Key Messages
Guidance on Sustainable Cooling Approaches for Enhanced NDCs

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What are hydrofluorocarbons (HFCs)?

- **Hydrofluorocarbons, also known as HFCs, are human-made gases used in cooling applications**, with very high global warming potential, but relatively short atmospheric lifetimes compared to CO_2.

What is Sustainable Cooling?

- **"Sustainable cooling" refers to climate-friendly cooling solutions that reduce emissions, are more energy efficient, and take into consideration equity in proving access and advancing sustainable development benefits for all.**
- Sustainable cooling applies to a spectrum of practices, equipment, and technologies, ranging from **refrigeration to air conditioning and heat pumps (RACHP),** that provide comfort for living and working spaces, as well as **reduce the temperature of products and equipment to maintain their freshness, viability, and function.**

Why is Sustainable Cooling important?

- **Access to cooling is paramount to surviving and prospering in a warming world,** protecting lives, safeguarding food and medicine, and supporting healthy and vibrant societies.
- **Equitable access to cooling ensures that everyone can live safe, healthy, and productive lives** – whether at home, in schools, hospitals, workspaces, or elsewhere – in the years to come.
- Globally**, 3.6 billion cooling appliances are in use today** (primarily refrigerators, chillers, and air conditioners) – **a number which could triple by 2050 or quadruple if all who need cooling are given access.**
- Fortunately, **strategic action in the cooling sector offers enormous benefits for mitigation and adaptation**, and current efforts under the Montreal Protocol to reduce HFC emissions, with optimized energy efficiency, **could prevent nearly 1°C of warming, while enabling additional health, energy, and food security co-benefits.**
- In fact, improving energy efficiency in the cooling sector in tandem with the implementation of the Kigali Amendment could **slow energy demand, cut emissions by 60-96%, save users US$1 trillion annually, and save the power sector up to US$5 trillion.**

What are the tangible ways to address HFC, cooling, and energy efficiency in NDCs?

- **Full and fast implementation of the Montreal Protocol's Kigali Amendment,** an international phase down of HFC production and consumption phase down.
- **Full implementation of an HFC phase down by all countries will prevent up to an estimated 0.5 degrees Celsius of atmospheric warming by 2100**, and countries could include their Kigali Amendment targets, timelines, and related activities in their NDC as part of the contribution to their economy-wide target.
- **Maximizing energy efficiency in refrigeration and air conditioning is a powerful way to achieve additional climate benefits capitalizing on the transformative momentum of the Montreal Protocol,** and countries could include targets and measures relating to energy efficiency in their NDCs.
- **Applying lifecycle refrigerant management,** a sustainable management of refrigerants throughout the life of the refrigerant and its equipment, beginning with design and production, through the installation, use, maintenance and servicing, to the end-of life recovery, recycling or reclamation, and destruction.
- **Including an LRM approach to the cooling sector in an NDC will enable multiple benefits to the atmosphere** and can also support access to sustainable cooling, while also generating jobs and additional income to national industries.
- **Adaptation measures that strengthen resilience through equitable cooling should be included in NDCs**, thereby reducing vulnerability, mortality, and economic losses.
- The ability to adequately gather, monitor, and assess information, ensures countries can **strategically access benefits while avoiding the worst outcomes.**