



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION
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HVACR Technologies and Policies for Climate Mitigation: Innovations, Sustainability, and Key Applications

8 – 9 October 2026
Naples, Italy

CONCEPT NOTE AND PROGRAMME

Event Background and Project Context:

Cooling is essential for public health, food safety, industrial processes, building comfort, and the digital economy. Demand for refrigeration and air conditioning is rising rapidly as temperatures increase, populations grow, and urbanization accelerates. At the same time, the sector contributes to climate change through both refrigerant emissions and the electricity consumed by cooling equipment. Achieving a sustainable cooling transition, therefore, requires a dual approach: the adoption of low global warming potential (low-GWP) refrigerants and substantial improvements in energy efficiency across cooling technologies and systems.

The Montreal Protocol on Substances that Deplete the Ozone Layer and its Kigali Amendment provide the international framework for phasing out ozone-depleting substances and phasing down substances with global warming potential. Natural refrigerants such as hydrocarbons and carbon dioxide can support this transition in suitable applications. Their wider uptake depends on appropriate policies and standards, safe product design, trained technicians, reliable components and market confidence.

The China HCFC Phase-out Management Plan (HPMP) was approved at the 77th Meeting of the Multilateral Fund, with Italy as a partner under the component of the bilateral cooperation project, which creates an opportunity to exchange policy experience, technical knowledge and market perspectives between the two countries with strong manufacturing, research and institutional capacity in refrigeration and air conditioning. The cooperation can help connect technology development with practical deployment while supporting countries' commitments under the Montreal Protocol and the Kigali Amendment.

Under the project's bilateral framework, the event in Naples will bring together Government Representatives, UNIDO, Universities, Industries, Associations, Manufacturers and Technical Specialists. The program will showcase the joint academic research conducted between participating Italian and Chinese universities on low-GWP natural refrigerant alternatives for heat pumps. The first day will examine residential heat pumps and room air-conditioning systems using natural refrigerants, with particular attention to R290 technologies, components, market developments, training and safety. The second day will address commercial and industrial refrigeration, CO₂ systems and the rapidly growing cooling demands of data centres and related technologies.

The Event Focuses on the Following Key Objectives:

- **Present the work progress on the joint research initiatives:** present the joint research focused on developing energy-efficient, low-emission heat pump water heaters using natural refrigerants, particularly R290 and CO₂
- **Strengthen policy and regulatory understanding:** share recent policy, regulatory and market developments that enable low-emission and energy-efficient technologies in the HVACR sector
- **Enhance technical knowledge on low-GWP refrigerants:** discuss practical experience with R290 and CO₂ technologies, including technology design, safety and training requirements, hybridization and heat-recovery
- **Promote bilateral cooperation and knowledge exchange:** compare developments in China, Italy and Europe and identify lessons relevant to manufacturers, policymakers

and technical institutions, and strengthen professional links and networking to support ongoing China-Italy dialogue and knowledge exchange

- **Address contemporary and future challenges in global cooling:** discuss current barriers and future needs for residential heat pumps, refrigeration and air conditioning systems, and data-centre cooling by facilitating dialogue in sharing country perspectives and experiences with the aim of promoting sustainable cooling

Expected Outcomes:

- Increase awareness and understanding of recent policy, regulatory and market developments supporting low-GWP and energy-efficient cooling technologies, including enabling conditions required for the transition towards their wider adoption
- Strengthen technical knowledge of R290 and CO2 technologies, including their design, safe application, technician training, hybrid solutions and heat-recovery potential across cooling applications
- Facilitate the exchange of experience between China and Italy, including wider Europe, helping academia, research and technical institutions, industries and policymakers in identifying opportunities for developing cooperation networks and knowledge sharing
- Foster bilateral dialogue between China and Italy by sharing best practices and exploring potential joint academic and research initiatives around low-GWP and energy-efficient cooling technologies
- Enhanced understanding of current challenges and future outlooks in commercial, residential and data-center cooling, contributing to the development of sustainable cooling pathways aligned with the Montreal Protocol and its Kigali Amendment objectives

Format:

The event will take place over two days at the Congress Center of the University of Naples Federico II, in Naples, Italy. On both days of the event, the agenda includes technical presentations, expert panel discussions, and time for dialogue among participants.

Participation:

The event is open to external participants. As places are limited, interested attendees are required to register following the link or QR code below.

<https://forms.gle/Uinu8e6fwYNViCxG8>



HVACR Technologies and Policies for Climate Mitigation: Innovations, Sustainability, and Key Applications

HPMP China-Italy Bilateral Cooperation Project

Draft Event Agenda

Date: 8 and 9 October, 2026

Venue: Aula Magna – Congress Center, University of Naples Federico II, Via Partenope 36, Naples, Italy

#	Date and Schedule	Topics and Contents	Lead
Day 1: State of the Art and Innovations in Residential HPs with Natural Refrigerants (13:00 – 16:30, CET, 8 October)			
Session 1: Opening (13:00-13:30)			
1	13:00-13:10	Greetings from the Host Institution	Mr. Andrea Mazzucchi, Rector of the University of Naples Federico II
2	13:10-13:20	Opening and Welcoming Remarks by the Ministry of Environment and Energy Security, Italy	Mr. Alessandro Giuliano Peru, Senior Policy Advisor, Ministry of Environment and Energy Security, Italy
3	13:20-13:25	Opening Remarks by Foreign Environmental Cooperation Center of the Ministry of Ecology and Environment, China (online)	Ms. Xiaoyan Li, Senior Program Manager, Foreign Environmental Cooperation Center, Ministry of Ecology and Environment, China
4	13:25-13:30	Opening Remarks by United National Industrial Development Organization (UNIDO)	Mr. Yunrui Zhou, Industrial Development Officer, United Nations Industrial Development Organization
Session 2: Speakers (13:30-15:30)			
5	13:30-13:45	Refrigerant Options for Refrigeration and Air Conditioning	Mr. Fabio Polonara, International RAC Expert at UNIDO, Professor at Università Politecnica delle Marche (retired)
6	13:45-14:00	R290 Room Air Conditioning – Current Technologies in China	Mr. Baolong Wang, International RAC Expert at UNIDO, Professor at Tsinghua University
7	14:00-14:15	Small-Diameter Heat Exchangers in R290 Air Conditioning: Applications, Challenges and Solutions	Mr. Xinyu Zhao, Product Manager, Midea Group
8	14:15-14:30	Market - State of the Art and Perspectives for RAC in Italy/Europe	Mr. Marco Dall'Ombra, Chairman of the HP WG, Assoclima
9	14:30-14:45	Peculiarities of Training Related to CO2 and R290	Mr. Marco Buoni, CEO, Centro Studi Galileo

10	14:45-15:00	Q&A	
11	15:00-15:30	Coffee Break	
Session 3: Panel Discussion (15:30-16:30)			
12	15:30-16:15	Open Issues and Challenges in the Adoption of Natural Refrigerants in the RAC Sector: • Mr. Maurizio Pieve, Senior Researcher, ENEA • Mr. Thomas Novak, Board Member of the European Heat Pump Association • Mr. Xianting Li, Vice-President of the Chinese Association of Refrigeration • Mr. Claudio Zilio, Past President of AiCARR Association, Professor at Padua University	Moderator: TBD
13	16:15-16:30	Q&A	
Day 2: Outlook and Challenges of HVACR Systems for the Refrigeration Sectors and Data Center Cooling (09:30 – 13:15, CET, 9 October)			
Session 4: Speakers (09:30-12:00)			
14	09:30-09:45	Sustainable Design and Resilient Operation in Cooling Devices	Mr. Alfonso William Mauro, International RAC Expert at UNIDO, Professor at the University of Naples Federico II
15	09:45-10:00	Global Trends in Refrigeration Technologies	Ms. Yosr Allouche, Director General, International Institute of Refrigeration
16	10:00-10:15	Refrigerant Application Status and Future Alternative Solutions for Commercial and Industrial Refrigeration in China	Mr. Shengchun Liu, Professor, Tianjin University of Commerce
17	10:15-10:30	Natural Refrigerants for Low-Carbon Transformation of Industrial & Commercial Refrigeration: Moon Tech's Technology Roadmap and Practice	Mr. Chenyang Wen, Director, Moon Tech
18	10:30-10:45	Maximizing Performance and Sustainability in Any Climate with CO2 Refrigeration	Mr. Francesco Mastrapasqua, SR Manager for Institutional Affairs, EPTA Group
19	10:45-11:00	Thermal Control of Data Centers: Current Status and Future Trends	Mr. Sauro Filippeschi, Professor, University of Pisa
20	11:00-11:15	Heat Exchangers for Data Centres and Commercial Refrigeration with CO2	Mr. Stefano Filippini, Innovation & Product Development Director, LU-VE SpA
21	11:15-11:30	Q&A	
22	11:30-12:00	Coffee Break	

**Session 5: Panel Discussion
(12:00-12:45)**

23	12:00-12:45	Outlook and Challenges on the Refrigeration Sectors, and Data Center Cooling: • Mr. Enrico Zambotto, Vice-President, ASSOCOLD • Mr. Arno Kaschl, Policy Analyst, EU DG Clima • Mr. Giovanni Cortella, Italian Delegate at IIR, Professor at University of Udine • Mr. George Hannah, Vice President, Thermal Systems and Advanced Development at VERTIV	Moderator: TBD
24	12:45-13:00	Q&A	

**Session 6: Final Conclusions and Closing
(13:00-13:15)**

25	13:00-13:05	Closing Remarks by the Ministry of Environment and Energy Security, Italy	Mr. Alessandro Giuliano Peru, Senior Policy Advisor, Ministry of Environment and Energy Security, Italy
26	13:05-13:10	Closing Remarks by Foreign Environmental Cooperation Center of the Ministry of Ecology and Environment, China (online)	Ms. Xiaoyan Li, Senior Program Manager, Foreign Environmental Cooperation Center, Ministry of Ecology and Environment, China
27	13:10-13:15	Closing Remarks by United National Industrial Development Organization (UNIDO)	Mr. Yunrui Zhou, Industrial Development Officer, United Nations Industrial Development Organization

End of Programme