150 in 2022 Assessment)
 - Wide range of CO₂ equivalence
 - GWPs of Annex F listed gases range from 53 (HFC-41) to 14,800 (HFC-23)
 - GWPs of HFC blends range from 16 (R-429A) to 4,808 (R-404A)

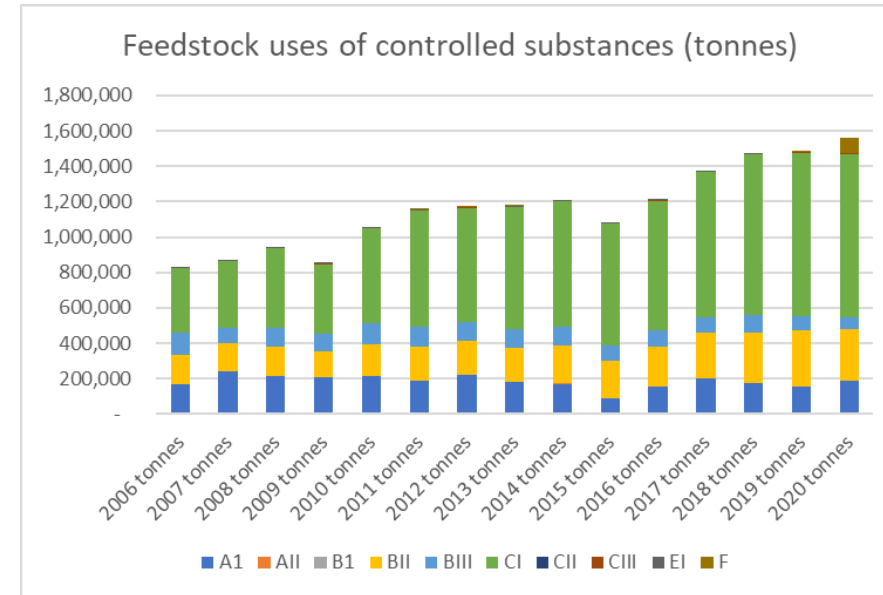
Phase-down and not out.

- ❖ Adoption of lower-GWP HFC blends perpetuates use of high-GWP HFCs
- ❖ New blend R473A (GWP 1853) contains HFC-23

Four distinct control schedules rather than two & new exemptions.

New Enforcement Challenges

- Lack of HS codes for most blends
- Wide disparity in GWPs creates highly valuable refrigerants for smuggling – (R404A = 36% of 2020 EU seizures)
- Large-scale legal production of HCFC-22 for feedstock to manufacture other fluorochemicals including HFO replacement chemicals for HFCs.
- Risk of reverting to HCFCs as HFC phase-down cuts in and HFC prices rise.



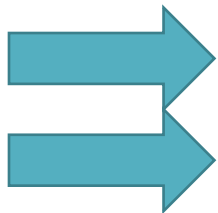
Source: UNEP/OzL.Pro.34/6 UNEP/OzL.Pro/ImpCom/69/2

“In 2019, a greater mass of HCFC-22 was produced in a single year than any other fluorocarbon in history, with a global production close to 1000 Gg”

(Scientific Assessment of Ozone Depletion 2022)

Understanding Sources of Unexpected Emissions

- **Pinpointing the source of 'unexpected emissions' through atmospheric monitoring could be significantly more complex:**
- **Example: HFC-32**
 - Traded in bulk and in pre-charged equipment
 - Used a pure refrigerant and a component of 60 HFC blends
 - Used in a range of refrigeration and air-conditioning applications with a large range of emission factors (incl split AC, chillers, commercial refrigeration, transport refrigeration);
 - Feedstock uses reported in 2021
 - HFC-32 emissions feature in TEAP list of chemical pathways in which substantial emissions are likely



Enhanced global atmospheric monitoring is critical.

Must be combined with strengthened monitoring, reporting, verification and enforcement (MRV+E) on the ground to enable detection of illegal production, use and trade.