

Challenges and Opportunities under The Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer 《关于消耗臭氧层物质的蒙特利尔议定书》 --- 《基加利修正案》的挑战和机遇

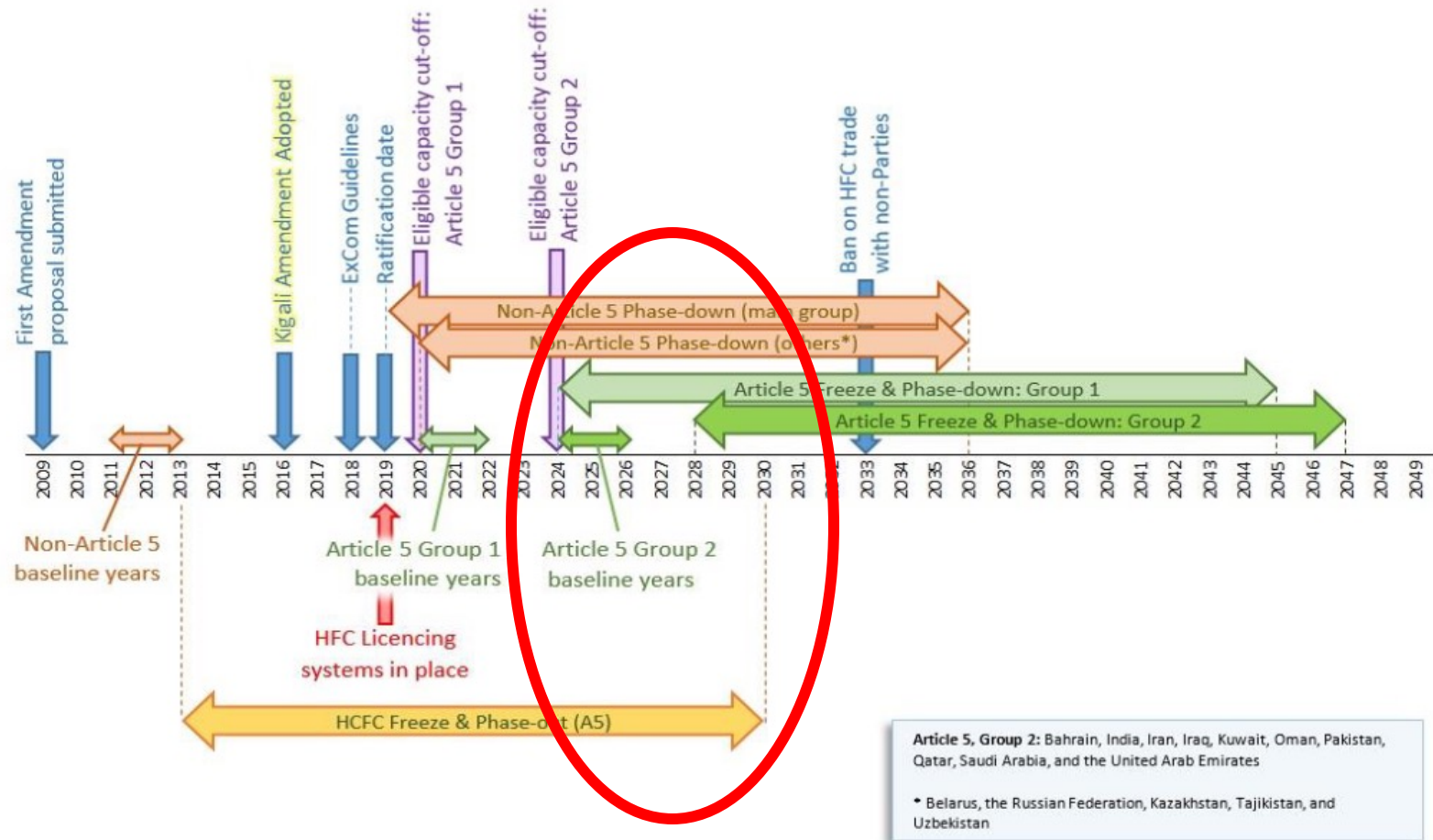
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The Kigali Amendment to the Montreal Protocol

《蒙特利尔议定书》基加利修正案



Kigali Amendment – HFCs phase-down commitments

基加利修正案-HFCs 逐步消减承诺

The baseline is calculated in CO2-equivalent
基线以二氧化碳当量计算



Formula for the calculation of HFCs Baseline (in CO2-eq)		Article 5 Parties (developing)		Non-Article 5 Parties (developed and some of CEIT)	
		Group 1*	Group 2**	5 Countries***	All Others
HFCs Baseline	Average HFCs in base years + % of HCFCs Baseline	Average 2020-2022 + 65% of the Baseline	Average 2024-2026 + 65% of the Baseline	Average 2011-2013 + 25% of the Baseline	Average 2011-2013 + 15% of the Baseline

HFCs Phase-Down Schedule (against baseline level)	Article 5 Parties				Non-Article 5 Parties			
	Group 1*		Group 2**		5 Countries***		All Others	
	Year	Reduction	Year	Reduction	Year	Reduction	Year	Reduction
Freeze Consumption	2024	Freeze	2028	Freeze	-	-	-	-
Step 1	2029	(-) 10%	2032	(-) 10%	2020	(-) 5%	2019	(-) 10%
Step 2	2035	(-) 30%	2037	(-) 20%	2025	(-) 35%	2024	(-) 40%
Step 3	2040	(-) 50%	2042	(-) 30%	2029	(-) 70%	2029	(-) 70%
Step 4	-	-	-	-	2034	(-) 80%	2034	(-) 80%
Final Step (Plateau)	2045	(-) 80%	2047	(-) 85%	2036	(-) 85%	2036	(-) 85%

*Group1 Article 5 Countries: all developing countries not part of Group 2.

**Group2 Article 5 Countries: Algeria, Bahrain, Benin, Burkina Faso, Central African Republic, Chad, Côte d'Ivoire, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Libya, Mali, Mauritania, Niger, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Sudan, Syrian Arab Republic, Togo, Tunisia, Turkmenistan, United Arab Emirates.

*** Belarus, Kazakhstan, Russian Federation, Tajikistan, and Uzbekistan.

Kigali Amendment – HFCs phase-down commitments

基加利修正案-HFCs 逐步消减承诺下

What are the controlled Substances?

管控物质有哪些？



Group	Substance	100-year GWP
Group I		
CHF_2CHF_2	HFC-134	1,100
CH_2FCF_3	HFC-134a	1,430
CH_2FCHF_2	HFC-143	353
$\text{CHF}_2\text{CH}_2\text{CF}_3$	HFC-245fa	1,030
$\text{CF}_3\text{CH}_2\text{CF}_2\text{CH}_3$	HFC-365mfc	794
$\text{CF}_3\text{CHF}_2\text{CF}_3$	HFC-227ea	3,220
$\text{CH}_2\text{FCF}_2\text{CF}_3$	HFC-236cb	1,340
$\text{CHF}_2\text{CH}_2\text{CF}_3$	HFC-236ea	1,370
$\text{CF}_3\text{CH}_2\text{CF}_3$	HFC-236fa	9,810
$\text{CH}_2\text{FCF}_2\text{CHF}_2$	HFC-245ca	693
$\text{CF}_3\text{CHFCH}_2\text{CF}_2\text{CF}_3$	HFC-43-10mee	1,640
CH_2F_2	HFC-32	675
CHF_2CF_3	HFC-125	3,500
CH_3CF_3	HFC-143a	4,470
CH_3F	HFC-41	92
$\text{CH}_2\text{FCH}_2\text{F}$	HFC-152	53
CH_3CHF_2	HFC-152a	124
Group II		
CHF_3	HFC-23	14,800

Kigali Amendment – HFCs phase-down commitments

基加利修正案-HFCs 逐步消减承诺

Country Profiles may change when we consider the climate (GWP) impact!

当考虑到气候影响时 (GWP) , 视国家情况而变 !



Ghana:加纳

- West African country 西非国家

- Area of 239,000 km

面积239 , 000平方公里

- Estimated population of 31 million

人口估计3100万

- 57.3% urban and 42.7% rural.

57.3% 城市和42.7%乡村

- Annual population growth rate of 2.4 %

年人口增长率2.4%

- 2020 consumption of **471,391 CO₂-eq of HFCs**

2020 年 HFC 消耗量为 **471,391 二氧化碳当量**

- HCFCs Baseline **57.3 ODP tonnes**

HCFCs 基线水平 **57.3 ODP 吨**

Trinidad & Tobago: 特立尼达和多巴哥

- SIDS in Southern Caribbean

南加勒比地区的岛屿发展中国家

- Area of 5,528 km²

面积 5,528 平方公里

- Estimated population of 1.4 million,

人口估计140万

- 53.2% urban and 46.8% rural.

53.2%城市 and 46.8%乡村

- Annual population growth rate of 0.3%

年人口增长率0.3%

- 2020 consumption of **4,425,345 CO₂-eq of HFCs**

2020年HFC消耗量为**4 , 425 , 345二氧化碳当量**

- HCFCs Baseline **46 ODP tonnes**

HCFCs 基线水平**46吨**

Challenges for the Implementation of the Kigali Amendment

基加利修正案执行的挑战

- **For all countries 所有国家:**

- Determination of Starting Point for Aggregated Reductions. **确定合计削减的起始点**

- **For the Manufacturing Sector 对制造行业:**

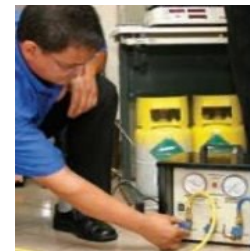
- Issues related Patents and Royalties of new alternatives; **新替代品的相关专利和特许权使用费问题**
- Introduction of flammable/toxic alternatives; **引入易燃/有毒替代品**
- Availability of alternatives (technical and commercial), operational costs of transition and market penetration of technologies; **替代品的可用性 (技术和商业)、过渡的运营成本和技术的市场渗透**
- Determination of ICC and IOCs. **技术改造费用和增加运行费用的确定**

Challenges for the Implementation of the Kigali Amendment

基加利修正案执行的挑战

- **Servicing Sector维修行业:**

- Key to the implementation of the Kigali Amendment. **执行基加利修正案的关键**
- Policy, Standards and Institutional Framework; **政策，标准，体制框架**
- Certification and Training of Technicians; **技术人员的认证和培训**
- Maintenance, leakage reduction and handling of flammable and toxic alternatives; **易燃和有毒替代品的维护、减少泄漏和处理**
- Growth of installed equipment will put pressure on tail for servicing. **已安装设备的增长将给尾部的维修带来压力**
- Countries will also face challenges related to the adoption of alternatives that are either toxic for flammable, maintaining safety and cost-effectiveness. **各国在采用对易燃物有毒的替代品、保持安全性和成本效益方面也将面临挑战。**



Energy Efficiency & the Cooling Sector under the Kigali Amendment

基加利修正案下的能源效率和制冷行业

Cooling has become **part of our lifestyles**, and cooling is also essential in many aspects of modern life.

制冷已成为我们**生活方式的一部分**，制冷在现代生活的许多方面也必不可少。



Promoting Sustainable Cooling is not a question choice.

Building sustainable cooling systems is a **matter of need**.

促进可持续制冷不是一个问题选择，建立可持续的制冷系统是一个**需要解决的问题**。

Energy Efficiency & the Cooling Sector under the Kigali Amendment

基加利修正案下的能源效率和制冷行业

A Complex Policy Framework is required to address efficient cooling needs, but often these are stand-alone and may not “talk to each other”
需要一个复杂的政策框架高效解决制冷行业的需求，但这些需求通常是独立的，可能不会“相互对话”



National Frameworks

国家框架

National Energy Plans

National Action Plans
(Mitigation/Adaptation to
Climate Change国家能源行动计划
(减缓/适应气候变化))



Paris Agreement巴黎协定

Nationally Determined
Contributions
(NDCs国家自主贡献)



Montreal Protocol

蒙特利尔议定书

HCFCs Phase-out Management Plans
HFCs Phase-down Management Plans
HCFCs逐步减少/淘汰管理计划

National Cooling Action Plans

Energy Efficiency & the Cooling Sector under the Kigali Amendment

基加利修正案下的能源效率和制冷行业



UNDP is
ready to
support!

- UNDP launched its new **sustainable cooling offer** aiming to promote sustainable cooling solutions through programmes supported by, but not limited to, the Multilateral Fund, GEF and other bilateral, private and philanthropic donors.

联合国开发计划署推出了新的**可持续制冷方案**，旨在通过多边基金、全球环境基金和其他双边、私人和慈善捐助者支持的方案推广可持续降温解决方案

- UNDP is ready to provide technical and financial support to countries to develop and implement their NCPs.

联合国开发署准备向各国提供技术和财政支持，以制定和实施其国家协调计划

- UNDP promotes the development of systemic solutions in cold chain systems, energy-efficient buildings, district cooling and heating, among other measures such as MEPS and low-GWP alternatives.

联合国开发署促进在冷链系统、节能建筑、区域供冷和供热等方面开发系统解决方案,例如 MEPS 和低 GWP 替代方案等措施。

Energy Efficiency & the Cooling Sector under the Kigali Amendment

基加利修正案下的能源效率和制冷行业



UNDP is
ready to
support!

- Energy is also an important priority in UNDP's 2021-2025 Strategic Plan, where our focus is on increasing energy access for those furthest behind and expanding the use of renewable sources and energy-efficiency measures.

能源是联合国开发计划署 2021-2025 年战略计划中的一个重要优先事项，我们的重点是帮助增加落后地区能源获取机会，并扩大可再生能源的使用和节能措施。

- UNDP is aiming to develop integrated programmes (Climate Promise and Sustainable Energy Hub) and enabling platforms (SDG finance, Innovation and Digital) can help to unlock innovation and scale up actions in the cooling sector.

联合国开发计划署的目标是开发制定综合方案（气候承诺和可持续能源中心）和扶持平台（可持续发展目标融资、创新和数据）可以帮助创新并扩大制冷行业的行动。

Thank you

谢谢!

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Global Policy Network (GPN)
Bureau of Programme and Policy Support (BPPS)
United Nations Development Programme (UNDP)

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