



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Montreal
Protocol Unit



Workshop on Kigali Implementation Plans

Opening Session

14 June 2023 Vienna, Austria

KIGALI in
Acti
ON





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Opening Session



Gerd Müller
Director General
UNIDO



Ciyong Zou
Deputy to the Director
General, UNIDO



Ole Nielsen
Chief, Montreal Protocol Unit,
UNIDO

Moderator



Gerald Mutisya
Programme Officer, Ozone Secretariat



Alejandro Ramirez-Pabon
Senior Programme Management Officer
Multilateral Fund Secretariat



Elena Miceva
Montreal Protocol Unit,
UNIDO



Opening Session

Welcome address



Ciyong Zou

Deputy Director General and
Managing Director of the
Directorate for Technical
Cooperation and
Sustainable Industrial
Development, UNIDO

At UNIDO since 2013, Zou is the architect of UNIDO's Programme for Country Partnership, and has guided the Organization's field and strategic engagements. Before joining UNIDO, he performed multiple roles, including as Deputy Director General of International Department at the Chinese Ministry of Finance, Alternate to the Chinese Executive Director at the World Bank, and Global Environmental Facility Operational Focal Point for China.

Zou holds a Ph.D. in Economics from China's Ministry of Finance Graduate School, Research Institute for Fiscal Science.



Opening Session

Video address



Gerd Müller
Director General
UNIDO

Gerd Müller, Director General of the United Nations Industrial Development Organization (UNIDO) as of 10 December 2021, has had various leadership positions from an early stage in his career.

Between 1980 and 1989, he was a teacher at vocational schools and a civil servant at the Bavarian Ministry of Economic Affairs. From 1989 to 1994, he served as a Member of the European Parliament, during which time he was a member of the ACP-EU Joint Parliamentary Assembly.

Between 1994 and 2021, he served as a Member of the Parliament of the Federal Republic of Germany, and as a member of the Parliament's Committee on Foreign Affairs and Committee on Economic Cooperation and Development.

In 2005, he was appointed Deputy Minister at the Federal Ministry of Food, Agriculture and Consumer Protection, in charge of international relations, development projects and world food affairs.

In 2013, he was appointed Federal Minister for Economic Cooperation and Development, a position he held until 2021.

Gerd Müller has many years of experience in the fields of multilateral cooperation, sustainability and innovative agriculture. Key focus areas of his work are the 2030 Agenda for Sustainable Development, the Paris Agreement on climate change, the Convention on Biological Diversity, and the Beijing Declaration on Gender Equality. Furthermore, he is a strong advocate of fair trade, and initiated legislation in Germany and the European Union on social and environmental standards along supply chains.



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Setting up the scene



Gerald Mutisya
Programme Officer
Ozone Secretariat



Alejandro Ramirez-Pabon
Senior Programme Management
Officer Multilateral Fund
Secretariat



Ole Nielsen
UNIDO Montreal Protocol Unit
Chief

Moderator



Elena Miceva
UNIDO Montreal Protocol
Unit



Opening Session

Some New Challenges with HFCs



Gerald Mutisya
Programme Officer
Ozone Secretariat

Gerald Mutisya is an Information Technology (IT) professional with a background in engineering. A Kenyan national, he has worked with the Ozone Secretariat since 1998, initially joining under the Junior Professional Officer programme of the United Nations.

He primarily manages the information and data on ozone depleting substances reported by the Parties under Article 7 of the Montreal Protocol. He is also responsible for technical and administrative aspects of the Secretariat's web site. Prior to joining the Secretariat, Mr. Mutisya worked with Africa Online, an Internet Service Provider, and prior to that, with the IT department of UNEP.

Mr. Mutisya holds a Masters degree in Information Technology from Charles Sturt University in Australia, a Graduate Diploma in Computer Science from the Australian National University, and a Bachelor of Science degree in Electrical Engineering from the University of Nairobi in Kenya.



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Some New Challenges with HFCs

Vienna, Austria, 14 - 16 June 2023

Gerald Mutisya, Ozone Secretariat

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Kigali Amendment - New Obligations

- Arts. 2 & 5: Control measures - Phase-down of HFCs
- Art. 2J, paras. 6 & 7: HFC-23 Emissions destruction
- Art. 4B, para. 2 bis: Establish HFC licensing system within 3 months
 - *Art. 4B para. 3: Report system establishment within 3 months*
- Art. 7, para. 2: Baseline reporting for HFCs
- Art. 7, para. 3: Reporting annually on HFCs
- Art. 7, para. 3 ter: HFC-23 Emissions reporting



Kigali Amendment – Other details

- Art. 5, para. 8 qua(g) makes provision for high ambient temperature (HAT) exemption
- HAT exemption further elaborated in dec. XXVIII/2 paras. 26-30
 - *HAT reporting to start in 2024 for Group 1 parties & in 2028 for Group 2 parties dec. XXVIII/2 paras. 28 & 30*
- New data reporting forms approved in dec. XXX/10
- Blends: Reporting allowed, for both HFCs and other substances



Albania	Egypt	Mauritania	Senegal
Algeria	Eritrea	Mexico	Serbia
Argentina	Ethiopia	Montenegro	Sierra Leone
Benin	Gabon	Morocco	Somalia
Bolivia	Gambia	Namibia	South Africa
Bosnia & Herzegovina	Guatemala	Nicaragua	Sudan
Botswana	Guinea	Niger	Syrian Arab Republic
Brazil	Guinea Bissau	Nigeria	Togo
Cameroon	Honduras	North Macedonia	Türkiye
Chad	Iran	Oman	Turkmenistan
China	Jordan	Pakistan	Uganda
Congo	Lesotho	Philippines	Tanzania
Côte d'Ivoire	Libya	Rwanda	Venezuela
Ecuador	Malawi	Saint Lucia	Zambia



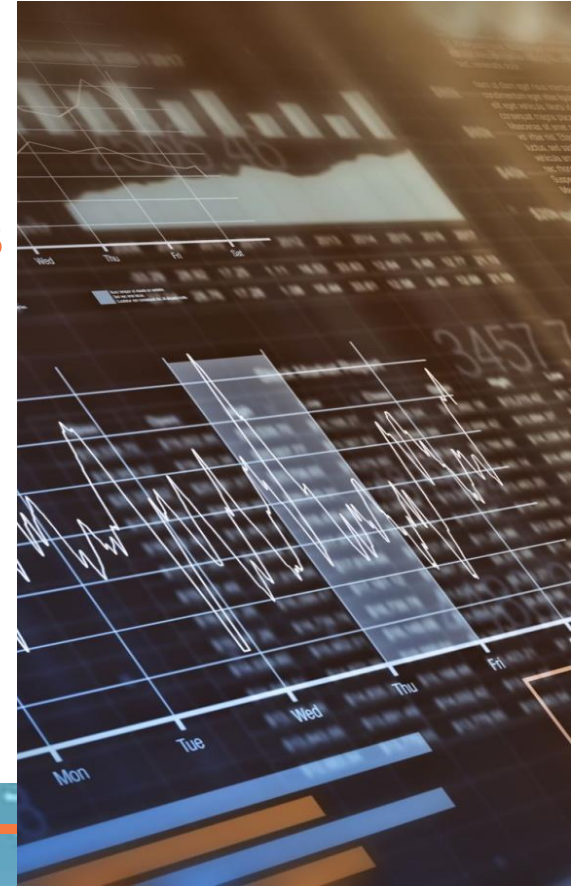
Article 5 parties that are part of this workshop: 56 *parties*

- **Group 1 parties = 53 parties / Group 2 parties = 3 parties**
- **47 of these parties have ratified Kigali Amendment (KA)**
- **37 of these have reported HFC baseline data (2020, 2021 & 2022)**
 - *34 of the 37 have ratified Kigali Amendment / 3 not KA parties*
 - *Reporting timeline: 6 months after ratification (90 days + 3 months)*
 - *Accuracy important: Revision onerous after 31 Dec 2023 (dec. XV/15)*
- **22 of the parties here are included under the HAT exemption**
 - *Only 8 parties activated the HAT exemption by notifying the OzSec*
 - *Benin, Chad, Egypt, Eritrea, Gambia, Guinea Bissau, Nigeria, Senegal*



Why would there be any challenges?

- Kigali Amendment simply added 18 HFCs to almost 100 other controlled substances, ODSs
- Substances are used in the same industries / sectors / applications
- Same or similar data collection mechanisms may be used
- Similar institutional frameworks may be used for managing the newly introduced HFC





Challenge of many HFC Blends compared to HCFCs

- **HCFC reporting (by 56 parties in this workshop)**
 - *On average 2 different HCFCs reported annually by parties*
 - *Over the last 5 years: 31 parties reported only 1 HCFC - HCFC-22*
 - *Over the last 10 years: 22 parties reported only HCFC-22*
 - *Maximum of 6 to 10 different HCFCs reported annually*
- **HFC reporting (by 56 parties in this workshop)**
 - *On average **10** different HFCs/blends reported annually by each party*
 - *Fewest reported: 3 different HFCs/blends reported by ONE party*
 - *Maximum of about **70** different HFCs/blends reported annually*



Challenge of Blends: too many blends / not enough codes

- New blends emerging regularly
- Many more “substances” to deal with, whether in the pure form or in the form of blends
- For similar range of uses/applications, more/different substances may be used





Challenge of Harmonised System (HS) codes

- CFCs used to have individual HS codes
- HCFCs – many countries use only HCFC-22, or a few HCFCs
- HFCs: Inability / Impracticability to have separate HS codes for each HFC and HFC blends
- Extended nomenclature by adding national digits to separate HCFCs, HFCs, blends – codes are different across countries
- Trade names are different across different countries, companies or industries



Challenge of HS codes:

- Collection of data through customs / border controls / points of entry will be more difficult than before
- More substances/blends increases complexity of the data collection process and the chances of errors





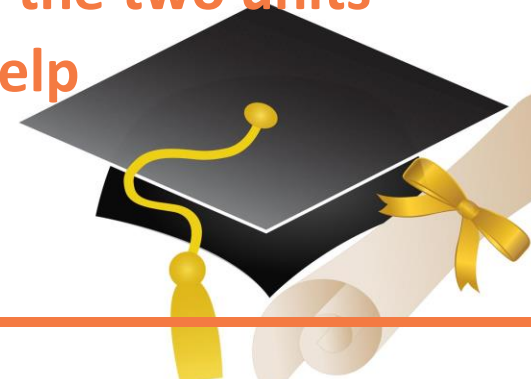
Challenge in Quota Allocation and Management issues

- Quota allocations are used as part of a country's phase-down or phase-out process while staying in compliance (compliance strategy)
- Control measures/reduction schedule limits are in CO₂-equivalent tonnes for HFCs (and ODP-tonnes for HCFCs)
- For countries that use only 1 substance (e.g., HCFC-22), quota allocations could be done in either metric tons or ODP-tonnes, and conversion between the two units is easy
- With more substances & blends being traded in annex F, it is difficult to use MT for quota allocations and management



Challenge of Quotas:

- Trade takes place in metric tons (MT)
 - *Quiz: HCFC Control measure limit for a country = 0.05 ODP-tonnes. What is the max KG of HCFC-22 it can import and stay in compliance?*
- Quota allocations in CO₂-equivalent tonnes
- Both national officers and quota holders will need to be more familiar with the conversion process between the two units
- Ozone Secretariat Mixtures/blends tool can help
 - <https://ozone.unep.org/mixtures-blends-tool>
 - → Country Data → Mixtures → Blends Tool





Challenge with Energy Efficiency (EE) considerations

- **Decision XXVIII/2 paragraph 22 introduced the idea of maintaining and/or enhancing EE when phasing down HFCs**
- **EE aspirations are new in Montreal Protocol phase-out activities**
- *New expertise will need to be developed – in our institutions – both protocol institutions and national ozone offices (NOO)*
- **EE activities in countries span other institutions apart from NOOs**
- *Coordination/Liaison with other institutions as part of regular activities will be required*
- **Funding window for EE now available under the Multilateral Fund**



Challenge of High Ambient Temperature exemption:

- **New type / area of exemption**
- **New: Exemption before phase-out dates or exemption during the phase-down period**
- **Uncertainty in data collection and reporting modalities**
- **New: Sectoral data under Article 7 reporting**





Challenge of HFC Phase-down as opposed to Phase-out

- **Control measures for other substances call for total phase-out**
 - *All sectors are to be fully phased-out*
- **HFCs targeted for phase-down → 15%-20% residual consumption**
 - *HFCs in some sectors will probably not be fully phased-out*
 - *Each party chooses which sectors will account for the 15-20%*
 - *The choice may be based on availability of alternatives, CO₂ emissions, essentiality, etc.*
- **Avoiding diversion - ensuring that allowed sectors are the only ones that can use the controlled substances, HFCs**



Other challenges

- **Impact of COVID-19 during the HFC baseline years**
 - *Possibility of reduced consumption levels during baseline years*
 - *Leading to reduced baselines, which determine consumption limits*
 - *Which could disadvantage countries throughout the phase-down years vis-à-vis expectations during the negotiation phase*
 - *The issue, together with the proposed adjustment, to be discussed at the upcoming open-ended working group meeting in July 2023.*
- **Availability/accessibility of technically & economically feasible alternatives**
- **Safety of some low- zero-GWP alternatives (e.g. hydrocarbons, ammonia)**
- **Capacity building and training**



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Thank you...



Opening Session

Introduction and scene setting for KIPs



Alejandro Ramirez-Pabon
Senior Programme
Management Officer
Multilateral Fund
Secretariat

Alejandro Ramirez-Pabon is a Senior Programme Management Officer in the Multilateral Fund Secretariat responsible for the review of project proposals submitted for funding and the development of operational policies related to the funding of activities for Article 5 countries, including the cost guidelines for HFC phase-down, among others.

Mr. Ramirez-Pabon is an Industrial Engineer with an MBA from IESE Business School in Barcelona and over 25 years of experience implementing the Montreal Protocol, both at the national level in the national ozone unit (NOU) of Colombia, and internationally with the UNEP OzonAction programme, UNDP Montreal Protocol Unit, and the Multilateral Fund Secretariat.

His experience includes first-hand exposure to the day-to-day challenges faced by an Article 5 government and industry when implementing the Montreal Protocol, provision of assistance to Article 5 countries to establish several new NOUs as well as to formulate and implement a wide variety of investment, technical assistance and multi-year ODS phase-out projects while working at UNEP and UNDP; and for the last 12 years at the Fund Secretariat, contributing to the provision of assistance to Article 5 countries and development of operational policies by preparing more than 150 project evaluations, policy papers and reports that served as the basis for Executive Committee decisions.



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INTRODUCTION AND SCENE SETTING FOR KIPS

Multilateral Fund Secretariat

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Where are the Article 5 countries today?

Countries that ratified the Kigali Amendment: 106

Countries that reported HFC consumption in their CP data for 2020, 2021 or 2022: 113

Countries preparing KIPs/HFC investment projects: 97

KIPs in Business Plan 2023: 34 (20 LVC and 14 non-LVC)

KIPs submitted: 3 (One approved, one partially approved)

HFC investment projects approved: 2

Countries with HFC consumption only in the refrigeration servicing sector: 65 out of those that reported CP data



CRITERIA FOR FUNDING HFC PHASE-DOWN

Subjects already agreed

- Principle of flexibility in implementation
- Cut-off dates for eligible capacity
- Second and third conversions
- Eligibility of Annex F substances subject to HAT exemptions
- Categories of eligible incremental costs for production, manufacturing and servicing
- Production sector funding to be considered on a case-by-case basis
- **Level of funding for the refrigeration servicing sector**





CRITERIA FOR FUNDING HFC PHASE-DOWN

Subjects under discussion

- Cost-effectiveness thresholds for the manufacturing sectors
- Incremental operational cost for the manufacturing sectors
- Starting point for sustained reductions in HFC consumption
- Energy efficiency (being discussed separately)
- Disposal (operationalizing paragraph 24 of decision XXVIII/2)





Refrigeration servicing sector

Article 5 countries must include in their KIPs at minimum

- Commitment to meeting, without further requests for funding, at least the 10 per cent reduction target in HFC consumption in line with the Montreal Protocol, and to restricting imports of HFC-based equipment, if feasible, and if necessary to achieve the compliance schedule and support relevant phase-down activities
- By the time of KIP funding tranches requests: reporting on the implementation of activities undertaken in the refrigeration servicing sector and in the manufacturing sector, when applicable, in the previous tranche, and a comprehensive work plan for the implementation of the activities associated with the next tranche
- A description of the roles and responsibilities of major stakeholders and the lead implementing agency and the cooperating agencies, where applicable
- A description of how activities in the servicing sector under KIPs and HPMPs would be coordinated in their implementation





Refrigeration servicing sector

Low-volume consuming (LVC) countries

Average HFC consumption in servicing in baseline years (metric tonnes)	Funding for meeting the 10 per cent Montreal Protocol HFC reduction target (US\$)*
>0 <15	135,000
15 <40	145,000
40 <80	158,000
80 <120	170,000
120 <160	180,000
160 <200	190,000
200 <300	325,000
300 <360	360,000

*Plus 20 per cent funding for countries committing to reduce consumption by 10 per cent of the average HFC consumption in the baseline years





Refrigeration servicing sector

Non-LVC countries

- Article 5 countries with average HFC consumption above 360 mt and below 25,000 mt in the servicing sector in the baseline years: up to **US \$5.10/kg**, to be deducted from their starting point for aggregate reductions in HFC consumption
- Article 5 countries referred above could receive funding up to the level determined for LVC countries with HFC consumption in servicing in the baseline years between 300 and 360 mt
- Funding for Article 5 countries with an average HFC consumption in servicing in baseline years above 25,000 mt would be considered on a **case-by-case basis**

These principles will be included in the draft cost guidelines for the phase-down of HFCs and will be revisited in 2028 for the funding of future stages of the KIPs





Consumption manufacturing sector

Already agreed

Manufacturing sector	Agreed CE (US \$/kg)
Domestic refrigeration (refrigerant and PU foam component)	13.76
Rigid PU foam (including PU foam panel in commercial refrigeration)	**9.00
Flexible PU foam	Case-by-case basis
Integral skin	
XPS foam	
Mobile air-conditioning (MAC)	
Refrigeration and AC transportation and industrial	
Aerosol	
Metered dose inhaler	
Fire extinguishing	
Solvent	

** For SMEs in the foam sector [with consumption of less than TBD/20 mt], the maximum would be up to [40/25] per cent above the cost effectiveness threshold.





Consumption manufacturing sector

Still under discussion

Manufacturing sector	Agreed CE (US \$/kg)
Commercial refrigeration (refrigerant and PU foam panel components)	[15.21 plus 25% for SMEs]/ [[18**] [*] plus special consideration for small enterprises [<20 mt]]
Stationary AC – Domestic	[11][12**]/[13**][*]
Stationary AC – Commercial	[13**]/[case-by-case][15.21-18**] [*]

[* Funding of up to a maximum of 25 per cent above the cost-effectiveness threshold will be provided for projects when needed for the introduction of low-GWP [non-HFC/non controlled substances] alternatives]

** For SMEs ~~in the foam sector~~ [with consumption of less than TBD/20 mt], the maximum would be up to [40/25] per cent above the cost-effectiveness threshold.



Local installation and assembly subsector

Not exactly manufacturing, not exactly servicing

- Addressing this subsector could facilitate the introduction of low-GWP technologies and promote safe and appropriate installation practices to optimize energy-efficient operation of the systems
- Limited information available
- The enterprise designs and/or selects, assembles, and installs prefabricated components in the commercial or industrial refrigeration applications or in AC systems
- The enterprise assembles, install and charge the refrigerant at the location designated by the end-user, and is distinct from the manufacturer of the installed components or unit
- The refrigerant to be used could be the choice of the customer or the choice of the installer
- There is no manufacturing line, but it is possible to establish the consumption of refrigerants over the last three years for the purpose of installing and charging RAC systems on-site
- There is no refrigerant consumption at a manufacturer site prior to installation
- The enterprise needs to invest in equipment, product development and training of personnel





Local installation and assembly subsector

Decision 92/39

- Article 5 countries invited, through the bilateral and implementing agencies, to provide to the Secretariat, on a voluntary basis, by 20 September 2023, information on the local installation and assembly subsector
- Fund Secretariat requested, taking into account the information provided by the Article 5 countries, to prepare for consideration by the Executive Committee at its 93rd meeting a paper containing information on the types of activities that Article 5 countries could undertake, on the nature of the assistance required and on supply chain issues that needed to be resolved to address consumption in the local installation and assembly subsector in their KIPs
- **To consider projects in the local installation and assembly subsector in the context of KIPs on a case-by-case basis.**





Updated policy for end-user related projects

Decision 92/36

- To continue to apply decision 84/84 in the consideration of end-user incentive schemes and not to apply it to technology demonstration projects involving a limited number of end users or to end-user leakage-reduction programmes when submitted for funding under the HPMPs
- **To consider end-user-related projects submitted for funding under KIPs on a case-by-case basis, taking into account the considerations set out in paragraph 46 of document UNEP/OzL.Pro/ExCom/92/43**
- Article 5 countries and agencies requested, when designing end-user incentive schemes, to consider factors that would contribute to the sustainability and scalability of the adoption of low-GWP alternatives by end users, such as potential energy-efficiency gains and opportunities for additional modalities and sources of funding, whenever possible and on a voluntary basis
- Fund Secretariat requested to develop, in collaboration with the agencies, a system to record and report consistently on the phase-out/phase-down achieved through end-user projects and on energy-efficiency gains, where applicable





Additional recent decisions related to funding

- **Decision 87/50(e)** allows A5 countries to submit individual HFC investment projects or sector plans in advance of the submission of their KIPs
- **Decision 89/6 and 92/22** allow LVC countries to include in their HPMPs additional activities listed in decision 89/6(b), when needed for the introduction of alternatives to HCFCs with low or zero GWP and for maintaining energy efficiency in the refrigeration servicing sector
- **Decision 91/65** established a funding window for pilot projects of US \$20 million with the possibility of augmenting that funding window at a future meeting to maintain and/or enhance energy efficiency in the context of HFC phase down as specified in decision XXVIII/2, following specific criteria established in the decision
- **Decision 91/66** established a funding window for the preparation of national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction
- **Decision 92/44** allows consideration on a case-by case basis of proposals for projects that reduce HFC consumption in advance of Montreal Protocol targets for countries that had a strong national level of commitment in place to support such reductions





Guide for preparation of KIPs and draft template agreement for KIPs

MLFS interim KIP guide

- Respects flexibility provided to Article 5 countries
- Developed to assist Article 5 countries and agencies in the process of preparing and submitting stage I of the KIPs
- It sets out the information expected to be included in the sections of the stage I KIP proposal, with a brief explanation and the relevant ExCom decisions
- It will be updated once the ExCom finalizes the HFC phase-down cost guidelines

Draft Template Agreement

- It provides the framework of responsibilities and commitments of countries implementing KIPs and the ExCom
- Discussed at the 92nd ExCom meeting. All paragraphs and most Appendices of the draft template agreed except for Appendices 1-A, 2-A, 5-A and 7-A
- Partially agreed template available as an annex to the final report to the 92nd meeting
- The ExCom will continue its discussion at the 93rd meeting





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for the
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Opening Session

The journey to Kigali



Ole Nielsen
UNIDO Montreal
Protocol Unit Chief

Ole Nielsen joined UNIDO in 2011 and is Chief of the Montreal Protocol Unit within the Division of Circular Economy and Environmental Protection. He has been involved in Montreal Protocol since 1993 through consultancy, private sector and lately through an implementing agency; with a particular specialization in the refrigeration sector.



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The journey to Kigali

Ole Nielsen, Chief UNIDO/MPU

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Content:

Open issues for submission of KIP's;
Fortunately, only few remain 😊.

Compliance;
Donor perspectives;
More details on assembly sector;
Effects on regulatory certainty.



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Compliance:

Not given;

Covid-19 impact on baseline;

First target (freeze) is in 6 months;

CCAC report:

<https://www.ccacoalition.org/en/resources/study-impacts-hfc-consumption-trends-article-5-countries>





HFC phase-out or ???

LVC Country	mt	CO2 eq t
Average HFC consumption 2020-2022	350	900,017
65% of HCFC baseline		235,300
HFC baseline		1,135,317

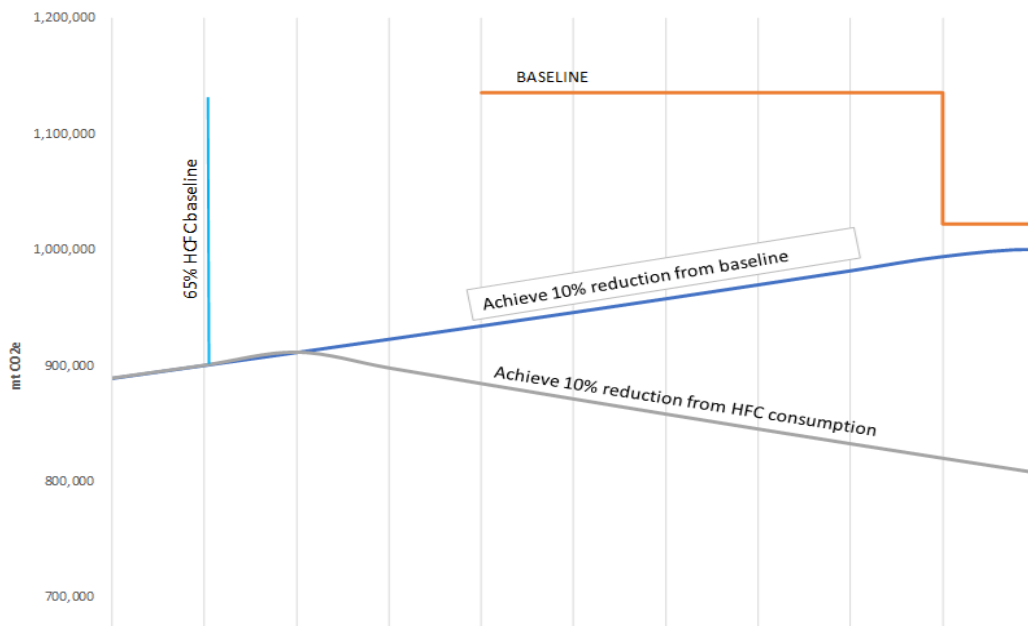
Funds approved		360,000
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CASE A: With the approved funds, the country will reduce 10% of the baseline

10% Reduction of the baseline		113,532
Consumption in 2029		1,021,785
HFC consumption grew by		10%

CASE B: With the funds approved, the country will reduce 10% of the HFC consumption

10% reduction of the HFC Consumption		90,002
Consumption in 2029		810,015





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Starting point:

For LVC not an issue;

**Non-LVC possibly, but only after several
years;**

**Nothing prevents countries to
submit a KIP !!!**



Assembly sector:

Surveys show remarkable HFC consumption in assembly sector (commercial refrigeration - charging of refrigerant on-site);

Assembly sector previously considered part of servicing sector; including associated funding.



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Assembly sector (cont'd):

Willingness from ExCom to consider projects on a case-by-case basis;

Opportunity to combine product design with improved energy efficiency.



Assembly sector (cont'd):

Possible intervention:

- Product review and re-design;
- Enabling low-GWP technologies;
and
- Minor capital cost requirement.



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Regulatory certainty:

Kigali amendment now in action;

New F-gas regulation in EU;

Safety standards allow for wider use of flammable refrigerants.

Shift of business from synthetic refrigerants to natural !!!



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Regulatory certainty:

Actions/reactions from stakeholders;
Moral better than money ???

Apply common sense;
Be critical to info provided.



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Thanks for your attention



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THANK YOU



15 minutes coffee break!
Please be back on time.