

# 2026 Ozone2Climate Technology Roadshow and Industry Roundtable

## 2026 臭氧气候技术路演及工业圆桌会议

8-10, April 2026  
2026年4月8-10日

Capital International Exhibition & Convention Centre, Beijing, China  
中国·北京首都国际会展中心

*Concept Note*

### **Background** **背景**

The “Ozone2Climate (O2C) Technology Roadshow & Industry Roundtable” is a flagship initiative of United Nations Environment Programme (UNEP) OzonAction established to promote ozone and climate friendlier technologies through knowledge and information exchange via a global and/or regional platform. Since its inception in 2011, Ozone2Climate Roadshows and Roundtables have been organized in various countries all around the world. UNEP OzonAction, United Nations Development Programme (UNDP), Foreign Environmental Cooperation Center (FECO), Ministry of Ecology and Environment (MEE), and China Refrigeration and Air-Conditioning Industry Association (CRAA) have been continuously organizing the O2C Technology Roadshow and Industry Roundtable in China since 2012 with its last event held in Shanghai in 2025. This annual event became a part of the implementation plan of China’s HCFC Phase-out Management Plan (HPMP) for refrigeration servicing sector project, funded by the Multilateral Fund for the Implementation of the Montreal Protocol, and has developed into a major global government-industry information exchange platform for ozone and climate friendly technologies used across various refrigeration and air-conditioning (R&AC) applications. This year’s event marks the 15<sup>th</sup> iteration of O2C Technology Roadshow and Industry Roundtable in China.

联合国环境臭氧行动创办的“臭氧气候”（O2C）技术路演是一个旗舰计划，旨在利用全球或者区域的平台通过知识和信息共享推广臭氧气候技术。自2011年创办以来，其已在世界各地举办。联合国环境规划署（UNEP）、联合国开发计划署（UNDP）、中国生态环境部对外合作与交流中心（FECO）和中国制冷空调工业协会（CRAA）自2012年起已连续多年在中国组织举办臭氧气候技术路演和圆桌会议，最近一次是2025年在中国上海举办的。这项年度活动已被纳入由《蒙特利尔议定书》多边基金资助的中国制冷维修行业HCFC淘汰管理计划实施方案，并已发展成为全球制冷、空调和暖通行业（HVAC&R）关于臭氧气候友好技术进行政府—行业信息交流的最主要的平台之一。今年的活动标志着中国臭氧气候友好技术路演及工业圆桌会议将成功举办十五届。

Hydrochlorofluorocarbons (HCFCs) are ozone-depleting substances that are primarily used as refrigerants and foam blowing agent and controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol). Developed country Parties to the Montreal Protocol already phased-out ozone depleting HCFCs as of 2020 and developing

country Parties, i.e. Article 5 countries, are following closely. As of January 1, 2025, Article 5 Parties, including China, have reduced 67.5% of their HCFCs consumption and production from their respective baseline levels and are preparing to meet a full reduction target of 100% by 2030.

HCFCs（氟氯烃）作为臭氧层消耗物质主要被用作制冷剂和发泡剂，根据《蒙特利尔议定书》属于被管控物质。根据蒙约的要求，发达国家已于 2020 年实现了 HCFCs 的淘汰。发展中国家例如 A5 国家，也紧随其后。到 2025 年 1 月 1 日，包括中国在内的 A5 国家将淘汰 HCFCs 生产和消费基线水平的 67.5%，而且到 2030 年将完成 100% 的淘汰目标。

Hydrofluorocarbons (HFCs) are the most commonly used alternatives to HCFCs and have zero ozone depletion potential (ODP), but most HFCs are potent climate pollutants for their high global warming potential (GWP). The Kigali Amendment (2016) of the Montreal Protocol brought HFCs under control and opened a new chapter in the history of concerted efforts to tackle ozone layer depletion and climate change. Article 5 countries have frozen the production and consumption of HFCs starting from 2024 at the baseline level and will need to phase-down HFC production and consumption step-by-step up to 15-20% of its baseline by 2025-2047. With its full implementation globally, the Kigali Amendment is estimated to avoid up to 0.4°C of global warming and can achieve even more benefits with energy efficiency.

HFCs（氢氟烃）是 HCFCs 最常见的替代物，其 ODP 为 0；但由于大部分 HFCs 具有高 GWP（全球变暖潜值），因此是潜在环境污染物。《基加利修正案》（2016 年达成）将 HFCs 纳入蒙约管控范围，开启了协同应对臭氧层耗损和气候变化的历史新篇章。包括中国在内的 A5 国家在 2024 年开始冻结 HFCs 的生产量和消费量，并且在 2025 到 2047 年间逐步削减 HFCs 至 15% 或 20%。通过全球对《基加利修正案》的全面实施，预计可避免 0.4°C 的全球升温，而且可以通过能效提升获得更多收益。

HFCs and their blends such as HFC-134a, R-410A, R-407C, R-404A are widely used refrigerants in R&AC equipment. Ozone and climate friendly alternatives to these commonly used HFCs are lower GWP HFCs, HFOs (unsaturated HFCs), and natural refrigerants such as hydrocarbons (HC), ammonia (NH<sub>3</sub>) and carbon dioxide (CO<sub>2</sub>). The transition to such ozone and climate friendly alternatives depends on the application and may have technical and commercial challenges such as lack of cost-effective supply chains for the manufacture of final cooling products, policy/regulation barriers due to flammability, toxicity, and/or high working pressure of the alternatives.

HFCs 例如 HFC-134a, R-410A, R-407C, R-404A 等都是被广泛应用于制冷空调设备中国的成熟制冷剂技术。而那些常用于替代这些 HFCs 的臭氧气候友好技术大部分是低 GWP 值的 HFCs、HFOs（不饱和 HFCs）、碳氢（HC）、氨（NH<sub>3</sub>）和二氧化碳（CO<sub>2</sub>）。向臭氧气候友好替代物质过渡取决于实际应用领域而且面临技术和商业挑战，例如对于制造终端产品的制造商缺乏经济的供应链，替代制冷剂的可燃性、毒性、高工作压力等造成了政策法规障碍。

### **China's Refrigeration and Air-Conditioning Sector** **中国制冷空调行业**

China's R&AC industry currently accounts for more than 90% of national HCFC consumption. By implementing the HPMP, China has been successfully reducing the production and

consumption of HCFCs and fully complying with the obligations under the Montreal Protocol including the 67.5% reduction target by 2025.

China also extended its control measures to HFCs following the ratification of the Kigali Amendment in June 2021 and in April 2025, the State Council of China approved the National Implementation Plan for the Montreal Protocol (2025–2030). This strategic plan outlines the roadmap for the complete phase-out of HCFCs by 2030 and sets a target for a 10% reduction in HFCs by 2029. It includes specific goals for reducing the production and consumption of these substances in alignment with the Montreal Protocol, while also promoting green and low-carbon development across various industries.

The Asia Pacific region, in particular China, is the largest producer and consumer of these controlled substances as well as one of the largest manufacturer of various R&AC technologies and equipment such as unitary air conditioner, freezer, cold storage & condensing unit, and water chillers (heat pump).

目前中国制冷空调行业的 HCFCs 消费量超过全国总消费量的 90%。随着中国 HPMP 的实施，到 2025 年底，中国已成功实现淘汰 67.5% HCFCs 生产量和消费量的目标。

中国在 2021 年 6 月批准《基加利修正案》后，进一步将 HFCs 纳入管控范围，并于 2025 年 4 月由国务院正式批准《中国履行〈关于消耗臭氧层物质的蒙特利尔议定书〉国家方案（2025-2030）》。该战略规划明确了到 2030 年完全淘汰 HCFCs 的路线图，并设定了到 2029 年将 HFCs 的生产和消费量降低 10% 的目标。方案不仅制定了与《蒙特利尔议定书》相衔接的受控物质产销削减具体目标，同时致力于推动各行业实现绿色低碳转型。

亚太地区尤其是中国，不仅是上述受控物质最大的生产和消费市场，同时也是单元式空调机、冷冻冷藏设备、冷水（热泵）机组等各类制冷空调技术与设备的核心制造基地。

Through the HPMP project, China had already converted various R&AC equipment manufacturing lines to lower-GWP alternative refrigerants, mainly hydrocarbons, ammonia, CO<sub>2</sub>, and HFC-32. At the same time, China has been undertaking activities related to the development of safety standards and equipment/product standards using alternative refrigerant technologies. Chinese national standard GB 9237 for Refrigerating systems and heat pumps—Safety and environmental requirements was adapted from ISO-5149 and has been in effect since 1 July 2018. The GB 9237 sets the charge limit for using flammable refrigerants and lays the foundation for the promotion and application of environmentally friendly alternative refrigerants. A new round of revision for this standard was initiated in August 2025. Capacity building trainings for servicing technicians in various fields of the R&AC sector are organized to promote good servicing practices and safe-use of new alternative technologies in the servicing sector.

在 HPMP 实施过程中，中国制冷空调行业开展了生产线改造活动，主要采用了更低 GWP 值的替代品例如 HCs、NH<sub>3</sub>、CO<sub>2</sub> 和 HFC-32 等。除此之外，还开展了许多替代技术相关的安全和产品标准的修订和制订工作。等效采用 ISO 5149 的中国国家标准 GB 9237 已于 2017 年 12 月 31 日正式发布，并于 2018 年 7 月 1 日正式实施。GB/T 9237—2017 规定了可燃性制冷剂使用的门槛，该标准的实施为促进环保型替代制冷剂的市场化应用和推广奠定了基础。2025 年 8 月已经启动了对该标准新一轮的修订。为提升制冷维修行业的服务水平，针对制冷空调各个领域的维修技术人员组织开展的能力建设培训也有力的推动维修良好操作并促进了新型替代技术的安全使用。

As one of the biggest manufacturing hubs for global R&AC equipment, the technology development trends of China's R&AC industry are significant in shaping the global alternative technology landscape.

作为全球制冷空调行业最大的制造中心，中国制冷空调行业的技术发展趋势对于塑造全球替代技术格局具有重要意义。

## **2026 Ozone2Climate Technology Roadshow and Industry Roundtable** **臭氧气候技术路演和圆桌会议**

CRAA is a manufacturers' liaison with the government and has been devoting itself to providing its members and the whole industry with valuable multifaceted services. CRAA is one of the co-organizers of the International Exhibition for Refrigeration, Air Conditioning, Heating and Ventilation, Frozen Food Processing, Packaging and Storage known as CRH, which is held annually in China. UNEP OzonAction, CRAA, UNDP and FECO/MEE jointly organize the O2C Technology Roadshow and Industry Roundtable annually during the CRH exhibition.

The objective of the partnership is to jointly promote and exhibit global advancements in ozone and climate friendly technologies. Along with the technology roadshow, an industry roundtable is organized where policy makers and industry representatives discuss practical issues surrounding policy and technology selection that promotes both ozone and climate benefits.

中国制冷空调工业协会（CRAA）是连接企业与政府的纽带，致力于为会员和全行业提供全方位、高价值的服务。CRAA 是国际制冷、空调、供暖、通风及食品冷冻加工展览会（即中国制冷展）的主办方之一。联合国环境规划署臭氧行动、中国制冷空调工业协会、联合国开发计划署（UNDP）和生态环境部对外合作与交流中心（FECO/MEE）联合在制冷展期间组织臭氧气候技术路演和工业圆桌会议。目的是共同合作宣传和展示臭氧气候友好制冷剂技术的发展。路演的同时，作为活动的一部分，也将组织召开一个工业圆桌会议，政策制定者及行业代表们将围绕臭氧和气候友好的制冷空调技术和政策选择等问题展开讨论。

Building on the success and momentum of the previous O2C events, UNEP OzonAction, UNDP, FECO and CRAA will co-organize the 15<sup>th</sup> O2C Technology Roadshow and Industry Roundtable as a part of the CRH 2026 in Beijing on 8-10 April 2026. The aim of the events is to continue the engagement of industry and policy makers to review the trends in alternative technology developments since the adoption of the Kigali Amendment, and discuss approaches and strategies for overcoming challenges in the transition to O2C alternatives. We welcome prominent international, regional and national organizations to be partners of our two events as joint organizers and/or supporting organizers.

继前十四届活动成功举办之后，主办方将继续在 2026 年 4 月 8-10 日北京中国制冷展期间组织第十五届臭氧气候技术路演和工业圆桌会议。活动的目的是继续推动行业和决策者评估后基加利时代替代品的发展趋势，讨论克服臭氧气候替代技术挑战的措施和策略。主办方欢迎更多有影响力的国家、地区和国内组织参与和支持举办这两项活动。

The **Technology Roadshow** encourages showcasing innovative technologies such as solar cooling/refrigeration which is not only ozone friendly but also has further climate and energy-saving benefits. R&AC equipment relying on refrigerants with high GWP are not allowed. The products/technology that will be exhibited in the Roadshow will include those relating to zero-ODP, lower-GWP alternatives, and products/technology with improved energy

efficiency compared to HCFC-based technology. All manufacturers, research institutions, universities, non-governmental organizations (NGOs) that manufacture and/or own these technologies are welcome to participate and display their products/technology either through sample products and/or display boards.

The **Industry Roundtable** will complement the Roadshow by providing a platform for the industry and policy makers to explore development trends, contributions to Sustainable Development Goals, and challenges and opportunities, etc. The overall objective of the O2C event is to assist the R&AC industry and users to make an informed decision in selecting ozone and climate-friendly alternatives while moving away from HCFC and HFC refrigerants. The Roadshow and Roundtable will not endorse any specific technology.

**臭氧气候技术路演**鼓励展出创新技术，例如太阳能制冷等，这些技术不仅是臭氧友好的，而且也是对气候和节能有益。因此，使用 HCFCs 和高 GWP 值的 HFCs 物质的制冷空调设备将不会出现在本次路演上。在路演上展示的产品和技术将包括零 ODP、更低 GWP 替代制冷剂相关的且能效改善的产品和技术。生产这些产品或拥有相关技术的制造商、研究机构、院校和非政府组织都将被邀请来参加，通过样品或展板来展示他们的成果。

**工业圆桌会议**通过为行业和政策制定者提供一个交流平台来探索行业的发展趋势，以及对可持续发展目标、挑战和机遇的贡献。臭氧气候路演及工业圆桌会议活动的目的是希望帮助行业 and 用户在淘汰 HCFCs 和高 GWP 值 HFCs 选取臭氧和气候友好替代技术时能够做出明智的决定。但是路演和圆桌会议将不涉及对任何特定替代技术的认可与支持。

UNEP OzonAction, UNDP, FECO and CRAA in cooperation with the Organizing Committee of CRH expo, will provide standard exhibition space for the invited exhibitors of 2026 CRH to exhibit their products and/or display boards. The invited exhibitors will be responsible for setting up their own booth including transporting, and displaying the sample products/display board, or brochures.

UNEP OzonAction、UNDP、FECO 和 CRAA 与中国制冷展组委会开展合作，将向每个被邀请参加路演的 2026 中国制冷展展商免费提供展示位置。参展商需要自己承担各自展位的搭建，包括展品的运输、样品或展板、宣传册等相关费用。

### **Main Objectives of the Ozone2Climate Technology Roadshow and Industry Roundtable** **臭氧气候技术路演和工业圆桌会议的主要目标**

- To explore options for a roadmap for the development of the cooling industry while aligning with and contributing to the ozone layer and environmental protection goals.  
探索符合臭氧层和环境保护的制冷行业路线图。
- To outreach the latest ozone and climate-friendly technologies to R&AC industry and professionals participating in CRH 2026, and to showcase the leading role of industry pioneers that have developed or adopted ozone and climate-friendly technologies.  
通过技术路演和展会，向参加 2026 制冷展的制冷空调行业和专业观众推广可行的臭氧气候友好技术，展示开发和采用气候臭氧友好的制冷空调技术的行业领军企业。
- To engage industry decision makers in a discussion on the availability, affordability and options for zero-ODP, low/lower-GWP and more energy efficient alternative technologies in R&AC sector while considering complimentary climate and energy-

saving benefits.

引导制冷空调行业决策者在考虑最终产品整个生命周期的气候影响时，讨论零 ODP、零或更低 GWP 和更节能的替代品的可能性、经济性和需求。

## **Theme for Ozone2Climate Industry Roundtable discussions**

### **臭氧气候工业圆桌会议讨论的主题**

The theme of the 2026 Ozone2Climate Industry Roundtable is *“The 10<sup>th</sup> Anniversary of the Kigali Amendment: Achievements and Challenges in the Refrigeration and Air-conditioning Industry”*. Taking the opportunity of the presence of leaders of the cooling industry and other stakeholders, the Industry Roundtable will focus on promoting research, development, adoption, and safe-use of zero-ODP, low GWP and higher energy efficient technologies in the R&AC sector. The event also will provide a floor to share experiences and discuss challenges in adopting alternative technologies in the market. Any innovative discussion themes that can inspire the Ozone2Climate event are welcome.

2026 年的圆桌会议主题为“基加利修正案十周年，制冷行业的成就与挑战”。行业的主要力量以及利益相关方将会出席圆桌会议，借此机会，会议将重点讨论制冷空调行业在推进零 ODP、更低 GWP 和更高能效技术方面的投资、研究和发展的相关问题。圆桌会议也将搭建一个交流平台，旨在分享替代技术在市场应用的实践经验，并深入探讨面临的挑战。主要议题如下：

April 8, 2026, Afternoon 2026 年 4 月 8 日下午

### **Session I Global policy landscape for the implementation of the Kigali Amendment**

#### **《基加利修正案》的全球政策图景**

- Progress in China’s *Montreal Protocol* and *Kigali Amendment implementation*, and compliance achievements  
中国《蒙特利尔议定书》及其《基加利修正案》的实施进展和履约成就
- Policies development in the Asia-Pacific region in adopting alternative refrigerants for R&AC  
亚太地区制冷空调制冷剂替代政策进展
- Transition policies for alternative refrigerants and refrigeration and air-conditioning industry in the United States in light of the Kigali Amendment  
《基加利修正案》背景下美国制冷剂替代及制冷空调行业转型政策
- Update on EU’s F-gas and PFAS regulations  
欧盟 F-GAS 和 PFAS 政策和进展

April 9, 2026, Morning 2026 年 4 月 9 日上午

### **Session II Ozone and Climate friendly Technologies and Actions**

#### **臭氧气候友好的制冷剂替代技术与行动**

- Progress in China’s refrigeration Energy Efficiency projects  
中国制冷能效项目进展
- Application and challenges in adopting natural refrigerants R290/CO<sub>2</sub>/NH<sub>3</sub>  
天然工质 R290/CO<sub>2</sub>/NH<sub>3</sub> 的应用与挑战
- Key technologies and development trends in cold chain  
绿色冷链关键技术及发展趋势
- Advances in energy efficiency enhancement technologies for heat pump

热泵系统能效提升技术进展

- Progress and applications of alternative refrigerants in large and medium-sized chillers  
大中型冷水机组的制冷剂替代进展与应用
- Advances in high-efficiency compressors and refrigerant substitution technologies  
高效压缩机及制冷剂替代技术进展

April 9, 2026, Afternoon 2026年4月9日下午

### **Session III Refrigeration Servicing sector plan and Good Practices in Servicing sector in China**

#### **中国制冷维修行业计划与维修良好操作**

- HCFC Phase-out Implementation actions in China's refrigeration servicing sector  
中国制冷维修行业的履约行动
- Good practices management for post-sale service of R&AC systems  
制冷空调系统的售后维修良好操作管理
- Current status, progress, and challenges in refrigerant recovery and recycling/reclamation  
制冷剂回收利用和再生现状、进展与挑战
- Opportunities and challenges in end-of-life disposal of refrigerants  
制冷剂报废处置的机遇与挑战
- Lifecycle management mechanisms for refrigerants  
制冷剂全生命周期管理机制

#### **Target Audience**

#### **目标嘉宾**

UNEP OzonAction, UNDP, FECO and CRAA will send invitation letters to potential exhibitors to participate in the Roadshow. Only the invited exhibitors will be allowed to exhibit their products or display information boards during the O2C event.

UNEP OzonAction、UNDP、FECO 和 CRAA 将会给潜在的路演参展商发送邀请函，只有被邀请的展商可以在路演展台设立展位。

UNEP OzonAction, UNDP, FECO and CRAA will further separately invite other international organizations, NGOs, as well as government departments from bilateral agencies who are interested in setting up their exhibition to display their efforts, projects, and policies in promoting zero-ODP, low/lower GWP and energy efficient alternatives during the O2C event. The organizers will also invite the R&AC industry associations from other countries for their participation in the Technology Roadshow as well as the Industry Roundtable.

UNEP OzonAction、UNDP、FECO 和 CRAA 将分别邀请其他的国际组织，非政府组织以及来自双边机构（如德国国际合作机构、日本、美国、马来西亚）等有兴趣的政府部门，来展示他们在推广零 ODP 值、更低 GWP 值和高能效替代品方面的成就、工程项目以及政策。主办方还将邀请来自澳大利亚、巴西、加拿大、印度、日本、韩国、欧盟、泰国和美国的行业协会参加路演和圆桌会议。

The audience expected for the event is as follows:

活动期待的观众：

- Refrigerant producers, R&AC equipment manufacturers, and research centres 制冷剂、制冷空调设备制造商和研究机构
- R&AC equipment end-users 制冷空调设备的终端用户
- Policy and decisions makers related to the R&AC industry 制冷空调行业相关的政策制定者
- Refrigerant and R&AC equipment wholesalers, distributors, importers and exporters 制冷剂和制冷空调设备零售商、分销商、进出口单位
- Higher education and training institutions, students, instructors, as well as engineers and servicing technicians 高等院校、培训机构、学生、导师以及工程技术和维修人员

### **Dates and Venue**

#### **路演及圆桌会议的时间和地点**

Date: 8-10, April 2026

时间：2026年4月8-10日

Venue: Capital International Exhibition & Convention Centre, Beijing, China

地点：中国·北京首都国际会展中心