2020 Ozone2Climate Technology Roadshow and Industry Roundtable
2020 臭氧气候技术路演及工业圆桌会议

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Concept Note

Background
背景

The Asia-Pacific region is the largest producer and consumer of HCFCs (Hydrochlorofluorocarbons), and China accounts for over 70% global production and consumption of these chemicals. HCFCs are primarily used as refrigerants and foams in the Heating, Ventilation, Air-Conditioning and Refrigeration (HVAC&R) sector. Asia Pacific region, in particular China, is the largest manufacturer of HVAC&R equipment and also one of the biggest markets. HCFCs are controlled under the Montreal Protocol on substances that deplete the ozone layer since they have Ozone Depleting Potential (ODP).
亚太地区是最大的 HCFCs（氯氟烃）生产和消费地区，以中国为主，HCFCs 类化学品的生产和消费占全球的 70%。HCFCs 主要用于制冷、空调和暖通（HVAC&R）行业的制冷剂和发泡剂。亚太地区特别是中国，是最大的制冷、空调和暖通设备制造基地，同时也是最大的市场之一。由于 HCFCs 具有消耗臭氧层的潜力（ODP），其已被列入《蒙特利尔议定书》的管控范围。

In September 2007, the Article-5(A5) Parties to the Montreal Protocol agreed for an accelerated phase-out schedule for HCFCs, wherein the baseline freeze on production and consumption of HCFCs started from 1 January 2013 and will be completely phased-out by 2040. As of 2018, A5 Parties have reduced 10% of their HCFCs consumption & production from their respective baseline levels and are preparing to meet a reduction target of 35% by 2020. Some A5 Parties have also initiated or started their HCFCs phase-out management plan (HPMP) to meet the reduction obligations of 67.5 % by 2025, and subsequently a complete reduction by 2030 with “a servicing tail” until 2040.
2007 年 9 月，《蒙特利尔议定书》第 5 条款（A5）国家达成了 HCFCs 加速淘汰计划，即到 2013 年 1 月 1 日将 HCFCs 的生产和消费量冻结在基线水平，且到 2040 年将全部淘汰。截止 2018 年，A5 国家已经淘汰了 HCFCs 生产和消费基线水平的 10%，而且正在努力完成到 2020 年削减 35%的目标。其中一些 A5 国家也已开始他们的 HCFCs 淘汰管理计划（HPMP）以实现 2025 年淘汰 67.5%的目标，以及到 2030 年保留一小部分消费量供维修行业直至 2040 年全部淘汰的任务。

HFCs (Hydroflourocarbons) are the most commonly used alternatives to HCFCs and do not have any ODP but most HFCs are potent climate pollutants with high global warming potential (GWP). Decision XIX/6 of the Meeting of the Parties called for efforts “To minimize environmental impacts, in particular impacts on climate” while phasing out HCFCs, however,

transitioning from HCFCs to ozone and climate friendly technologies poses some technical and commercial challenges depending on the application. In 2016, the 28th Meeting of Parties to the Montreal Protocol held in Kigali agreed to amend the protocol to phase-down HFCs due to the common concerns of uncontrolled growth of HFCs that could risk in reversing the climate benefits of ODS phase-out under the protocol, and further contribute to the issue of climate change. This was achieved through several years of negotiations and unremitting efforts of the Parties, industries and relevant stakeholders.
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。缔约方会议第 19/6 号决议号召在 HCFCs 淘汰过程中努力“减少环境影响尤其是气候影响”。然而在从 HCFCs 向臭氧气候友好技术转化的过程中，许多应用领域遇到了一些技术和商业方面的严峻挑战。2016 年，在基加利召开的第 28 届缔约方大会上，由于担心不受控 HFCs 的迅速增长会威胁到《蒙特利尔议定书》淘汰 ODS 物质而取得的气候效益，而进一步恶化气候变化问题，缔约方达成了旨在削减 HFCs 的修正案。这项修正案是在缔约方、工业界和利益相关方多年的谈判和不懈努力下达成的。

The Kigali Amendment has given a clear market signal to Parties and the industry on the HFC phase-down targets that is expected to be achieved by 2047. The Kigali Amendment also provides flexibility to the Parties in choosing their strategy and alternate technologies to meet the compliance requirement. According to the schedule of the Kigali Amendment, developed countries need to phase down HFCs from 2019, and one group (Group 1) of the A5 countries needs to freeze the consumption of HFCs in 2024, the other group (Group 2) of A5 countries needs to freeze their HFC consumption in 2028. By 2047, the consumption and production of HFCs in every country cannot exceed 15-20% of its baseline level. The Kigali Amendment is considered as a major achievement of the international community to address climate change.
基加利修正案向各缔约方和工业界给出了明确的信号，到 2047 年实现 HFCs 削减目标。基加利修正案也为各缔约方选择不同的削减战略和替代技术以实现履约目标提供了灵活机制。根据基加利修正案的时间表，发达国家将从 2019 年开始削减 HFCs，一部分发展中国家要在 2024 年冻结 HFCs 的消费量，另一部分发展中国家在 2028 年实施冻结。到 2047 年，各国的 HFCs 消费量不得超过其基线水平的 15-20%。基加利修正案的达成是国际社会应对气候变化问题上的一个主要的成果。

HFCs such as HFC-134a, R-410A, R-407C, R-404A etc. are widely used refrigerant technologies in well-established HVAC&R equipment and materials. The ozone and climate friendly alternatives to these commonly used HFCs are mostly low GWP HFCs, HFOs (unsaturated HFCs), Hydrocarbons (HC), Ammonia (NH_3) and Carbon Dioxide (CO_2). The transition to such ozone and climate friendly alternatives depends on the applications and has technical and commercial challenges such as lack of technology availability, higher capital costs, meeting energy efficiency requirements, flammability, toxicity, and high working pressure. The Kigali Amendment has provisions for the Parties to explore their strategies and look into sector-based approaches and technology choices. These provisions for HFCs phase-down in Kigali Amendment cover areas such as:
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（NH3）和二氧化碳（CO2）。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，例如缺乏技术可行性、更高价格、能效需求、可燃性、毒性、高工作压力等。基加利修正案对其缔约方探索应对策略，研究不同行业的解决方案和技术选择都有条款规定。基

加利修正案中 HFCs 削减的规定覆盖了如下领域：

- High Ambient Temperature Exemptions 高环境温度豁免
- Safety Standards 安全标准
- Energy Efficiency 能效
- Servicing Sector Capacity Building 维修行业能力建设
- Conversion Projects in R&AC Manufacturing and Refrigerant Production 制冷空调生产及制冷剂产品转换项目
- Destruction Technologies 销毁技术

Some of the fine prints of the provisions of the Kigali Amendment are still being finalized by the Parties. In the meanwhile, Parties are also provided funds to initiate enabling activities that assist them to prepare for the initial obligations of the Kigali Amendment as it stands to enter into force from 1 January 2019 for the countries that ratified the Amendment. Therefore, many countries are consulting with their key industries, line ministries, customs, importers, servicing sector and other relevant stakeholders to prepare for Kigali Amendment. The role of information dissemination, awareness and knowledge sharing has played a critical role in the success of the Montreal Protocol and its journey towards ozone and climate friendly technology transition.
基加利修正案一些条款细则仍在敲定中。同时，缔约方也提供资金支持帮助发展中国家开展活动以协助他们准备履行基加利修正案的初始义务。基加利修正案对于已经批准修正案的国家将自 2019 年 1 月 1 日起正式生效。因此，许多国家正在同他们的关键行业、工业部门、消费者、进口商、制冷维修行业和其他相关利益方进行磋商，为基加利修正案的签署和实施做准备。信息传播、认知和知识分享在《蒙特利尔议定书》的成功及其向臭氧气候友好技术转型的过程中发挥了关键作用。

In this regard, the “Ozone2Climate” (O2C) Technology & Roadshow is a flagship initiative of the UN Environment OzonAction established to promote ozone and climate technologies through knowledge and information exchange via a global and/or regional platform. Since its inception in 2011, it has been organized all around the world. UN Environment, FECO & CRAA have been continuously organizing Ozone2Climate Roadshow and Roundtable in China from 2012 with its last edition held in Shanghai in 2019. The China Ozone2Climate Roadshow and Industry Roundtable has developed into one of the major global government-industry information exchange platform for ozone and climate friendly technologies used across various HVAC&R applications.

鉴于此，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（UN Environment）、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 2019 年在上海举办的。中国臭氧气候技术路演和圆桌会议已发展成为全球制冷、空调和暖通（HVAC&R）行业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。

China Refrigeration and Air-Conditioning (R&AC) Sector : A situation analysis
中国制冷空调行业：形势分析

China's R&AC industry currently accounts for more than 60% of national HCFCs consumption. Under HPMP Stage-I, China R&AC sector has successfully realized the target of reducing 10% HCFCs consumption by 2015. The HPMP Stage-II overarching strategy for China and the sectoral phase-out strategies for industrial and commercial refrigeration/air conditioning sector (ICR), room air conditioning sector (RAC), refrigeration servicing sector (RSS), polyurethane foam sector(PU), extruded polystyrene foam sector(XPS), and solvent sector was approved in the 77th Meeting of the Executive Committee of the Multilateral Fund (ExCom) for the Implementation of the Montreal Protocol in November 2016. The main applications under the under ICR sector HCFC phase-out were: unitary air conditioner, freezer, cold storage & condensing unit, and water chillers (heat pump). The servicing sector capacity building activities will be continued under HPMP Stage-II as it was done under Stage-I, where FECO put its efforts to train servicing technicians in the HVAC&R sector on good servicing practices to reduce HCFCs emissions and safe-use of alternatives. Capacity building and awareness amongst customs and enforcement agencies and government stakeholders on HCFC trade monitoring and control will also be continued.
目前中国制冷空调行业的 HCFCs 消费量超过全国总消费量的 60%。随着中国第一阶段 HPMP 的实施，到 2015 年底，中国制冷空调行业已成功实现淘汰 10% HCFCs 消费量的目标。中国第二阶段 HCFCs 淘汰总体战略以及工商制冷空调、房间空调器、制冷维修和能力建设项目、聚氨酯泡沫、挤出聚苯乙烯泡沫、清洗 6 个消费行业计划于 2016 年 11 月召开的《蒙特利尔议定书》多边基金执委会第 77 次会议上获批。行业计划的批准拉开了中国第二阶段 HCFCs 淘汰行动的序幕。工商制冷空调行业第二阶段淘汰涉及的产品主要有单元式空调机、冷冻冷藏设备和压缩冷凝机组、冷水（热泵）机组、热泵热水机等。同时还在继续面向全行业公开征集生产线改造项目。维修行业能力建设也将在 HPMP 第二阶段继续开展，FECO 将在制冷、空调和暖通行业培训维修技术人员的良好操作技能以减少 HCFCs 排放和制冷剂的安全使用。同时也在继续开展执法机构和政府利益相关方的能力建设和意识提升工作，以及对 HCFC 贸易监测及管控工作也在持续开展。

Under HPMP stage-I, China had already carried out various activities on servicing sector capacity building and implementation of projects in eligible enterprises that lead to conversion of 32 refrigeration manufacturing lines and 4 compressor manufacturing lines to lower GWP alternative such as R-32, and low GWP alternatives mainly: NH_3 and CO_2. China has been undertaking several activities related to the development of safety standards and equipment/product standards using alternative refrigerant technologies. The Chinese national standard GB 9237 was adapted from ISO-5149 and is in effect since 1 July 2018. The GB 9237 standard sets the charge limit for using flammable refrigerants and lays the foundation for promotion and application of environmental-friendly alternative refrigerants.
在 HPMP 第一阶段实施过程中，中国制冷空调行业开展了各种维修行业能力建设活动和符合条件的企业的项目实施活动。第一阶段行业共签署了 32 条制冷设备生产线和 4 条压缩机生产线，主要采用了更低 GWP 值的 R32 以及低 GWP 替代品：NH3、CO2 等臭氧气候友好的替代技术。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。

The global development in policies and technologies will affect the adoption of the ozone and climate friendly technologies in China. At the same time, as one of the biggest manufacturing hubs for the global R&AC equipment, the technology development trends

of China R&AC industry is significant in shaping of the global alternative technology landscape.
全球的政策和技术趋势将会对中国制冷空调行业臭氧和气候友好技术的选择和应用产生影响。同时，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。

UN Environment, UNDP, FECO and CRAA collaboration
UN Environment、UNDP、FECO 与 CRAA 的合作

China Refrigeration and Air-Conditioning Industry Association (CRAA) is manufacturers' liaison with the government and has been devoting itself to provide its members and whole industry with multifaceted and valuable services. CRAA are 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. UN Environment has collaborated with CRAA for the organization of Ozone2Climate (O2C) technology roadshow and industry roundtable yearly as a part of CRH since 2012, and it is usually held alternatively in Beijing and Shanghai. FECO in 2015 and UNDP in 2017 also joined as a co-organizers to the O2C events. 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 was also organized as a part of the event where policy makers and industry representatives discuss practical issues surrounding policy and technology selection that will promote 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。联合国环境规划署和中国制冷空调工业协会自 2012 年开始合作，在制冷展期间组织臭氧气候技术路演和工业圆桌会议，并作为制冷展的一部分，以后每年在北京和上海轮流举办。自 2015 年开始 FECO 参与联合主办，2017 年开始 UNDP 也参与联合主办，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。

The Shanghai 2019 CRH was joined by over 1,100 enterprises/organizations from more than 30 countries with exhibition area of 103,500 sq. meter. In total, almost 61,000 delegates visited from more than 100 countries in the 2019 Shanghai Expo. An exhibition space was specially allocated with an area of almost 800 sq. meter for the Ozone2Climate Roadshow, and nearly 60 enterprises and organizations joined this Roadshow. The Industry Roundtable was hosted more than 200 participants from China as well as other countries including USA, Japan, India, South Korea, and EU. The Shanghai Roundtable focused on the updates on latest policies that promote Ozone2Climate alternative technologies; global alternative refrigerant technology trends; challenges and opportunities for industry; and the effort of industry in promoting Ozone2Climate technologies. In addition, four side-sessions were also organized that focused on refrigerant recovery/recycle/reclaim , air-conditioning and heat pumps, good servicing practices; and cold chain technologies. Most of the participants were enterprises, key industry decision makers, R&D experts, academia and NGOs.

2019 年上海制冷展有来自 30 多个国家的 1100 多个企业和组织参加展出，展出面积逾 103500 平方米。共有来自 100 多个国家的 61,000 多名专业观众参观了展会。臭氧气候路演设置一个单独的近 800 平米的展区，并以特装形式亮相，有近 60 家企业和组织

参加了路演。工业圆桌会议吸引了来自中国、美国、日本、印度、韩国、欧盟等国家和地区的 200 多名观众参加。这次会议主要关注臭氧气候替代技术有关的政策动态、国际制冷剂替代动向、行业面临的挑战和机遇与行业推动臭氧气候技术的努力等主题。除主会场外，还在路演展区设置了 4 个分论坛，包括：空调及热泵分论坛、制冷剂论坛；冷链论坛；维修良好操作论坛。大部分参会人员是企业、行业决策者，行业专家、大学和非政府组织、企业的研究人员。

Building on the success and momentum of previous O2C event, UN Environment, UNDP, FECO and CRAA will co-organize the 9th Ozone2Climate Technology Roadshow and Industry Roundtable as a part of the CRH 2020 in Wuhan. The aim of the events is to continue the engagement of industry and policy makers to review the alternative development trends post Kigali Amendment, and discuss on approaches and strategies for overcoming the challenges in adopting Ozon2Climate alternatives. The organizers welcome prominent international, regional and national organizations to be partners of these two events as joint organizers and/or supporting organizers.
继前八届活动成功举办之后，主办方将继续在 2020 年武汉制冷展期间组织第九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。

2020 Ozone2Climate Technology Roadshow and Roundtable
臭氧气候技术路演和圆桌会议

The 2020 O2C Roadshow will be organized in an exhibition hall of nearly 800 sq. meters. The products/technology to be exhibited in the Roadshow will include those relating to zero-ODP, lower-GWP alternatives, and with improved energy efficiency of final products in comparison to HCFC-based technology. All manufacturers, research institutions, universities, NGOs that manufacture and/or own these technologies will be invited to display their products/technology either through sample products and/or display boards.
2020 年的路演将在中国制冷展展厅内进行，设置一个近 800 平方米的独立特装展台。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。

UN Environment, UNDP, FECO and CRAA believe that the next generation of refrigerants should be more environmentally friendly, i.e. zero ODP, low/lower GWP and with improved energy efficiency. Therefore, alternatives to HCFCs with high GWP will not be included in this Roadshow. Also, the roadshow would like to showcase innovative technologies such as solar cooling/refrigeration which is not only ozone friendly but also has climate and energy-use benefits. The Industry Roundtable will complement the Roadshow by providing an international knowledge exchange forum on development trends of refrigerant and equipment technologies, updates on safety standards, and global/national policy developments that is important to accelerate the adoption of ozone and climate friendly technologies. The objective of the Roadshow is to assist the industry to take an informed decision in selecting ozone and climate-friendly alternatives for the phase-out of HCFCs and also consider the context of the HFC phase-down under the Kigali Amendment. The Roadshow and roundtable will not endorse any specific alternative technology.

主办方一致认为未来的替代制冷剂将是更加环境友好型：零 ODP、更低 GWP、更高能效。因此，高 GWP 的 HCFCs 替代物质将不会出现在本次路演上。本次路演还希望展出创新技术，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。工业圆桌会议将作为路演的补充，提供一个国际技术交流的公开讨论平台，探讨制冷剂及制冷设备技术的发展趋势以及制约替代制冷剂使用的安全标准的更新，以及全球及国家政策的发展。这些对于加速臭氧气候友好技术的发展十分重要。因此路演的目的是希望帮助行业在淘汰 HCFCs 选取臭氧和气候友好替代技术时能够做出明智的决定，同时兼顾考虑基加利修正案下的 HFC 的削减。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。

UN Environment, UNDP, FECO and CRAA in cooperation with the Organizing Committee of China Refrigeration Expo (CRH), will provide free space for the invited exhibitors of 2020 Ozone2Climate technology roadshow to exhibit their products and/or display boards. The invited exhibitors, however, will be responsible to cover the following costs: travel costs, product/display transportation, designing/printing of display board and brochures/materials.
UN Environment、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本届制冷展的展商免费提供在路演展台上展示样品或宣传展板的机会。但是参展商需要自己承担包括展品的运输、展品或展板, 宣传册设计、印刷以及运输等工作以及相关费用。

The event outreach of this event will be done by UN Environment through its OzonAction Newsletter/website, and encourage the National Ozone Units from Asia Pacific network and industry experts to join this event as well. The CRAA will also promote the event through its website.
为了推广这个活动，UN Environment 会通过臭氧行动时事通讯/网站传递路演和圆桌会议的相关信息，并将邀请国家臭氧机构和其相关行业参加此次展会。CRAA 也将在官网对此活动进行宣传。

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 outreach about the latest ozone and climate-friendly technologies to R&AC industry and professionals participating in CRH 2020, 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 2020 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 need for zero-ODP, low/lower-GWP and more efficient alternatives in R&AC sector while considering the life cycle climate performance (LCCP) of the final product.
  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

Taking the opportunity of the presence of leading industry and other stakeholders, the Industry Roundtable will focus on promoting investment, research and development in zero-ODP, low GWP and higher energy efficient technologies for the R&AC sector. Any innovative discussion themes that can inspire the Ozone2Climate cause would be welcomed. The roundtable can focus on a single theme or an integrated approach which touches across various themes. The theme/multi theme options are as follows:
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。任何能够启发臭氧气候保护的创新理念和技术都欢迎。圆桌会议可以关注一个单独的主题，也可以是涉及到多个主题的综合解决办法。议题如下：

- The impact of the Kigali Amendment to the Montreal Protocol on the global industry and latest alternative technology developments;
  《蒙特利尔议定书》基加利修正案对行业的影响与应对策略；

- Latest global policy developments and major national strategies with regards to cooling sector and its impact on the implementation of the Montreal Protocol
  关于制冷行业及其对《蒙特利尔议定书》实施的影响的最新全球政策发展和主要国家战略
- Challenges and strategies on implementing China HCFCs Phase-out Management Plan, especially the difficulties and possible solutions for SMEs;
  中国 HCFCs 淘汰管理计划实施面临的挑战及应对策略，特别是中小企业 HCFCs 淘汰面临的困难及可能解决方案；

- Updates on the development of safety standards for alternative refrigerants;
  国内外替代制冷剂安全相关的政策、法规和标准的进展；

- Updates on the R&D and market mechanisms to promote low GWP alternative technology, with as special focus on energy efficiency improvements;
  替代技术的研发和应用进展，特别是与替代产品能效提升相关的技术；

- Servicing Sector challenges, capacity needs and way-forward in terms of global and national perspectives;
  全球和国家视角下维修行业的挑战、能力需求和前进之路；

- Trends and opportunities for not in-kind technologies for various HVAC&R applications.
  应对各种制冷、空调和暖通空调应用的非典型性技术的趋势及机遇。

Target Audience
目标嘉宾

UN Environment, UNDP, FECO and CRAA will send invitation letters to the potential exhibitors to participate in the Roadshow. Finally, UN Environment, UNDP, FECO and CRAA will jointly select at least 50 exhibitors to participate in the Roadshow based on the technologies that they will be showcasing. Only the invited exhibitors will be allowed to exhibit their products or displaying board in the Roadshow.

UN Environment、UNDP、FECO 和 CRAA 将会给潜在的路演参展商发送邀请函，并将基于他们所要展示的技术联合挑选至少 50 家参展商参加路演，只有被邀请的展商可以在路演展台上展示样品或展板。

UN Environment, UNDP, FECO and CRAA will further separately invite the other international organizations, NGOs, as well as government departments from bilateral agencies like GIZ, Japan, USA 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. UN Environment, UNDP, FECO and CRAA will also invite the industry association from other countries such as India, Brazil, US, the EU and Japan, Republic of Korea, Australia and Canada for their participation of the Roadshow as well as the roundtable.

UN Environment、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）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印度、巴西、美国、欧盟、日本、韩国、澳大利亚、加拿大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：

- Technical and business managers from chemical and equipment manufacturing industries producing and/or consuming HCFCs/alternatives;
  生产或使用 HCFCs/替代品的化工和设备制造行业的技术经理和业务经理；

- Decision makers from the R&AC industries and companies;
  制冷空调行业或企业的决策者；

- Technical experts engaged in technology research and development as well as assessment;
  从事技术研究、推广以及评估的技术专家；

- Representatives from key importing and exporting companies and industries in the region.
  领域内主要进出口企业和行业代表。

The Roundtable will be organized in a meeting hall near the venue of the Roadshow (to be specified later). The side-sessions on different topics would also be organized in the meeting area of the booth for the Roadshow.
圆桌会议会在路演临近的会议厅举办。同期，还将在路演展区的会议区举办不同主题的分论坛。

Expected Outcomes of Roadshow and Roundtable
路演和圆桌会议的预期成果

- Update the effort made for the implementation of the Montreal Protocol, especially on HFCs phasedown, and the implications to the selection of the alternatives;

《蒙特利尔议定书》实施取得的最新成果，特别是 HFCs 削减和替代品的选择；

- Outreach available ozone- and climate-friendly technologies for HCFCs phase out;
  推广已成熟的臭氧气候友好技术以淘汰 HCFCs；

- Update on progress of alternatives and their applicability for HCFCs Phase-out;
  制冷剂替代进展以及替代制冷剂在 HCFCs 淘汰中的适用性；

- Understanding on the direction for the developments of zero ODP, low/lower GWP, energy efficient alternatives to HCFCs with the context of upcoming HFC phase-down;
  在即将开始削减 HFC 的大背景下，了解零 ODP 值、更低 GWP 值和更高效能 HCFCs 替代品的发展方向；

- Share knowledge on HCFCs alternative technologies and discuss potential business opportunities through the HCFCs-phase-out process;
  分享 HCFCs 替代技术知识，讨论在 HCFCs 淘汰进程中的潜在商机；

- Identify the present, near-term and long-term need for policies, technologies and services implementing the Montreal Protocol to enable accelerated adoption of lower GWP, non- ODS refrigerant based technologies and preventing a large scale phase-in of higher GWP HFCs;
  确认执行《蒙特利尔议定书》目前的、短期和长期的政策、技术和服务方面的需求，加速采用更低 GWP 值、零 ODS 制冷剂技术，避免出现大规模使用高 GWP 值 HFCs 的现象；

- Better understanding of the needs for capacity building of the servicing sector and the options/approaches that countries could consider;
  对维修行业能力建设的需求更好的认识，以及可供国家考虑采用的加强维修行业能力建设的措施；

- Identify and discuss the emerging best practices, policy direction, and market mechanisms for accelerating the transition commercially feasible HCFCs alternatives that are environment friendly.
  讨论现有最好的实践案例，政策导向，市场化进展以及加速转换使用环保的、经济的、市场化易行的环境友好型 HCFCs 替代制冷剂的合理性。

Dates and Venue
路演及圆桌会议的时间和地点

Date: 8-10 April 2020
时间：2020 年 4 月 8-10 日

Venue: Wuhan International Expo Center, China
地点：中国 • 武汉国际博览中心