



GLOBAL COOLING PLEDGE ASSEMBLY

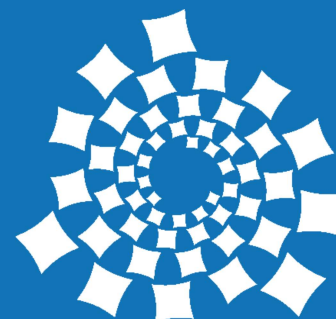
SINGAPORE 15 - 18 SEPTEMBER 2026

IGCC Session 2A



Ministry of Sustainability
and the Environment
— SINGAPORE —





GLOBAL COOLING PLEDGE ASSEMBLY

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MARKET TRANSFORMATION AND ALIGNMENT WITH THE KIGALI AMENDMENT TO SCALE EFFICIENT COOLING APPLIANCES AND EQUIPMENT

13:30-15:00

UN
environment
programme

Cool
Coalition
a UNEP-convened initiative



Ministry of Sustainability
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Facilitator Framing



Martin Krause

Director, Climate Change Division
United Nations Environment Programme

Policy and demand signals are already moving

Countries are legislating and buyers are specifying. Both point the same way — and both depend on a supply-side response neither can verify alone.



POLICY SIGNALS · governments



U4E integrated policy approach

MEPS and refrigerant requirements

Setting the floor for what may enter the market.

Labels and procurement criteria

Pulling the market above that floor.

Registration, testing, surveillance

Deciding whether the standard is real in practice.

Finance and delivery mechanisms

Making the compliant product affordable to buy.

DEMAND SIGNALS · buyers, cities, finance

Global Cooling Pledge commitments

68% emissions reduction by 2050; 50% AC improvement by 2030; national cooling action plans now in delivery, MEPS, Procurement, lifecycle refrigerant management,

Cities and institutional buyers

Beat the Heat cities and public buyers specifying efficient, low-GWP cooling.

Procurement specifications

U4E procurement and financing specifications translating policy into purchase criteria.

Demand aggregation and finance

Buyers' clubs, concessional finance and delivery models bringing volume forward.

Both signals meet at the same place: the product on the shelf. Whether it is efficient, uses an ultra-low-GWP refrigerant and is affordable is decided upstream, by manufacturers — and it is the one part that neither a government nor a buyer can verify on its own.

The Manufacturing Platform

Convened under the Cool Coalition, operationalised by UNEP United for Efficiency. Voluntary and pre-competitive — it does not regulate or certify products, and does not replace national policy or procurement.



What manufacturers commit to

All five are required · 1–3 carry quantified targets

- 1 Product performance**
A rising share of production meeting U4E efficiency benchmarks.
- 2 Refrigerant transition**
A rising share using ultra-low-GWP refrigerants, phasing down those at 750 and above.
- 3 Transparency and reporting**
A declared baseline and an annual Manufacturer Progress Report.
- 4 Market readiness, Servicing & LRM**
An action plan on availability barriers, including servicing & lifecycle refrigerant management (LRM).
- 5 Demand and procurement**
Engaging with procurement and demonstration opportunities as they arise.

What it gives governments

Supply-side information you cannot obtain alone

Targets you can hold to

Every target states a figure and a date against a declared baseline covering global production — not a selected model range.

An answer before you legislate

Where you are preparing MEPS, labels, refrigerant requirements or procurement criteria, U4E can ask participating manufacturers whether compliant product is available, planned, or blocked by a named barrier.

A floor, not just intent

Minimum ambition requirements apply to efficiency and to refrigerant transition, assessed independently. Levels are being finalised with a Technical Advisory Group.

What manufacturers get

Why a company joins

Recognition

Recognition as a manufacturer supporting the transition to sustainable cooling, with visibility through Cool Coalition and Global Cooling Pledge processes. Participants may also be considered under the separate Cool Leaders recognition.

Forward visibility

Early sight of emerging policy, standards, procurement and market developments across markets, so production and portfolios can be planned rather than retrofitted.

Direct engagement

Structured access to governments, buyers and implementation partners, and a pre-competitive space to raise feasibility, cost and readiness constraints.

One common framework

Effort measured on a comparable basis across the industry, instead of responding to ad hoc requests from many directions.

Joining: endorse the Founding Commitment, then 12 months to submit portfolio, baseline and targets for assessment.



Rapporteur reporting back



Avipsa Mahapatra

Climate Campaign Director,
Environmental Investigation Agency, US

Cool Spotlight



Li Xiaoyan

Senior Programme Officer, Montreal Protocol Division,
Foreign Environmental Cooperation Center,
Ministry of Ecology and Environment (FECO), China



IGCC Session 2A

China's Experience in Transforming the Room Air Conditioner Market

Scaling Efficient, Climate-Friendly Cooling in Room Air Conditioning

Li Xiaoyan

Foreign Environmental Cooperation Center (FECO), China

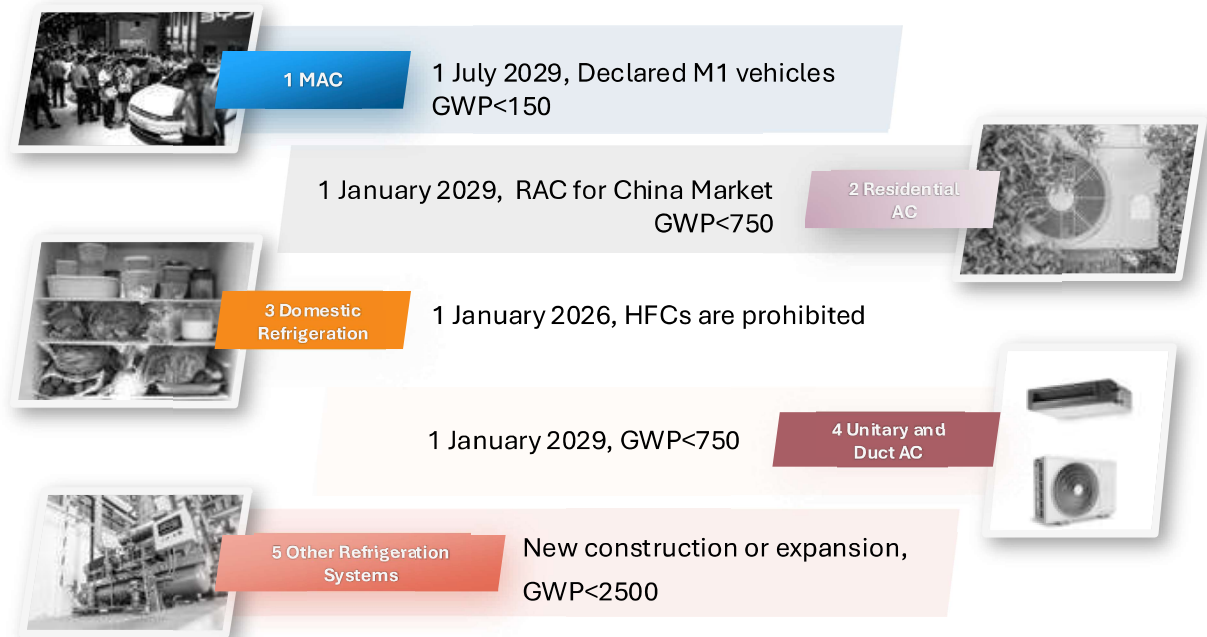


Policy and Regulatory Actions under the Kigali Amendment



- 2021-included in the Import/export license system
- 2021/2024-Restrictions introduced on new HFCs production capacity
- 2021-Mandatory destruction of HFC-23 by-product emission
- 2023-*ODS management Regulation updated to include HFCs*
- 2024-HCF production Quota system was introduced.

April 2025-National Implementation Program for the Montreal Protocol on Substances that Deplete the Ozone Layer (2025–2030)



China's Room Air Conditioner Energy Efficiency Standards



Five revisions since the first standard in 1989



Energy-saving benchmark added
No grades yet

GB 12021.3-2000

2000



Five efficiency grades introduced

GB 12021.3-2004

2004



Stricter entry for fixed-speed units

GB 12021.3-2010

2010



Annual efficiency for inverter units

GB 21455-2013

2013



Fixed-speed and variable-speed products unified under five APF/SEER grades

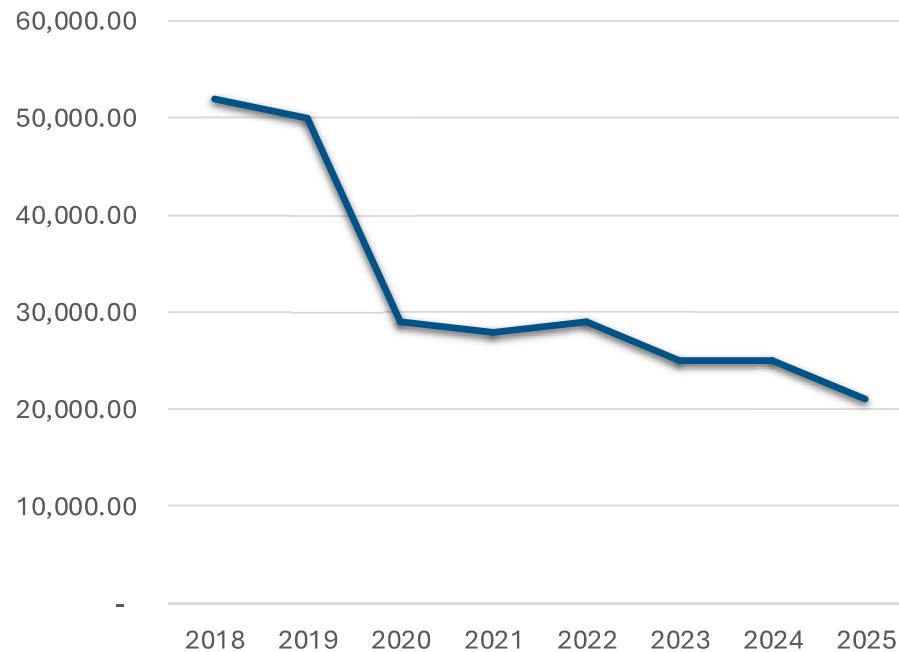
GB 21455-2019

2019

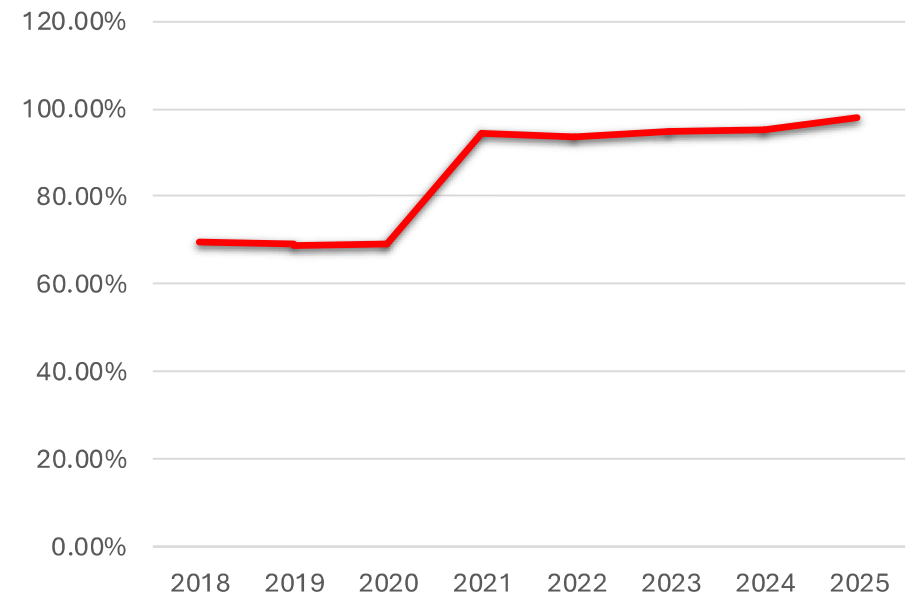
Energy Efficiency and Refrigerant Transition Reinforce Each Other



HCFC-22 Consumption in the Room Air Conditioning Sector



Variable-Speed Room Air Conditioners in the Chinese Market





Stakeholder Collaboration from Technology Selection to Commercialization



Technology Selection

Industry associations, manufacturers, experts and research institutions worked together to identify R290 as a long-term refrigerant option for room air conditioners.



Research and Validation

Manufacturers, research institutions, fire-safety experts and other industry partners collaborated on safety assessments, component adaptation, prototype testing and pilot installations.



Commercialization

Manufacturers play a central role in scaling up commercialization. The MLF supports production-line conversion and incremental operating costs, helping expand the supply of high-efficiency R290 air conditioners.

Collaboration throughout the process helps translate policy objectives into technically sound and commercially viable products.



Building Market Confidence through Demonstration



In 2016, 1,062 R290 room air conditioners were installed at Jiaxing Vocational School.

Ten years of safe operation with no reported accidents has strengthened market confidence in the safety and reliability of R290 technology.



Building Market Demand



Government promotion of green consumption
-HFC free Refrigerators and ACs



Retailer Engagement
-JD.com-Launched HFC-free AC Zone

Targeted Support
-Incremental operating cost support promotes R290 models that meet the highest energy-efficiency requirements



Public Awareness and Knowledge Sharing
-Public Awareness campaigns in Wuhan, Chongqing Changsha and Jining





Challenges and Way Forward

01 STRENGTHEN MARKET SIGNAL

Encourage low-GWP alternatives and restrict high-GWP HFCs to narrow the cost gap.

02 STRENGTHEN INTER-AGENCY POLICY COORDINATION

Enhance coordination across government agencies, align policy actions and work together to advance sustainable cooling.

03 ENABLE SAFE ADOPTION

Manage refrigerant risks through appropriate standards, product design and technician training.

04 REMOVE INTERNATIONAL BARRIERS

Improve standards compatibility and reduce barriers to technology and trade.

THANK YOU

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IGCC Discussion: Delivery challenges and priorities for scaling efficient cooling

Moderated by Martin Krause, Director of Climate
Change Division, UNEP



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Delivery challenges and priorities for scaling efficient cooling



Guiding questions

1. **What progress has been made** in accelerating the uptake of super-efficient, low- and ultra-low-GWP appliances and equipment, and **what policy, finance, procurement, industry and capacity-building measures** are needed to address delivery challenges?
2. How can **the Manufacturing Platform better connect demand and supply and support industry engagement**, including through MEPS, procurement and industry commitments?
3. **What support and partnerships are needed**, and **which countries and partners are interested** in working with UNEP to co-design and advance implementation under this action area?

Closing and takeaways



Martin Krause

Director, Climate Change Division
United Nations Environment Programme

