



Accelerating Green Cooling Market Demand in Ghana

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GREEN COOLING SUMMIT 2026, 19 May 2026

Ghana's Cooling Sector: A Growing Climate Challenge

- Ghana's air conditioning sector is expanding rapidly
- pressure on national energy infrastructure and greenhouse gas emissions.
- Split AC sub-sector is the fastest-growing segment of RAC
- driving disproportionate energy and emissions burdens

8%
National GHG
Attributed to air conditioning

400K
ACs Imported
In 2025 alone

70%
Low Efficiency
Fixed-speed ACs dominate sales

5.5TW
Annual Energy
Consumed by AC sector

58%
of all RAC emissions are from AC

~3,000
R290 ACs currently in Ghana

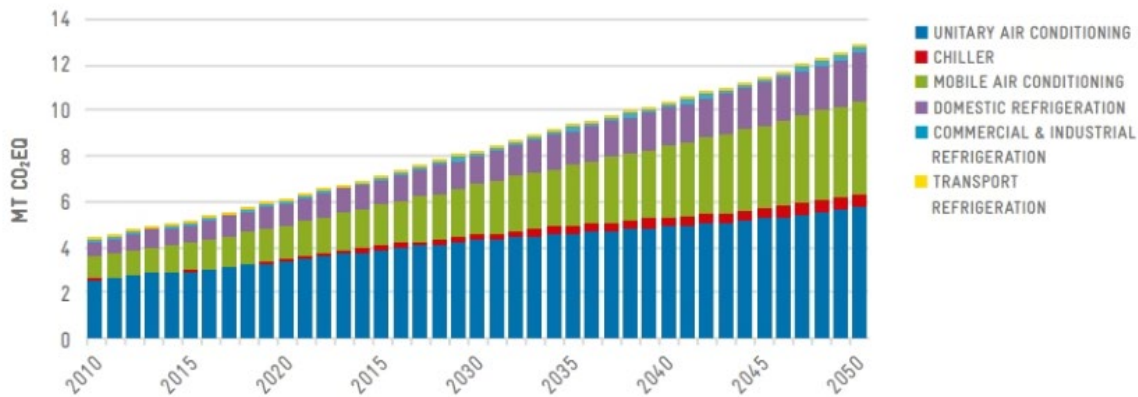


FIGURE 2: CURRENT AND PROJECTED TOTAL EMISSIONS UNTIL 2050

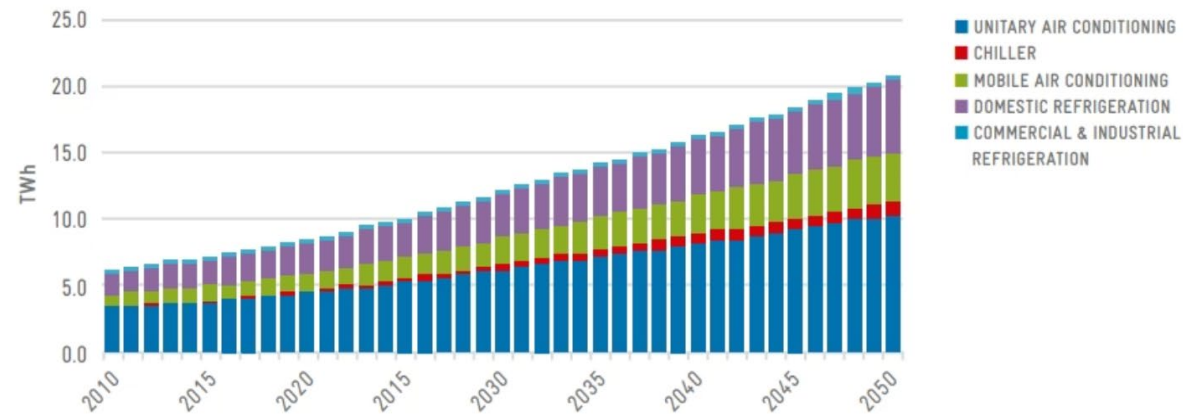


FIGURE 1: CURRENT AND PROJECTED ENERGY CONSUMPTION UNTIL 2050


Ghana's R290 Transition

green^{❄️}
cooling initiative

Ghana's Greenhouse Gas Inventory and
Technology Gap Analysis for the Refrigeration
and Air Conditioning Sector.



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of:
 Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety
of the Federal Republic of Germany



GHANA REFRIGERATION AND AIR CONDITIONING (RAC) ROADMAP



ENVIRONMENTAL PROTECTION AGENCY

GIZ / GGCP Partnership

10+ years of R290 work: technician training, supply chains,
ODS & HFC destruction, roadmap development

GRACE Project

Plans to establish Africa's first R290 AC assembly line,
funded by IKI/BMUKN

RAC Roadmap 2022 Target

70% R290 ACs by 2030 — embedded in Ghana's NDC with
conditional climate finance targets

Emission Reduction Potential

Up to 13 Mt CO₂e_q by 2030 and 3.7 Mt CO₂e_q by 2050
annually vs. BAU

Ghana Green Cooling Programme (GGCP)

Funded by

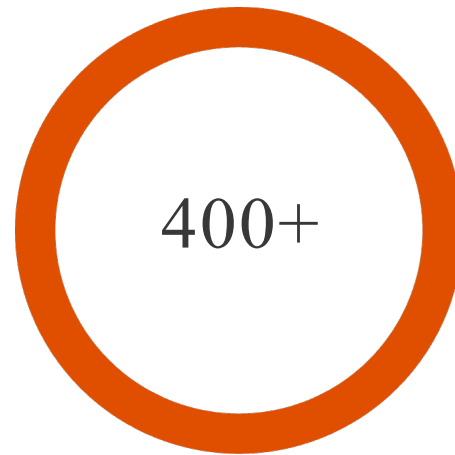
KliK Foundation (Switzerland) · Implemented with GIZ

Core Interventions

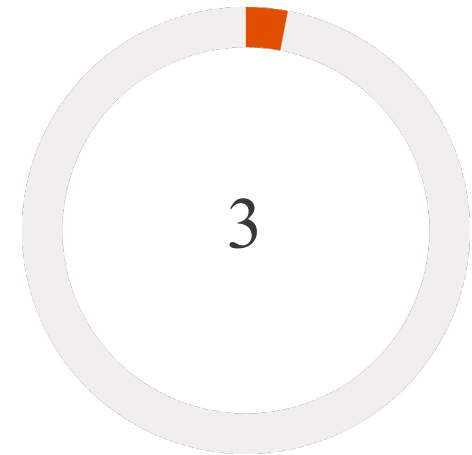
- Financial incentives for R290 AC purchases
- Technician certification and upskilling
- End-of-life refrigerant recovery & destruction
- Market awareness and demand creation



R290 Units
Already deployed in Ghana

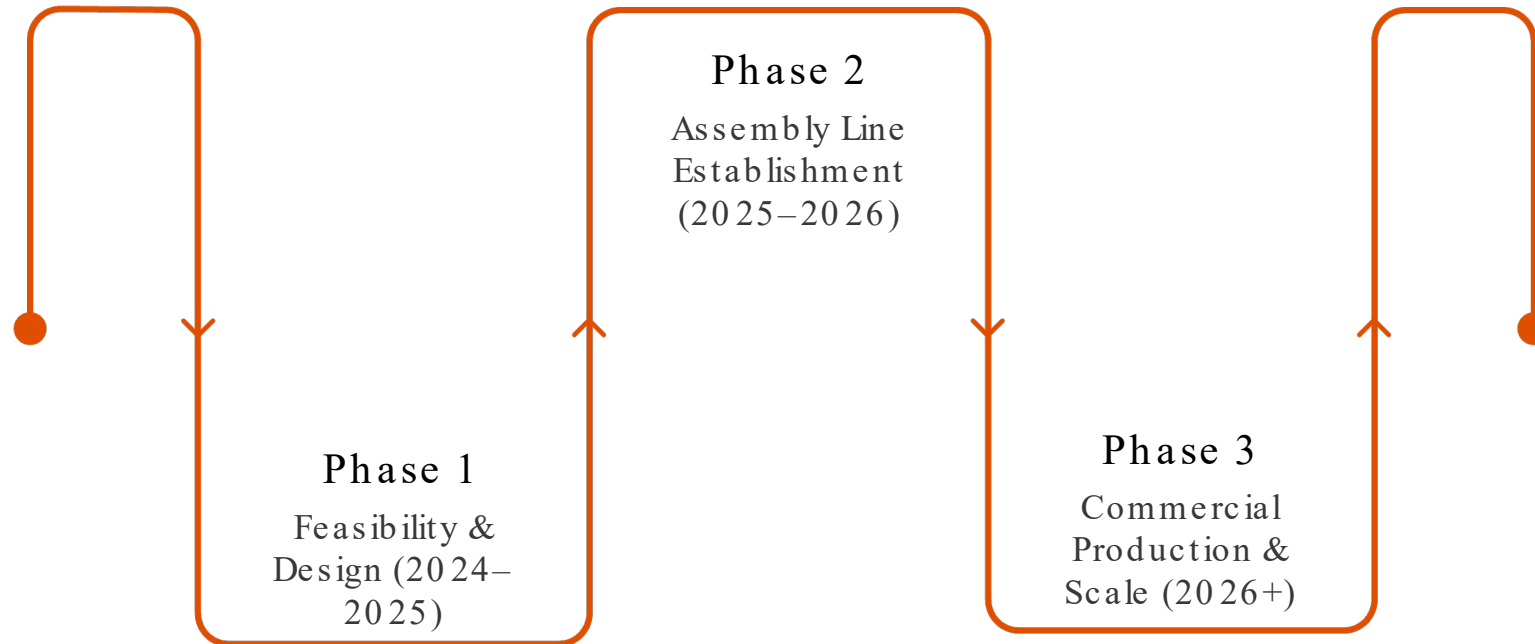


Technicians
Trained on R290 systems



Active Brands
Midea, Hisense, GREE

R290 Assembly Line — In Ghana



Funded by IKI/BMUKN, the GRACE project will establish domestic R290 AC manufacturing —cutting import costs, securing supply chains, and positioning Ghana as a regional hub for green cooling technology across Africa.

Reduced Unit Cost

Local assembly eliminates import premium

Supply Security

Domestic capacity insulates against global shortages

Regional Leadership

First mover advantage across West Africa

Opportunities: Policy & Programme Driving R290 Adoption

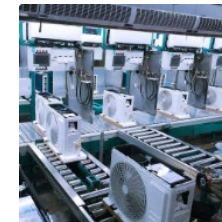
A converging set of programs, policy tools, and market mechanisms is creating a real window of opportunity to accelerate R290 adoption in Ghana. These initiatives are designed to reduce costs, build capacity, and shift market dynamics at scale

Financial Incentives e.g. GGCP



KliK Ghana Green Cooling provides direct financial incentives for R290 ACs, reducing costs, raising awareness, and address end-of-life management

Domestic Assembly e.g. GRACE



GRACE project plans to establish Africa's first R290 AC assembly line in Ghana. Will significantly reduce import costs, and build domestic technical capacity.

This air-conditioner uses the natural refrigerant **R290**:
Ozone layer, Climate & Environmentally Friendly

Refrigerant	Global Warming Potential*	Ozone Depletion Potential (ODP)
R22	5690	0.055
R410A	4714	0.055
R32	2690	0.055
R290	0.072	0.055

*HFC (R410A & R32) have GWP and zero Ozone Depletion Potential (ODP). HCFC (R22) has GWP and ODP (0.055). High GWP values implies high climate impact and ODP implies ozone impact.

Choose models that use natural refrigerant R290
For more information, scan the QR code:

This air-conditioner contains flammable refrigerant
Installation, maintenance and disposal must be carried out by a trained and certified technician

EPA Refrigerant Label & MEPS



EPA refrigerant label clearly communicates the climate and environmental advantages of R290, consumer awareness. Enforcing high MEPS further drives market uptake of energy-efficient R290 units.

Technician Training at Scale



Ghana is expanding its certified technician base. This ensures training reaches the scale required for a safe and effective nationwide rollout of natural refrigerant technology.

CHALLENGES

Barriers to Scaling R290 in Ghana

End-of-Life Crisis

R22 ACs at end of life —refrigerants not recovered, no funding for collection or destruction

Limited Market Access

Only 3 brands (Midea, Hisense, GREE) offer R290 in Ghana; larger cooling capacities still unavailable

Price Premium

Higher upfront cost due to no economies of scale and increased copper content for efficiency

Workforce Gap

400+ technicians trained —but **thousands more** needed nationwide for safe R290 handling

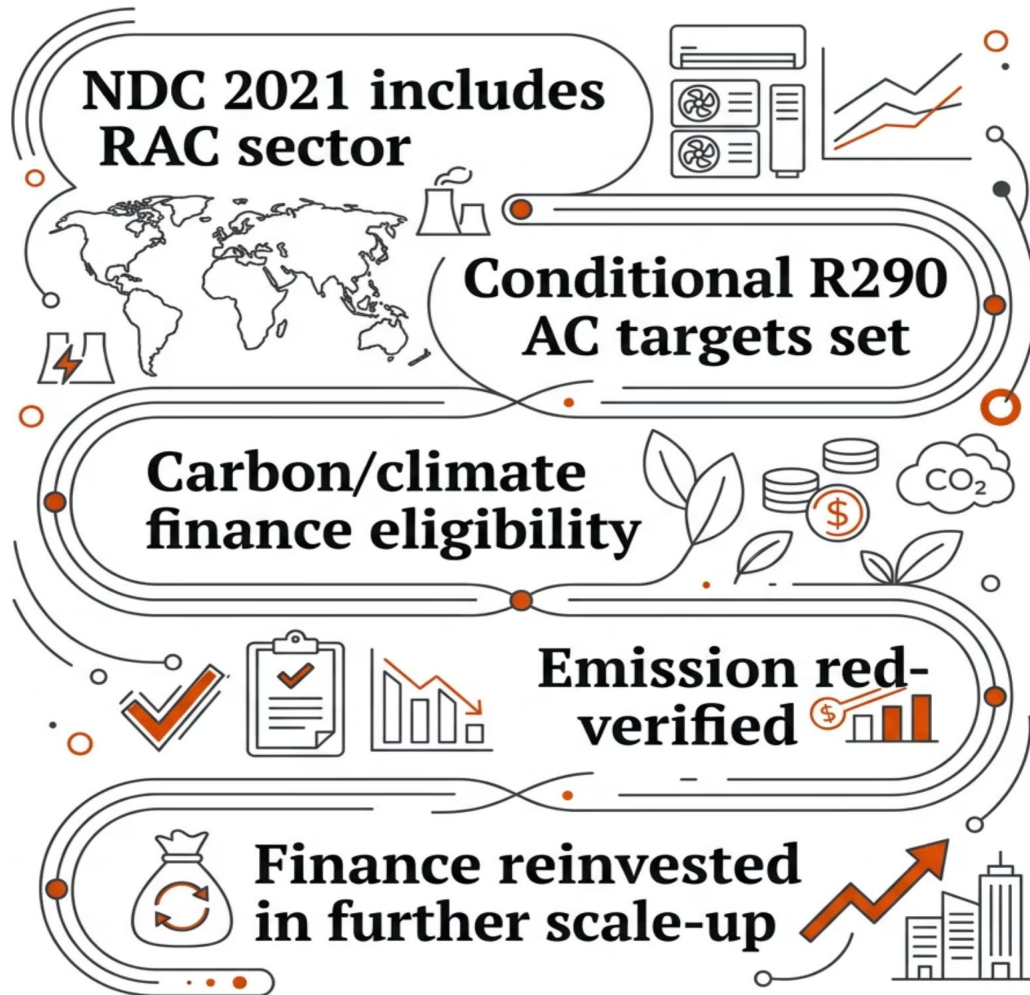
Low Awareness

R290 lacks industry lobby; consumers and traders remain largely unaware of its benefits

HFC Reduction Mandate

Ghana's low HFC base line under KIP makes rapid transition to natural refrigerants urgent

R290 and Ghana's NDC: Unlocking Carbon Finance



Conditional Targets

Ghana's 2021 NDC includes ambitious, conditional R290 targets tied to international support — creating a direct pathway to climate and carbon finance.

Emission Savings

By 2030

1.3 Mt CO₂e/yr reduction vs. BAU

By 2050

3.7 Mt CO₂e/yr reduction vs. BAU

Ghana Must and Can Leapfrog to R290

Rapidly Growing Sector

AC demand is surging —emissions and energy costs will escalate without decisive action

Kigali Obligation

Low HFC baseline means Ghana must reduce HFC consumption significantly under KIP —R290 is the answer

End-of-Life Accountability

HCFC/HFC ACs create unmanaged end-of-life emissions —a systemic cost no one is currently bearing

Global Support Needed

R290 units must be accessible in **all cooling capacities** —and global unit costs must continue to fall

Training & End-of-Life

Sustained international assistance required for workforce development and refrigerant recovery systems

- ✔ Ghana's target: **70% R290 ACs by 2030** —reducing up to **1.3 Mt CO₂eq annually** and positioning Ghana as Africa's green cooling leader.



Thank You

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GREEN COOLING SUMMIT 2026, MAY 19–20