
**Montreal Protocol
on Substances that
Deplete the Ozone Layer**

Distr.: General
11 October 2023
English only

Workshop on energy efficiency

Nairobi, 22 October 2023

Concept note and provisional programme

(Forth revised draft)

The workshop on energy efficiency is being convened pursuant to paragraph 4 (a) of decision XXXIV/3, on enabling enhanced access and facilitating the transition to energy-efficient and low- or zero-global-warming-potential technologies, adopted by the Thirty-Fourth Meeting of the Parties to the Montreal Protocol. The objective of the workshop is to:

- (a) share information, experiences and lessons learned,
- (b) assess challenges related to ways of improving availability and accessibility to energy-efficient equipment and equipment using low- or zero-global-warming-potential alternatives during the implementation of the Kigali Amendment.

The workshop will include interventions from various experts knowledgeable on subject matters to be considered during sessions, and will provide sufficient time for discussion with the audience. In addition, the workshop will feature e-poster sessions for presenting case studies of policies and their implementation.

The outcomes of the workshop will be presented to the Thirty-Fifth Meeting of the Parties to the Montreal Protocol to be held immediately after the workshop, on 23–27 October 2023, for further consideration and to recommend a way forward as appropriate.

I. Concept note

A. Background

1. In decision XXXIV/3, on enabling enhanced access and facilitating the transition to energy-efficient and low-and-zero-global-warming-potential technologies, paragraph 4, the parties to the Montreal Protocol requested the Ozone Secretariat to:
 - Organize a one-day workshop to share information, experiences and lessons learned, and assess challenges related to ways of improving availability and accessibility of energy-efficiency equipment and equipment using low- or zero-global-warming-potential alternatives during the implementation of the Kigali Amendment;
 - Prepare a report of existing policies addressing the interlinkages between phasing down hydrofluorocarbons (HFCs) and enhancing energy efficiency.

B. Format of the workshop

2. The workshop will take place over one day, on 22 October 2023, prior to the Thirty-Fifth Meeting of the Parties. It will be split into five sessions. Sessions 1, 3 and 4 will include presentations by experts on the key issues under the subject matter of the session, sharing insights from a substantive and practical perspective. Session 2 will feature two consecutive panel discussions with experts from manufacturing and servicing industries, while session 5 will be a panel discussion with representatives from parties to share their key takeaway messages arising from the workshop. All sessions will also provide time for discussion as well as for a question-and-answer segment, allowing the audience to contribute and have their queries addressed.
3. In addition, e-poster sessions will be organized during the coffee breaks and the lunch break, with the aim of presenting a diverse range of applied policies and solutions, covered in the case studies,¹ thereby broadening the scope of knowledge shared in the workshop with practical insight. In the poster sessions, selected parties and organizations will deliver concise presentations on their case studies. The audience may move freely among the poster sessions to exchange views and ideas.
4. By combining interactive elements, expert presentations, and focused discussions, the workshop will aspire to create a productive and enlightening forum to share practical insights and ideas with the workshop participants.

C. Objectives

5. The overall objectives of this workshop are to provide an opportunity for delegates to:
 - Share information, experiences and lessons learned,
 - Assess challenges related to ways of improving availability and accessibility of energy-efficient equipment and equipment using low- or zero-global-warming-potential alternatives during the implementation of the Kigali Amendment.
6. More specifically the workshop will focus on:
 - The barriers to be addressed to increase availability of, and improve accessibility to, energy-efficient refrigeration, air-conditioning and heat-pump equipment (RACHP) using low- or zero-global-warming-potential alternatives;

¹ UNEP/OzL.Pro/Workshop.12/INF/1–UNEP/OzL.Pro.35/INF/9.

- Some key policy options that can be considered for tackling such barriers, improving the energy efficiency of both new and existing RACHP equipment and promoting their demand and uptake;
- The need for a broader set of supportive and enabling policies that can help to respond to the challenge of meeting the overall demand for cooling and heating sustainably with minimal impact on the global climate.

D. Workshop documents

7. Pursuant to paragraph 4 (b) of Decision XXXIV/3, the Secretariat prepared a background note about existing policies concerning interlinkages between phasing down HFCs and enhancing energy efficiency, to serve as a background document for the workshop.²
8. For the purpose of that note and the workshop, the Secretariat first requested parties to submit any relevant policies and information concerning the subject matter of the workshop from their national perspective. In addition, the Secretariat identified and summarized 15 case studies examining how such policies have been tried and tested in various countries, most with the involvement of national ozone authorities. Case studies are presented through the lens of paragraph 4 (a) of decision XXXIV/3, that is, sharing experiences and lessons learned and assessing challenges related to ways of improving availability and accessibility of energy-efficient equipment containing low- and zero-global-warming-potential alternatives. The case studies are included in an information note for the workshop, available only in English.
9. Most of the case studies have been validated by their implementers to the extent possible. Should parties wish to include any further corrections, however, provide additional information on these case studies or share any other relevant case studies, they can inform the Secretariat.
10. Some of the case studies will be presented in the poster sessions during breaks.
11. A summary of the outcomes will be prepared by the Secretariat based on the discussions in all the sessions. The key messages that can be taken away from the workshop, to be presented in session 5, will be an important part of the summary document. The document will be presented and considered at the Thirty-Fifth Meeting of the Parties under agenda item 11 of the provisional agenda of the preparatory segment.³

² UNEP/OzL.Pro/Workshop.12/2–UNEP/OzL.Pro.35/10.

³ UNEP/OzL.Pro/Workshop.12/3 –UNEP/OzL.Pro.35/11.

II. Provisional programme of the workshop

Opening (09:00 – 09:10)

Opening Remarks – Megumi Seki, Ozone Secretariat

Introduction to the workshop – Liazzat Rabbiosi, Ozone Secretariat

Session 1: Landscape of energy efficiency in the refrigeration, air-conditioning and heat-pump sector (09:10 – 10:30)

Facilitator: Shikha Bhasin, UNEP Cool Coalition

The energy efficiency landscape in the RACHP sector offers great potential to mitigate climate impact through the adoption of low- and zero-global-warming-potential refrigerants and enhanced energy efficiency. Rising temperatures drive increased demand for cooling, especially in developing economies, where many still have limited access to air-conditioning and refrigeration systems. There is an urgent need to switch to low-emission refrigeration, air-conditioning and heat-pump solutions, but that transition needs to overcome a number of barriers. Policymakers have a range of possible policy instruments to consider to tackle these challenges and promote sustainable solutions.

The session will aim at setting the scene on the current discussion about energy efficiency related to the RACHP sector and the growing need for cooling. Challenges and barriers to increasing the availability and accessibility of energy-efficient equipment, and equipment with low- and zero-global-warming-potential refrigerants, will be discussed. The overall policy implications also will be presented and discussed.

Energy Efficiency: state of play

Conor Gask, International Energy Agency

Understanding energy efficiency in refrigeration and air conditioning: opportunities and strategies

Ray Gluckman, Technology and Economic Assessment Panel (TEAP)

Challenges and barriers associated with making efficient RACHP using low- and zero- global-warming-potential refrigerant more accessible and adopted

Omar Abdelaziz, RTOC/EETF, TEAP

An integrated policy approach to energy efficiency in cooling

Satish Kumar, Alliance for an Energy Efficient Economy

Discussion session

Coffee break, and e-poster session (10:30–11:00)

Eight stations will be set up for organizations and parties to present case studies of applied policies and solutions.

Session 2: Technologies – making energy-efficient equipment and equipment using low- and zero-global-warming-potential alternatives more available (11:00–13:00)

Facilitator – Ayman Eltalouny, UNEP

To enhance energy efficiency in the RACHP industry, while phasing down high-global-warming-potential refrigerants, manufacturers are looking into advancing designs for better performance and reducing energy consumption during the use phase. It is also important for policymakers to introduce and showcase cutting-edge technologies to bridge the knowledge gap and foster their adoption. Energy efficiency standards integrating global-warming-potential values can offer clarity and reduce uncertainties for relevant businesses. Small- and medium-sized enterprises, however, face a challenge of finding affordable options to integrate these improvements and technical innovations into their businesses. The servicing sector is critical to the safe refrigerant transition and enhancing energy-efficiency of equipment during installation and routine maintenance.

The session will consist of two, consecutive panel discussions with experts concentrating on the manufacturing and servicing phases of the RACHP value chain, respectively. Discussions will focus on measures needed to this end from the policy perspective to stimulate actions within the industry.

Panel 1: Manufacturing (product design, refrigerant choices, components, assembly sector and small- and medium-sized enterprises)

Bettina Schreck, UNIDO

Francesco Scuderi, Eurovent

Nabil Shahin, Air-Conditioning, Heating, and Refrigeration Institute (AHRI), Middle East

Ren Tao, China Refrigeration and Air conditioning Industry Association (CRAA)

Panel 2: Servicing (installation, maintenance and operation practices)

Madi Sakande, U-3ARC

Greg Picker, Refrigerant Australia

Claudia Sanchez, Colombian Association Refrigeration and Air-conditioning Industry (ACAIRE)

Philipp Denzinger, GIZ Proklima

Manuel Azucena, Refrigeration & Air conditioning Technicians Association of the Philippines

Discussion session

Lunch break and e-poster session (13:00–14:30)

Session 3: Policy options for enhancing the adoption and uptake of energy efficient equipment with low- and zero-global-warming-potential refrigerants (14:30–16:00)

Facilitator: Monica Wambui, CLASP

To motivate widespread adoption of energy efficient RACHP models using climate-friendly refrigerants, overcoming the challenge of higher costs relative to traditional technologies is crucial. Governments have the power to stimulate demand as the largest consumer in the market, particularly through public procurement as well as by establishing minimum energy performance standards (MEPS) and labelling requirements, accompanied by raising user awareness. Solutions, such as promoting cooling as a service, offering innovative financial incentives that also target the most vulnerable and low-income communities, and engaging with banks to propose sustainable finance packages, can help to create market transformation in this sector.

The session will discuss various policy options and tools that are available to support decision-making and implementation by national ozone authorities in addressing the accessibility and adoption of energy-efficient RACHP equipment using low- and zero-global warming potential refrigerants. The examples of their application will be also discussed in the session and featured in poster sessions.

Minimum energy performance standards and labelling, including regional harmonization Nihar Shah, Lawrence Berkeley National Laboratory

Leveraging incentive-based schemes Brian Holuj, UNEP United for Efficiency (U4E)

Engaging government purchasing power: public and bulk procurement Stephen O. Andersen, Institute for Governance and Sustainable Development (IGSD)

Cooling as a business model and other innovative approaches Andrea Voigt, RTOC/Cool Coalition

Discussion session

Coffee break and e-poster session (16:00–16:30)

Session 4: Enabling policies for an integrated approach (16:30–18:00)

Facilitator: Thanavat Junchaya, the World Bank

The adverse climate impact of the RACHP sector is predominantly driven by extensive electricity consumption, which shows the importance of behavioural change through awareness and a range of incentives. Importantly, strategies to centralize the provision of cooling and heating and boost building thermal efficiency, employing passive cooling solutions in building and city design, are crucial. An integrated approach in planning, designing and implementing policies is key for effectively realizing the climate benefits of the Kigali Amendment: transitioning to low- and zero-global-warming-potential alternatives, improving efficiency of incumbent equipment and meeting demand for cooling sustainably. Such approach also requires integrated funding through co-funding options and blended finance.

The session will discuss the importance of an integrated approach which means also considering curtailing the growing demand for cooling, and using sustainable approaches that include longstanding traditional approaches as well as new approaches. It will discuss the experience of implementing National Cooling Action Plans as a tool for integration, coordination, collaboration and integrated funding.

Integrated policy approach: National Cooling Action Plans, lessons learned, way forward Etienne Gonin, UNDP

Building and urban design to reduce cooling load and for heat resilience, including district cooling and heating Rajan Rawal, Centre for Advanced Research in Building Science and Energy, CEPT University

Financing energy efficiency and sustainable RACHP Lukas Kahlen, NewClimate Institute

Discussion session

Final session: closing remarks and wrap-up (18:00–19:00)

Facilitator: Patricia Kameri-Mbote, UNEP

The session will include a panel with representatives from parties to share the key messages that can be taken away from the workshop. The outcome document will be prepared by the Secretariat based on the discussions at the workshop, drawing from this session in particular. The outcome document will be presented and considered at the Thirty-Fifth Meeting of the Parties under agenda item 11.

Panel discussion with Mr. Kofi A. Agyarko (Ghana), Yaqoub Al-Matouq (Kuwait), Philippe Chemouny (Canada), Tom van Ierland (European Union), Sergio Merino (Mexico), and Ryan Ooi Chean Weai (Malaysia)

Drinks in the garden (19:30–21:00)