UN environment programme

Annual Global Cooling Pledge Progress Report November 2024

For Endorsement at the COP29 Global Cooling Pledge Ministerial

Cool Coalition

Introduction

The Global Cooling Pledge, a first-of-its-kind political initiative dedicated to sustainable cooling, has three primary aims: to reduce cooling-related emissions by 68% relative to 2022 by 2050; to greatly increase access to sustainable cooling by 2030; and to increase the global average efficiency of new air conditioners by 50% through raised ambition and international cooperation.

Under the aegis of the COP28 UAE Presidency, the Global Cooling Pledge was launched at COP28 in Dubai in December 2023 with high-level representation and support from more than 60 countries. This Pledge, a first-of-its-kind political initiative dedicated to sustainable cooling, has three primary aims: to reduce cooling-related emissions by 68% relative to 2022 by 2050; to greatly increase access to sustainable cooling by 2030; and to increase the global average efficiency of new air conditioners by 50% through raised ambition and international cooperation.

As of October 2024, a total of 71 countries had joined the Global Cooling Pledge. In addition, 7 sub-national cities/regions and 66 non-state actors had officially endorsed the Pledge. The Pledge signatories represent a total population of just over 2 billion people, of which more than half (56%) are in developing countries. They span different regions, climatic zones and levels of economic development. The political ambition and impact of the Pledge is significant. The signatories have agreed to try to achieve 14 commitments that support the overall aims of the Pledge.

This document is the first annual *Global Cooling Pledge Progress Report*, based on data collected from participating countries between August and October 2024, as well as on data collected in 2023 as part of the UNEP-Cool Coalition *Global Cooling Watch* report. A questionnaire was circulated to all signatories requesting information that will help track progress. It was developed by the lead authors of the *Global Cooling Watch* report and approved with feedback from the Global Cooling Pledge Contact Group as well as members of the Cooling and Refrigeration Energy and Emissions Data working group (CREED), which was set up by UNEP-Cool Coalition in conjunction with the International Institute of Refrigeration (IIR).

COP28 Pledge launch. *Credit: UNEP*

Blue vending machine. *Credit: Markus Winkler/unsplash.com*

Delicious ice cream with mint. *Credit: freepik.com*

Since rolling out the questionnaire requesting data inputs, the UNEP-Cool Coalition Secretariat has been conducting calls with various signatories to clarify the questionnaire and to assist them with the initial responses and progress assessment. During these calls, the Secretariat explained the purpose of the questionnaire and provided detailed guidance on questions requiring further elaboration or description. Additionally, the Secretariat identified success stories, challenges and barriers related to the Global Cooling Pledge. In most cases, a follow-up needs assessment call was scheduled to determine the specific needs of different countries to support them in their implementation of the Global Cooling Pledge (see Box 1).

BOX 1: Initial Findings from the Needs Assessment Calls

During 2023-2024, the UNEP-Cool Coalition Secretariat convened needs assessment calls with signatories of the Global Cooling Pledge to provide support alongside the questionnaire on country progress towards the Pledge. These calls have been key in identifying priorities, gaps, challenges and opportunities. Among the main needs identified are the lack of data availability and the limited capacity to collect and analyse cooling-related data. Many countries struggle with establishing robust monitoring, reporting and verification (MRV) systems to track progress on cooling targets. Strengthening technical capacities in data collection and management will be essential to accurately assess and report on the progress of the implementation of the Pledge going forward.

These efforts have been used to assess the progress made by signatory countries since joining the Global Cooling Pledge. Progress towards each commitment is noted below, in addition to key developments and highlights that Pledge signatory countries have made since joining the Global Cooling Pledge.

Progress Achieved During 2024

As of October 2024, a total of 71 countries had joined the Global Cooling Pledge, which was formally launched in December 2023 during the COP28 event in Dubai, United Arab Emirates. Of these, 63 countries joined ahead of the launch, and the remaining 8 countries joined by March 2024. Among the signatories, **55 (77% of the total) are developing countries (Article 5 countries under the Montreal Protocol), including 14 least developed countries (20%) and 12 small island developing states (17%)**.

The Pledge includes 14 commitments made by the national governments of each signatory. Progress related to each of these commitments is described below. It is important to recognize that most signatories remain in the planning phase and have been identifying what actions need to be implemented to meet the commitments.

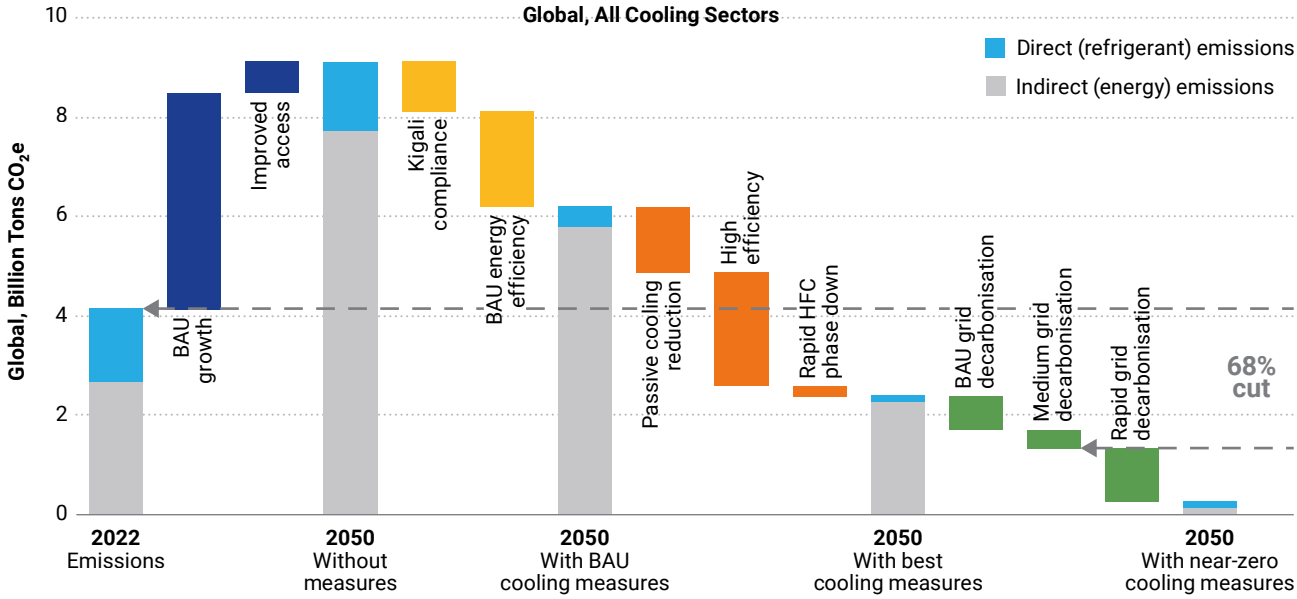
Among the signatories, 55 (77% of the total) are developing countries (Article 5 countries under the Montreal Protocol), including 14 least developed countries (20%) and 12 small island developing states (17%).

Hanoi, Vietnam. *Credit: Norbert Braun/unsplash.com*

1. *Commit to work together with the aim of reducing cooling-related emissions across all sectors by at least 68% globally relative to 2022 levels by 2050, consistent with limiting global average temperature rise to 1.5°C and in line with reaching global net-zero emissions targets with significant progress and expansion of access to sustainable cooling by 2030. This aim will be advanced through individual countries' domestic actions as consistent with their domestic plans and priorities, and international collaboration.*

This is a key long-term commitment for which progress is difficult to judge so soon after the launch of the Pledge. Discussions with signatories have identified a need to specify milestone targets (e.g. every 3 to 5 years) that can be used to judge progress in future years. UNEP-Cool Coalition will agree on appropriate milestone targets with signatories and publish them during 2025. These intermediate targets will help in tracking progress and reporting successes made by countries going forward, within the time frame of the Global Cooling Pledge. Figure 1 and Box 2 elaborate on the basis of the 68% emissions savings target, and Box 3 shows the co-benefits created by a pathway towards sustainable cooling.

FIGURE 1: Annual Cooling Greenhouse Gas Emissions 2022 - 2050



Source: HFC Outlook Model, adapted for UNEP Global Cooling Stocktake Project, 2023

BOX 2: Emission Reduction Pathways to Achieve a 68% Cut in Greenhouse Gas Emissions from Cooling

The quantitative targets in the Global Cooling Pledge are based on modelling of the greenhouse gas emissions from cooling equipment that were published in UNEP-Cool Coalition's *Global Cooling Watch 2023*.

Cooling equipment creates two distinct types of greenhouse gas emissions: (i) direct emissions – from the refrigerants used, and (ii) indirect emissions – from the energy used to operate the equipment.

The commitments in the Global Cooling Pledge were aimed at helping participating countries create a pathway towards near-zero greenhouse gas emissions from cooling. To achieve the 68% cut specified in Commitment 1 of the Global Cooling Pledge, UNEP-Cool Coalition modelling shows that:

- Baseline global emissions in 2022 were 4.1 billion tons of carbon dioxide equivalent (CO2e) (36% direct and 64% indirect).
- The global stock of cooling equipment could grow from 22 terawatts (TW) in 2022 to 62 TW by 2050.
- The 2050 stock of equipment could reduce by 24% through cooling load reduction initiatives.
- The 2050 global direct emissions could be 0.1 billion tons of CO2e with Kigali compliance, plus the commitment for an accelerated phase-down of hydrofluorocarbons (HFCs).
- The 2050 global indirect emissions could be 1.2 billion tons of CO2e through the adoption of high energy efficiency cooling equipment combined with an electricity decarbonization trajectory that would require reaching zero CO2 emissions in developing countries by 2070 and in developed countries by 2040.

Together these measures result in 1.3 billion tons of CO2e of emissions from cooling equipment in 2050, a 68% cut from the 2022 baseline.

BOX 3: Cost Savings and Other Co-benefits of Sustainable Cooling

The 68% cut in cooling greenhouse gas emissions would also result in significant co-benefits including:

- **Access** – make it possible for an additional 3.5 billion people to benefit from refrigerators, air conditioners or passive cooling by 2050.
- **Energy cost savings** – reduce electricity bills for end users by US$1 trillion in 2050 (and by US$17 trillion cumulatively between 2022 and 2050).
- **Reduce peak power demand** – reduce peak power requirements by between 1.5 TW and 2 TW – almost double the total generation capacity of the European Union (EU) today.
- **Electricity infrastructure cost savings** – avoid the need for power generation investment in the order of US$4 trillion to US$5 trillion.
- **Cooling equipment cost savings** – curb the growth in demand for cooling capacity in 2050 by 24% through passive cooling strategies, resulting in capital cost savings in avoided new cooling equipment of up to US$3 trillion.

Laboratory researcher. *Credit: National Cancer Institute/ unsplash.com*

Jakarta, Indonesia. *Credit: Dewi Karuniasih/unsplash.com*

2. Commit to ratify the Kigali Amendment by 2024.

Progress towards achieving this commitment is very good, with 66 signatories (93% of the total) having ratified the Kigali Amendment. **By mid-2023, 63 countries had already ratified, and a further 3 ratified in 2024, after the launch of the Global Cooling Pledge (Djibouti, Guatemala and United Arab Emirates)**. The 5 signatories that have not yet ratified the Kigali Amendment represent only 2% of the total population of Pledge signatories. The Global Cooling Pledge Secretariat has reached out to these signatories about their timelines to ratify the Kigali Amendment as part of their commitments to the Pledge, and at least one of these countries, Brunei Darussalam, is in the process of formalizing its ratification.

By October 2024, 93% of all Pledge Signatories had ratified the Kigali Amendment.

Ratification of the Kigali Amendment gives all developing countries access to guidance and financial support via the Montreal Protocol's Multilateral Fund (MLF, see Commitment 3), which will help ensure that HFC phase-down targets are achieved. Furthermore, Kigali Implementation Plans (KIPs) support many Pledge objectives and the development of national sustainable cooling initiatives. Funding for the MLF comes from non-Article 5 countries, including the Pledge signatories listed in Box 4. There is US$965 million of funding available to support Montreal Protocol activities in developing countries during the triennium 2024 to 2026.

BOX 4: Global Cooling Pledge Signatories Contributing to the MLF

1. Belgium
2. Canada
3. Czech Republic
4. Denmark
5. France
6. Germany
7. Italy
8. Japan
9. Kazakhstan
10. Netherlands
11. Norway
12. Spain
13. United Kingdom
14. United States

3. *Commit to support robust action through the Montreal Protocol Multilateral Fund [MLF] for early action to reduce HFC consumption and to promote improved energy efficiency for the hydrochlorofluorocarbon (HCFC) phase-out and the HFC phase-down.*

Funding from the MLF will be a useful tool to support developing countries in achieving energy efficiency improvements. MLF funding windows of US$120 million have been established for pilot projects that promote energy efficiency during the HFC phase-down.

So far, 14 signatories (20% of the total) have reported plans for HFC phase-down that are faster than those required under the Kigali Amendment; of these, **3 signatories are Article 5 developing countries (Bhutan, Lebanon and Uruguay)**.

Box 5 illustrates how regulations are enabling rapid HFC phase-down and that supportive technologies are already available in some countries. Enabling access to these technologies in all countries will be key to achieving this commitment across all Pledge signatories.

Additionally, 10 signatories (14% of the total) have reported that they are promoting improved energy efficiency during their HFC phase-down plans, of which 7 signatories are Article 5 developing countries (Armenia, Bhutan, Cambodia, Kenya, Lebanon, Mauritius and Nigeria). These signatories have referred in particular to the importance of public awareness and technician training, the use of variable speed compressors and smart controls, and the regular update of minimum energy performance standards (MEPs) and energy labelling schemes.

Funding from the MLF will be a useful tool to support developing countries in achieving energy efficiency improvements. MLF funding windows of US$120 million have been established for pilot projects that promote energy efficiency during the HFC phase-down.

BOX 5: Several Pledge Signatories (in Both Developed and Developing Countries) Are Leading the Way for Rapid HFC Phase-down

The Kigali Amendment targets for developed countries mandate a cut in HFC consumption of 40% by 2024 and 70% by 2030 (compared to a 2011-2013 baseline). The rate of HFC phase-down in the 27 EU countries and in the United Kingdom (UK) is much faster than this, with a 70% cut already achieved by 2024. The HFC phase-down began in 2015, and many cooling technologies with low global warming potential (GWP) have been introduced and are now widely available.

In 2024, the EU published a new fluorinated gas (F-gas) regulation that targets a 95% cut in HFC consumption by 2030. The EU and UK F-gas regulations combine several important policy measures to support the HFC phase-down, including mandatory leak testing, the recovery of end-of-life refrigerants, certification of technicians working with HFCs, and bans on the use of high-GWP HFCs in various cooling applications. The EU regulation also requires that imports of HFCs contained in pre-charged cooling equipment are part of the phase-down effort.

In developing countries, the focus is on the room air-conditioning sector and domestic refrigeration. HFC-32 is leading the market share in many markets, including Bhutan, Cambodia, Ghana, Lebanon and Uruguay. There have been many pilot studies and activities with HC-290, including in Ghana and Uruguay. For domestic refrigeration, HC-600a is leading the market share as the alternative low-GWP refrigerant of choice in Bhutan, Ghana, Kenya and Lebanon. In these developing countries, the transition to these low-GWP refrigerants suggests that they are well ahead of the Kigali conversion.

4. ***Commit to publishing a national cooling action plan [NCAP], considering cooling when publishing a national action plan, or publishing a regulation or equivalent by 2026 and to reflect relevant efforts in designing nationally determined contributions [NDCs] under the Paris Agreement and HFC phase-down plans.***

Altogether, 54 signatories (76% of the total) either have an NCAP or consider cooling in their NDCs or other national plans, including 71% of Article 5 developing country signatories.

Altogether, 54 signatories (76% of the total) either have an NCAP or consider cooling in their NDCs or other national plans, including 71% of Article 5 developing country signatories. Specifically, 17 signatories (24% of the total) reported that they have published an NCAP, and 4 report that they have one in preparation. Cooling is also being considered in other national plans, reported as follows: NDCs (37 signatories); National Adaptation Plans (NAPs; 35 signatories); electricity planning (19 signatories); and other national plans (8 signatories).

Some signatories of the Global Cooling Pledge have made great advancements in developing their NCAPs to align with international climate commitments and foster deployment of sustainable cooling solutions:

- Viet Nam is nearing the completion of its NCAP, which is almost fully developed but yet to be published. The country's NCAP will play a critical role in advancing energy-efficient cooling and meeting the objectives of the Kigali Amendment (see Box 6).
- Morocco has begun the development of its NCAP with the support of UNEP-Cool Coalition. This marks an important step towards integrating sustainable cooling strategies into national policy frameworks.

Furthermore, UNEP-Cool Coalition, along with the Regional Center for Renewable Energy and Energy Efficiency (RCREEE), recently launched the Regional Programme on NCAP Methodology, beginning with the Middle East and North Africa (MENA) region, with support from the Climate and Clean Air Coalition (CCAC). The regional approach is being tailored to better suit the needs and contexts of the MENA region, to ensure that the methodology is relevant and effective in guiding cooling policy development. Developing NCAPs will facilitate the integration of cooling targets into other national plans, including NDCs and NAPs. These efforts highlight a growing recognition of the importance of sustainable cooling in addressing climate challenges and advancing national climate goals.

BOX 6: Viet Nam Develops a National Implementation Roadmap for the Kigali Amendment and the Global Cooling Pledge

In 2024, Viet Nam created its first long-term cooling strategy. With the support of UNEP-Cool Coalition, it developed its National Plan on the management and elimination of substances that deplete the ozone layer and controlled substances that cause the greenhouse effect. The National Plan establishes a comprehensive approach to cooling and will work as an implementing roadmap for the Kigali Amendment and the Global Cooling Pledge.

This National Plan includes adaptation co-benefits by deploying passive cooling strategies and urban planning, in addition to building design interventions, improved energy efficiency of equipment and cold chains, and phasing down HFCs. It notably includes requirements to reduce the urban heat island effect and withstand extreme heat, integrated into national and provincial urban development programmes and action plans to respond to climate change.

As a result, this National Plan will support provinces in aligning their green growth strategies and climate plans with NDC targets and will report on greenhouse gases and refrigerants, including those from cooling systems.

5. ***Commit to establish national model building energy codes that incorporate market appropriate measures such as passive cooling and energy efficiency strategies at the latest by 2030 for new and refurbished buildings as appropriate for those countries with jurisdiction of national building codes, or for those countries that do not have such jurisdiction, support adoption of building energy codes at the sub-national level.***

Altogether, 40 signatories (56% of the total) have national building energy codes. Of these, **7 signatories report that their codes support the implementation of passive cooling (see Box 7), 15 encourage the use of high-efficiency cooling equipment (see Box 8), and 4 include requirements for low-GWP refrigerants (see Box 9)**.

The progress towards this commitment, beyond the national-level building energy codes, illustrates the challenges related to maximizing the uptake of passive cooling opportunities.

The UNEP-Cool Coalition Secretariat is working with its partners championing city networks – such as the Global Covenant of Mayors, Bloomberg's Champ Initiative, C40 and others – to map progress on sub-national implementation of building codes in 2025.

The progress towards this commitment, beyond the national-level building energy codes, illustrates the challenges related to maximizing the uptake of passive cooling opportunities.

BOX 7: Passive Cooling of Buildings in Ghana

Through the Global Cooling Pledge, Ghana has leveraged its position to implement policy changes that further encourage sustainable cooling practices, particularly for new and refurbished buildings. Ghana has advanced in promoting energy-efficient cooling solutions through its national building energy codes. These codes encourage the use of both passive cooling strategies and high-efficiency air-conditioning units in residential and commercial buildings. The codes focus on passive cooling measures, such as improved insulation and natural ventilation. By implementing these strategies, Ghana aims to reduce energy demand and enhance the efficiency of cooling equipment in new and retrofitted buildings.

BOX 8: Kenya's Policy Leads the Way for Sustainable Buildings

Launched in July 2024, Kenya's revised National Building Code pushes for the adoption of eco-friendly practices throughout the construction sector. The code mandates the integration of energy-efficient systems, such as solar panels, passive cooling (shading, natural ventilation, insulation, evaporative cooling, etc.) and water-saving technologies, including rainwater harvesting. These measures are designed to enhance building sustainability and lower energy consumption, crucial for Kenya's efforts to reduce its carbon footprint. Moreover, starting in March 2025, new buildings in Kenya will be required to integrate smart energy systems before receiving construction approval, as outlined by the National Construction Authority's forthcoming regulations. These guidelines, part of the National Building Code 2024, aim to transform Kenya's construction industry by promoting sustainability, reducing carbon emissions and cutting utility costs.

BOX 9: Integrating Cooling in Nigeria's National Building Codes

Nigeria's National Ozone Office of the Federal Ministry of Environment has made an achievement in integrating sustainable cooling solutions into the country's national building codes. Through the National Cooling Action Plan (NCAP) formulated in 2022, and MEPS in 2024, these regulations prioritize energy-efficient cooling technologies, contributing to the phase-down of high-GWP HFCs in compliance with the Kigali Amendment. These actions are recognized as mitigation measures under the Industrial Processes and Product Use (IPPU) and energy sector of Nigeria's 2021 Revised NDC and highlights Nigeria's commitment to the Global Cooling Pledge.

6. ***Commit to work together to support increased market penetration of highly efficient air-conditioning equipment and innovative technologies and collectively increase the global average efficiency rating of new air-conditioning equipment sold by 50% by at the latest 2030 from global 2022 installed baseline.***

There is a significant range in the energy efficiency of air-conditioning equipment being sold in most countries. The least-efficient equipment can use 3 to 4 times more energy than the best available models. The least-efficient equipment can be eliminated via MEPS (see Commitment 7), but stronger market signals are required to ensure that users of air conditioning recognize the benefits of buying the most-efficient models. To sufficiently report on this commitment, national-level data on the equipment stock and its efficiency levels, as well as market data, will be needed for every country, which is very challenging to access. In its absence, UNEP-Cool Coalition has looked to innovative financing schemes and energy labelling schemes to report progress on this commitment.

BOX 10: Financing Efficiency Through Standards

The 2023 report from UNEP-Global Cooling Watch, *Keeping It Chill*, notes that, "in the absence of efficiency and sustainability standards, increased financing of inefficient and polluting cooling technologies will contribute to further global warming and increase the stock of stranded cooling assets."

The report further highlights that: "Efficiency and sustainability standards should be agreed on and incorporated into all cooling financing instruments going forward. Environmental and social performance standards of development finance institutions could be modified to ensure screening for sustainable cooling options. Studies have found that MEPS do not necessarily lead to a higher purchase price for consumers over the long term, and there is an accelerated decline in the life cycle cost following implementation. Financial mechanisms and incentives, such as tax breaks and rebates, can be used to address the higher upfront costs of efficient and climate-friendly products."

Increased market penetration of high-efficiency equipment requires innovative financing schemes and business models. In September 2024, UNEP-Cool Coalition and the International Finance Corporation (IFC) launched the report *Cooler Finance: Mobilizing Investment for the Developing World's Sustainable Cooling Needs*, highlighting various business models including asset/property-linked financing, vendor financing, pay-as-you-go, Cooling-as-a-Service (CaaS), cash for coolers, bulk procurement, on-wage financing, on-bill financing and energy service companies (ESCOs).

Altogether, 44 signatories (62% of the total) reported that they have energy labelling schemes to encourage the use of higher-efficiency cooling equipment. Most of these countries have labelling schemes for residential refrigeration (35 signatories), room air conditioning (33 signatories), commercial refrigeration (35 signatories) and non-residential building air conditioning (6 signatories).

As noted above, tracking the efficiency levels of new cooling equipment sales to measure progress towards Commitment 6 is very challenging, as it would require the establishment of equipment sales databases in each country. Where possible UNEP-Cool Coalition will identify proxy measures that can be used to track progress. For example, the use of variable speed compressors for small and medium-sized air-conditioning units is an essential step to achieve high energy efficiency. The market penetration of variable speed units is rising globally and will be reported in future Global Cooling Pledge Progress reports.

7. *Commit to establish Minimum Energy Performance Standards (MEPS) by at the latest 2030 and aim to routinely raise ambition and progress consistent with respective national laws with a view to achieve net-zero emissions by 2050 and noting best available technology and available model regulation guidelines.*

Altogether, 49 signatories (69% of the total) have MEPS for some categories of cooling equipment.

MEPS are an essential tool to drive up the efficiency of cooling equipment being sold (see Box 11). MEPS are always complemented by a market pull through a labelling programme (noted above), which in some countries is present before a mandatory MEPS has been established. Altogether, 49 signatories (69% of the total) have MEPS for some categories of cooling equipment. Signatories reported that MEPS are in place for the following categories of equipment:

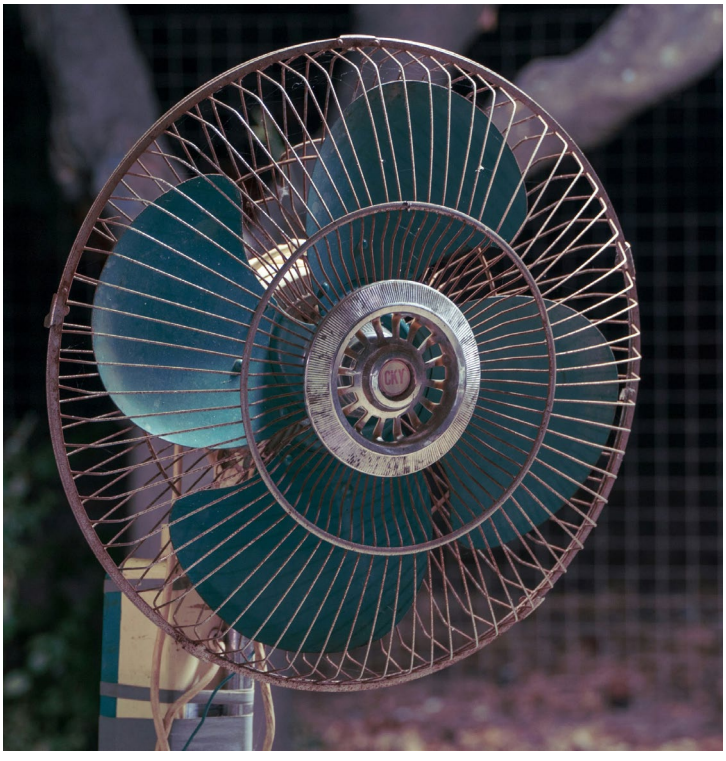
a.	Residential refrigerators and freezers	40 signatories
b.	Residential room air-conditioning units	41 signatories
c.	Food and drink retail refrigeration	37 signatories
d.	Non-residential building air conditioning	36 signatories

It is recognized that MEPs need to be challenging to be an effective tool to stop inefficient cooling equipment from entering the market, and that MEPs need to be regularly updated to reflect technology improvements that are rapidly being introduced. In total, 13 signatories reported that they routinely raise MEPs levels (see Box 12). Most stated that they do not have a fixed frequency for updating MEPs, but every 3 to 5 years is typical.

BOX 11: Nigeria Introduces Its MEPS in 2024

The Energy Commission of Nigeria took a major step forward in 2024 with the introduction of its MEPS for cooling equipment. This initiative aims to reduce energy consumption and greenhouse gas emissions by ensuring that all cooling appliances meet stringent efficiency criteria. The MEPS are in line with Nigeria's Kigali Amendment obligations, helping to phase out high-GWP HFCs while promoting the uptake of advanced, energy-efficient technologies. As a key pillar of Nigeria's commitment to the Global Cooling Pledge, the MEPS contribute to broader climate action by ensuring that cooling sector emissions are kept in check, further solidifying the country's leadership in sustainable cooling practices.

Ubud, Indonesia. *Credit: Tbel Abuseridze/unsplash.com*



Kalamata, Greece. *Credit: George Chandrinos/unsplash.com*

BOX 12: The United States Finalized Efficiency Rules for Room Air Conditioning in 2023

The U.S. Department of Energy (DOE) published a final rule for the energy efficiency of room air conditioners and portable air cleaners in July 2023. This rule took effect in 2024 for air cleaners and will apply in 2026 for room air conditioners. The DOE has raised the energy efficiency standards for room air conditioners three times since 1990, resulting in a 39% reduction in energy consumption compared to older models. This has allowed manufacturers to innovate and offer more features to consumers while maintaining energy efficiency.

8. *Commit to establish or update public procurement policies and guidance for low-GWP and high efficiency cooling technologies and innovative solutions where feasible or ensure broader arrangements are in place that drive such approaches in public procurement at the latest by 2030.*

Altogether, 19 signatories (27% of the total) have public procurement guidelines for some categories of cooling equipment (see Boxes 13-15), including the use of lower-GWP refrigerants (11 signatories), the use of high-efficiency cooling equipment (12 signatories), the use of innovative cooling solutions (5 signatories) and the use of passive cooling and load reduction measures (4 signatories).

BOX 13: Global Cooling Pledge Signatories Reporting Public Procurement Policies for Cooling

1.  Antigua and Barbuda
2.  Bahamas
3.  Bhutan
4.  Cambodia
5.  Canada
6.  Dominican Republic
7.  **Italy**
8.  Kenya
9.  Lebanon
10.  Mauritius
11.  Morocco
12.  Netherlands
13.  Norway
14.  Peru
15.  Rwanda
16.  Spain
17.  United Arab Emirates
18.  United Kingdom
19.  Uruguay

BOX 14: Green Public Procurement Guidelines in Italy

Italy's Green Public Procurement (GPP) strategy aims to advance environmental, social, and economic sustainability, targeting climate change mitigation, the promotion of a circular economy and pollution reduction. By enhancing the energy efficiency of products and services, reducing reliance on non-renewable energy sources, and encouraging the rationalization of consumption, the plan seeks to reduce greenhouse gas emissions. It also focuses on improving material efficiency, minimizing waste and promoting the reuse of recycled materials. Additionally, the strategy aims to limit hazardous substance emissions to protect air, water and soil. The plan includes regulatory roadmaps, financial incentives, and the promotion of standards and labels, while fostering innovation and competitiveness in national companies and protecting ethical standards across production chains. By collaborating with stakeholders and implementing multi-level governance, Italy ensures the effective execution of its GPP policies, ultimately enhancing sustainability and resilience.

Cooling tower. *Credit: commons.wikimedia.org*

BOX 15: Public Procurement Guidelines Development in Uruguay

Uruguay has not yet implemented specific public procurement guidelines for energy-efficient cooling technologies. However, there is ongoing work to introduce requirements for lower-GWP refrigerants and high-efficiency air conditioners, particularly for Class A and inverter technologies, as part of the country's energy efficiency programmes.

Vaccination of a child. *Credit: pixabay.com*

9. ***Commit to support collaborative research, innovation, and deployment activities at the local and international level such as renewable energy-based cooling solutions in rural, remote, off-grid locations or research and development of cooling systems applying refrigerants with GWP less than 150.***

At the most recent Clean Energy Ministerial (CEM) in October 2024, CEM and Mission Innovation members including the United States, the United Kingdom, the United Arab Emirates, Ghana and India (not a Pledge signatory) discussed the possibility of a joint working group, which would foster collaboration and knowledge exchange and focus on practical innovation and evidence to support the deployment of efficient and innovative solutions to address key challenge sectors for sustainable cooling.

30 Global Cooling Pledge signatories participated in the Buildings and Climate Global Forum Ministerial Declaration to commit to establishing inclusive decarbonization and resilience pathways for buildings at all levels.

In addition, 30 Global Cooling Pledge signatories participated in the Buildings and Climate Global Forum Ministerial Declaration to commit to establishing inclusive decarbonization and resilience pathways for buildings at all levels. This includes implementing long-term regulatory frameworks, financial incentives and standards; promoting sustainable construction materials; and enhancing capacity-building. The goal is to create near-zero emission and climate-resilient buildings while ensuring equitable access to affordable housing.

Six signatories – including Bhutan, Ghana, Guatemala, Kenya, Morocco and Paraguay – have reported government programmes to support off-grid cooling (e.g. solar-powered refrigerators). In addition, several important initiatives are aimed at building regional centres of excellence related to cooling, such as the ACES campuses in Rwanda and Kenya, which are described in Box 16.

BOX 16: Collaborative Programmes to Support Sustainable Cooling

Funded by the UK Government's Department for Environment, Food and Rural Affairs (DEFRA), the Africa Centre of Excellence for Sustainable Cooling and Cold-chain (ACES) in Rwanda has been established to increase access to resilient, efficient and climate-friendly cooling and cold-chain for all. With the support of experts from a number of European universities and from other refrigeration specialists, ACES provides a range of services including training and equipment testing. The Rwanda ACES campus opened in March 2024 and is being used as a model to be replicated in other locations. Centres in Kenya and in Haryana, India were established in 2024, and others are planned in the near future.

10. *Commit to support existing international cooling emission reduction and cooling access initiatives, such as those of the United Nations Environment Programme-led Cool Coalition, to advance global cooperation and domestic actions.*

Since joining the Pledge, all signatory countries have become members of UNEP-Cool Coalition, and several have joined working groups as well as the steering committee. The success of the Global Cooling Pledge is being enhanced by strengthening UNEP-Cool Coalition through direct and in-kind support from countries, philanthropies and the inputs from the 66 non-state actors that have supported the Pledge.

By joining the Global Cooling Pledge, 71 countries are committed to the process of working together to implement sustainable cooling. Cooling is being recognized as a crucial issue within the climate change community. There is acknowledgement of the need to install extra cooling for poorer households (in response to increasing global temperatures) while also reducing greenhouse gas emissions, as well as the need to allocate additional philanthropic and development financing towards cooling.

There is strong support available from UNEP-Cool Coalition and other key stakeholders such as the Ozone Secretariat, the Montreal Protocol's Multilateral Fund, the Climate and Clean Air Coalition (CCAC), the Clean Cooling Collaborative, the International Finance Corporation (see Box 17), the International Institute of Refrigeration (IIR) and several more. Several signatory countries also provide in-kind and financial support to these organizations (see Box 4, for example).

Furthermore, 26 countries have strategically included cooling within their Nationally Determined Contributions (NDCs), underscoring its significance in addressing climate change. Of these, 21 developing countries stand to benefit from the support offered by various multilateral organizations such as the Global Environment Facility (GEF), the Green Climate Fund (GCF), the Adaptation Fund and multilateral development banks. Moreover, several developed countries that have signed the Global Cooling Pledge maintain active bilateral funding frameworks, providing a solid foundation for green cooling projects.

Since joining the Pledge, all signatory countries have become members of UNEP-Cool Coalition, and several have joined working groups as well as the steering committee. UNEP-Cool Coalition also benefits from financial and in-kind support from signatory countries such as Denmark and the United Kingdom.

The success of the Global Cooling Pledge is being enhanced by strengthening UNEP-Cool Coalition through direct and in-kind support from countries, philanthropies and the inputs from the 66 non-state actors that have supported the Pledge. These include a number of major manufacturers of cooling equipment, various cooling industry trade bodies and professional institutions, and several universities.

BOX 17: The IFC's Sustainable Cooling Initiative, Led by UK Support

In 2024, with funding from the UK Government's Department for Energy Security and Net Zero, the International Finance Corporation announced a new Sustainable Cooling Initiative that will build on the previous success of the TechEmerge Sustainable Cooling Innovation programme, also supported by the UK.

The new initiative will have an expanded scope of operations, focusing not only on innovative technologies but also on transformative cooling systems. This includes new solutions for district cooling, cooling for green buildings, consumer and small and medium enterprise finance, innovation for agribusiness and manufacturing, and cold chains and temperature-controlled logistics. Through the "five by five" strategy, the Initiative is aiming to scale up the IFC's investments in this sector, which will serve as lighthouse demonstration projects.

This will help the IFC deliver on the Global Cooling Pledge, which the IFC also supported through an endorsement letter by its Managing Director. The IFC has been selected to serve on the Steering Committee of UNEP-Cool Coalition. Under the umbrella of thought leadership, the IFC jointly with UNEP produced a flagship report in 2024: *Cooler Finance: Mobilizing Investment for the Developing World's Sustainable Cooling Needs*.

11. ***Commit to pursue the life cycle management of fluorocarbons in particular addressing HFCs banks, if feasible, such as through the Initiative on Fluorocarbons Life Cycle Management.***

Life cycle refrigerant management (LRM) can make an important contribution to reducing direct greenhouse gas emissions from cooling equipment. Key aspects of LRM include ensuring that refrigerants are recovered from cooling equipment at end-of-life and that leakage during the lifetime of the equipment is minimized.

Life cycle refrigerant management (LRM) can make an important contribution to reducing direct greenhouse gas emissions from cooling equipment. Key aspects of LRM include ensuring that refrigerants are recovered from cooling equipment at end-of-life and that leakage during the lifetime of the equipment is minimized.

Altogether, 41 signatories (59% of the total) have reported that they have legislation for end-of-life refrigerant recovery (see Box 18). A total of eight countries reported that they have legislation on leak testing. Based on countries' requests, UNEP-Cool Coalition is considering the inclusion of LRM as part of the NDC Cooling Guide, as well as in the development of the Regional NCAP for the MENA region.

LRM is receiving significant attention in Montreal Protocol discussions, with a report on LRM published by a TEAP Task Force (Technology and Economic Assessment Panel) at the 46th Open-ended Working Group of the Parties to the Montreal Protocol (OEWG 46) in July 2024 and an LRM Workshop held at the Thirty-Sixth Meeting of the Parties (MOP 36) in October 2024. The information from both the report and the workshop provides useful LRM guidelines that can help Pledge signatories address this Commitment.

BOX 18: Life Cycle Refrigerant Management Initiatives of Selected Pledge Signatories

PLEDGE SIGNATORY	INITIATIVE(S)
Canada	• Regulation for mandatory destruction of HCFC and HFC gases that are no longer needed within a specified period.
Denmark	• Deposit-and-refund scheme for recovery and reclamation/destruction of gases. A refund is made after deducting a fixed cost for refrigerant management.
Japan	• Regulation for rational use and mandatory life cycle management of fluorocarbons in commercial applications. • Regulations for recycling of specified home appliances and vehicles at the end of life; mandatory provision for recovery and destruction of refrigerants from these devices. • Training and mandatory licence for refrigerant handlers at all life cycle stages. • Robust systems for record keeping and monitoring of the programme. • Japanese support for pilot projects in Viet Nam on the collection and destruction of gases.
Kingdom of Norway	• Tax-and-refund scheme that involves a tax on gases based on their GWP and a refund (tax amount minus cost of refrigerant management) after collection and destruction of gases. • Training and certification of technicians involved in refrigerant handling. • Regulations for collection and recycling of electronic and electrical goods and vehicles at the end of life; recovery of gases from devices at recycling facilities.
United States	• Clean Air Act regulation prohibiting the intentional venting of gases, and mandatory certification of technicians involved in refrigerant handling; data recording system for reporting on use and recovery of gases. • Voluntary Responsible Appliance Disposal (RAD) partnership programme that encourages collection and recycling of discarded appliances, including recovery of refrigerant from these appliances. • U.S. Environmental Protection Agency is developing HFC management rules under the AIM Act Subsection H, 'Management of Regulated Substances' (U.S. EPA 2023c).
Brazil and Morocco	• Pilot programmes in economically feasible sectors for bulk procurement of energy-efficient appliances with low-GWP gases and controlled replacement of old and inefficient appliances with obsolete ozone depleting substances and HFC gases. • Destruction of recovered gases from old appliances.
Singapore	• Recovery and destruction of gases are primarily linked with regulations on collection and recycling of discarded appliances and vehicles at end of life.
Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Italy, Netherlands, Spain, UK	• The EU F-Gas Regulations include a number of mandatory LRM requirements, including: — Regular leak testing — Refrigerant recovery during servicing and at end-of-life — Technician training and certification — Record keeping, related to these LRM activities

12. *Commit to review progress towards the target of the Global Cooling Pledge on an annual basis until 2030 and have a dedicated high-level meeting at the UN Climate Change Conference.*

A questionnaire was circulated to all signatories in August 2024 to collect data for this progress report, in addition to an ongoing needs assessment process (see Box 19). UNEP-Cool Coalition will continue to make efforts to help signatories provide data for the 2025 progress report. A high-level meeting dedicated to the Global Cooling Pledge is being held at COP29 in Baku, Azerbaijan.

Electrabel cooling tower. *Credit: Robert GLOD/flickr.com*

Scheveningen - The Hague, Netherlands. *Credit: Paul Einerhand/unsplash.com*

BOX 19: Needs Identified by Pledge Signatories

UNEP-Cool Coalition has been conducting needs assessments with Pledge signatories. Through this ongoing effort, in addition to the **lack of robust mechanisms for data collection as noted in Box 1**, the following priorities are emerging.

There is a pressing need for **institutional strengthening and capacity-building**, including support for sub-national implementation efforts such as passive cooling, nature-based solutions, off-grid cooling and cold chains. Strengthening institutional capacity and coordination across ministries is also crucial to ensure alignment with national strategies. Furthermore, training technicians and stakeholders in energy efficiency, MEPS and regulatory frameworks is necessary to build technical capacity.

Developing **policy and regulatory frameworks** would help signatories to develop and enforce regulations, particularly for HFC management and energy-efficient appliances. Some signatories asked for support to help develop National Cooling Action Plans (NCAPs) in order to support their cooling targets and implementation of the Pledge. Sharing best practices across countries and regions would be beneficial to accelerate progress.

Regarding **implementation**, it is essential to ensure the enforcement of strategies such as MEPS and building codes for cooling. Countries also identified need support in facilitating access to finance and banking systems to implement the Global Cooling Pledge and in assisting manufacturers to meet the new cooling and energy efficiency standards.

13. ***Commit to maintaining up-to-date, transparent, and publicly available information on our policies and commitments to inform the progress reviews and relevant reports such as the UNEP Global Cooling Stocktake.***

During 2025, UNEP-Cool Coalition will provide signatories with guidance on the types of data required to meet this commitment and will report progress at COP30. Collecting good data from Pledge signatories and other published sources will be essential to monitor developments and map progress for sustainable cooling over the coming years. However, several critical data points, such as the quantity of cooling equipment sold in each equipment category and the level of energy efficiency of this new equipment, are not easily available.

To ensure that this lack of data does not hinder progress, the UNEP-Cool Coalition Secretariat will be presenting measures or data indicators that can be used as proxies with all signatory countries in 2025 for their consideration and validation (see Box 20).

Furthermore, global progress based on these data, proxies and policies will be published biennially as part of the UNEP-Cool Coalition *Global Watch Reports* (the new name for the *Global Cooling Stocktake* report series).

BOX 20: Working Group to Improve Data Quality

In June 2024, UNEP-Cool Coalition set up the Cooling and Refrigeration Energy and Emissions Data Working Group (CREED) in conjunction with the International Institute of Refrigeration (IIR) to bring together experts that can contribute to improving the quality of available data.

Outputs from CREED will be used to support data analysis under the Global Cooling Pledge and also to provide inputs into future UNEP *Global Cooling Watch* reports. Its overarching aim is to evaluate gaps in existing resources, improve data aggregation at both country and international levels, and harmonize data categorization methods, with the following objectives:

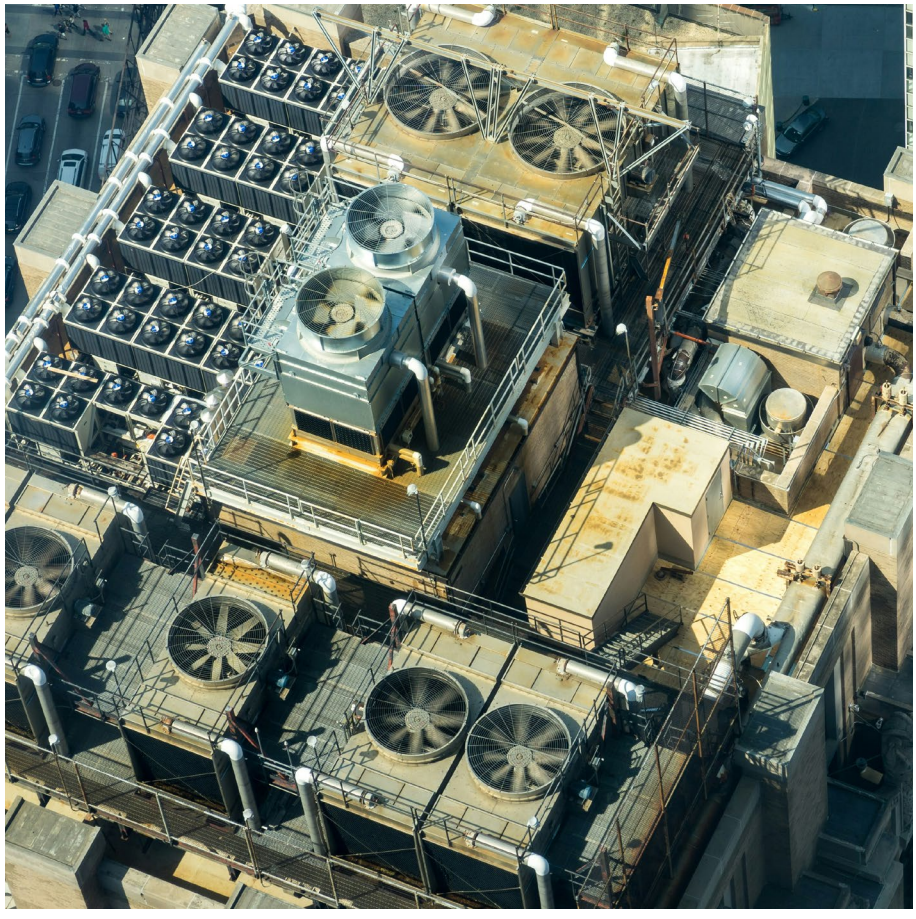
- Bring together those working in this area.
- Assimilate methodologies, and converge as much as possible in terminology/nomenclature for cooling-related datasets.
- Collate/access assumptions and datasets that exist at multiple levels of governance related to cooling; mapping regional/sectoral data, market-based data available, as well as understanding assumptions behind the existing cooling related data globally.
- Work on alignment and developing agreement on indicators and metrics for data (and proxies where data are not available) that can be used to measure progress in national strategies to reach near-zero emissions from cooling by 2050 (MEPS, building codes, Kigali implementation).

14. ***Commit to use as appropriate the national action agenda to make further progress towards the ambition of the Global Cooling Pledge and consider new commitments in the Global Cooling Pledge on an annual basis until 2030 as appropriate.***

As reported above for a number of commitments, some signatories are using a range of national tools to support their Pledge targets, such as the inclusion of cooling in NDCs, electricity supply planning and adaptation plans.

The Global Cooling Pledge Implementation Strategy, endorsed by the Pledge signatories, also includes the development of an online toolkit that will showcase guidance, knowledge and resources for countries to implement commitments made under the Global Cooling Pledge. This is under development by UNEP-Cool Coalition and the Ozone Secretariat, and will enable countries to draw inputs for their national action agendas in 2025.

Furthermore, there have been suggestions from a few signatories to expand the focus of the Global Cooling Pledge to also include a commitment or target on cold chain.



New York, United States. *Credit: Sergei A/unsplash.com*

Bunch of vegetables. *Credit: nrd/unsplash.com*

Bogor City, West Java, Indonesia.
Credit: Rendy Novantino/unsplash.com

Way Forward and Next Steps

The Global Cooling Pledge is an important multi-country initiative to encourage the adoption of sustainable cooling and to help countries ensure that they are on a trajectory towards greatly reduced greenhouse gas emissions from cooling by 2050.

The Pledge commitments are ambitious, and to ensure success it will be necessary for signatories to adopt a range of different measures to encourage the uptake of sustainable cooling. This process can be facilitated via (a) cooperation between Pledge signatories, and (b) support from UNEP-Cool Coalition's extensive membership base, as well as other key stakeholders such as the MLF, the CCAC, United for Efficiency (U4E) and others. Maximizing support from the 66 non-state actors that have endorsed the Pledge will also enhance chances of success.

Some key actions that are planned for consideration for approval by all signatories during 2025 include:

1. Development of an implementation mechanism to support achieving the Pledge commitments in collaboration with the partners of the Pledge and the UNEP-Cool Coalition membership, including:
    a. Data collection and reporting-related capacity-building
    b. Institutional strengthening
    c. National strategy development including NDCs, NCAPS, and NAPS, among others
    d. Development of investments frameworks to deliver NCAPs
    e. Policy toolkit to support achievement of Pledge commitments.
2. Setting up a constitution body of countries for inclusive governance of the Pledge Submission of interim targets by the Secretariat for signatories' consideration to better monitor progress towards quantitative commitments.
3. Clarification and finalization of cooling progress indicators, and an annual reporting template.
4. Development of a country engagement strategy.
5. Coordinating and mobilizing funding opportunities in direct support of Pledge implementation.

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