

Update on Kigali Amendment to the Montreal Protocol

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Montreal Protocol on Substances that Deplete the Ozone Layer

- First established in 1987
 - 197 signatories – universal ratification
 - Two groups of parties: Article 5 Parties and non-Article 5 Parties
- The Montreal Protocol is phasing out ozone-depleting substances (ODS) used in sectors such as refrigeration, air-conditioning, aerosols, foam blowing, and fire suppression
 - Global phase out of chlorofluorocarbons (CFCs) and halons was completed in 2010
- Hydrochlorofluorocarbons (HCFCs) phase out currently underway

HFCs: Why use the Montreal Protocol to phase down HFCs

- Hydrofluorocarbons (HFCs) are potent GHGs and used in all the same sectors as ODS
 - Hundreds to thousands times the GWP of CO₂
 - Growth in HFCs directly tied to ODS phase out as well as expansion of cooling technologies
- Montreal Protocol is a successful global agreement
 - Appropriate sector expertise
 - Technical bodies that support the Protocol and relevant country experts
 - Effective financial mechanism
 - Uses incremental cost model that has worked in these sectors

Kigali Amendment to the Montreal Protocol (October 15, 2016)

- Avoids over 80 billion metric tons of carbon dioxide equivalent cumulatively through 2050
- Phasedown, not a phase out, of HFCs

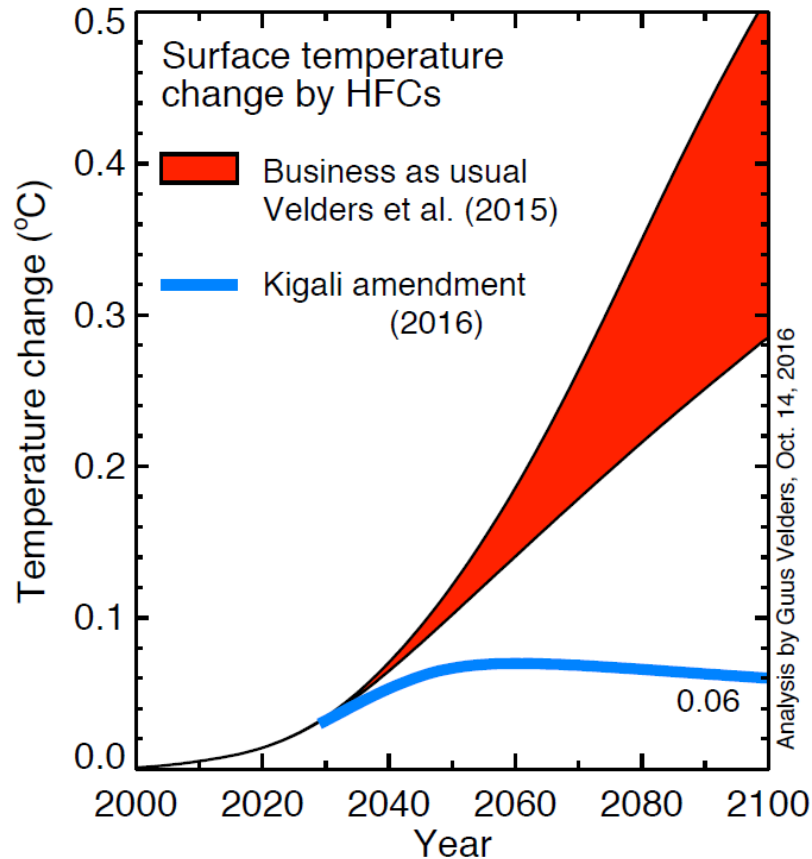
	A5 Group 1	A5 Group 2	A2
Baseline	2020-2022	2024-2026	2011-2013
Formula	Average HFC consumption	Average HFC consumption	Average HFC consumption
HCFC	65% baseline	65% baseline	15% baseline*
Freeze	2024	2028	-
1st step	2029 – 10%	2032 – 10%	2019 – 10%
2nd step	2035 – 30%	2037 – 20%	2024 – 40%
3rd step	2040 – 50%	2042 – 30%	2029 – 70%
4th step			2034 – 80%
Plateau	2045 – 80%	2047 – 85%	2036 – 85%

*For Belarus, Russian Federation, Kazakhstan, Tajikistan, Uzbekistan 25% HCFC component of baseline and different initial two steps (1) 5% reduction in 2020 and (2) 35% reduction in 2025

Notes:

- Group 1: Article 5 parties not part of Group 2; Group 2: GCC, India, Iran, Iraq, Pakistan
- Technology review in 2022 and every 5 years; Technology review 4-5 years before 2028 to consider the compliance deferral of 2 years from the freeze of 2028 of Article 5 Group 2 to address growth in relevant sectors above certain threshold.

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- The HFC phasedown is expected to avoid up to 0.5 degree Celsius of global temperature rise by 2100, while continuing to protect the ozone layer (Source: Ozone Secretariat)