

PRODUCT ELIGIBILITY CRITERIA

ECOWAS Refrigerators and ACs Initiative

(ECOFRIDGES) in Ghana

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Background and Methodology

This document outlines the proposed eligibility criteria for products to participate in the ECOWAS Refrigerators and Air Conditioners initiative (ECOFRIDGES) financial mechanism in Ghana that is expected to be launched in mid-2020.

This work is supported by UN Environment's United for Efficiency team in collaboration with the Government of Ghana under the ECOFRIDGES project. ECOFRIDGES aims to accelerate the transition to highly energy-efficient cooling products that use lower global warming potential refrigerants than legacy technologies, saving consumers money on their electricity bills, enhancing energy security and economic competitiveness, and protecting the environment.

Refrigerators using R600a, a low Global Warming Potential (GWP) refrigerant already represent a significant majority of new sales in Ghana. This refrigerant is aligned with the objectives of the ECOFRIDGES program, hence the GWP requirements for these appliances has been set accordingly.

The vast majority of Air Conditioners for sale in Ghana use R410A and R22 as refrigerant. Both of these gases have a high GWP (additionally, R22 has a residual Ozone Depleting Potential). The market has been slow to adapt to newer refrigerants. A few R290 units were introduced under a pilot by GIZ and the EPA in 2017 and are since not available for general purchase. Suppliers have indicated their reluctance to R290 units, due to lack of trained technicians and flammability of the gas. On the other hand, R32, a medium GWP refrigerant is started to be introduced in the country, with a few models already available, and a general better disposition of suppliers to use this gas. The ECOFRIDGES program has therefore balanced the objectives of the program and the reality of the market, to include equipment with R32 and R290 refrigerants.

ECOFRIDGES financial mechanism will be tailored to catalyse the introduction of new high-performance products into Ghana and promote the best performing (most efficient and climate-friendly) products that are available but only in limited quantities today in Ghana. The criteria are therefore informed by products that are increasingly common in other markets, and not aimed at amplifying sales of legacy technologies. The financial mechanism is also intended to serve as a stepping stone toward the enhancement of Ghana's minimum energy performance standards (MEPS) which are currently set at the energy-efficiency ratio (EER) 2.8 for ACs, and 90 Energy Efficiency Index (EEI) and 100 EEI for climate class ST and T refrigerating appliances, and labelling to more stringent requirements. New MEPS and labelling are anticipated to be under negotiation in the immediate future and to be finalised and come into effect in approximately 2023.

Collection and recycling of old units will be part of the scheme.

Criteria

The criteria draw from the U4E Model Regulation Guidelines for [Refrigerating Appliances](#) and [Air Conditioners](#) developed in 2019 with over 60 experts based on global technology and policy trends. The contents have been adapted based on the findings of the ECOFRIDGES market assessment in Ghana and insights from local vendors and other stakeholders as well as the current and envisioned energy efficiency standards and labels set by the Ghanaian government.

The criteria will be used to screen candidate products to determine if they can participate in the scheme. Performance testing will be undertaken on a relevant sample to verify compliance with the criteria. Testing performed as part of the Ghanaian Energy Commission market monitoring activities will have binding effect for the ECOFRIDGES program.

The products eligible for the ECOFRIDGES financial mechanism must comply with the criteria indicated in Table 1 and following explanatory notes:



Table 1. Product Eligibility Criteria

	ACs	Refrigerating Appliances
Type of products:	Ductless split air conditioners	Household refrigerators and refrigerator-freezers –freezers-only are excluded.
Age:	Only new products.	Only new products.
Product size:	nominal cooling capacity up to 5.3 kW	Between 90l to 500l
Refrigerants and	GWP ¹ limit of 750.	GWP limit of 20, maximum charge of 0.15kg
Foam Blowing Agents	N/A	GWP limit of 20
Warranty:	Minimum 2-years	Minimum 2-years
Safety certification	Conform to safety regulations of both the manufacturing country and Ghana (e.g. IEC 60335-2-40)	Conform to safety regulations of both the manufacturing country and Ghana (e.g. IEC 60335-2-24:2002 /AMD:2017, or a subsequent revision)
Energy Efficiency:	<p>Interim criteria until introduction of new MEPS & labels regulation:</p> <p>3-star equipment as per current Ghanaian regulation: EER >3.45</p> <p>Criteria following introduction of new MEPS & labels regulation: $TCSPE \geq 7$ (see notes on evaluation below)</p>	<p>Interim criteria until introduction of new MEPS & labels regulation:</p> <p>5-star equipment as per current Ghanaian regulation:</p> <p>Climate Class ST: I<30</p> <p>Climate Class T: I<42</p> <p>Criteria following introduction of new MEPS & labels regulation:</p> <p>EEI < 22 (see notes on evaluation below)</p>

Other criteria include:

- **Production duration:** To ensure continuous supply of products following the implementation of the financial mechanism, there should be some assurance from manufacturers indicating that approved models should remain in the post-sales servicing for at least three years since offering the product under the ECOFRIDGES program.
- **Price:** Selected models should not be above the average **retail price ranges by 20%** for similar product category in Ghana after import charges, margins and related cost have been accounted.

¹ As measured in the IPCC's Fifth Assessment Report over a 100-year time horizon



- **Eligible Brands/Established companies:** Products must be provided by established importers and distributors in Ghana officially operating as of 31 December 2019² to ensure that participants are familiar with the policies and practices in Ghana governing such products.
- **Limit on offered models per participant:** Participating importers and distributors may offer a maximum of four product models per product category (i.e. four refrigerating appliance models and four Air Conditioner models). Participating importers and distributors are free to choose the models that fit with the eligibility criteria, but are suggested to target different segments (e.g. for refrigerating appliances one small refrigerator, one medium-sized refrigerator, one medium sized refrigerator-freezer and one large refrigerator-freezer).

Evaluation of Energy Efficiency

Air Conditioners

- **Testing:** Products should be tested according to ISO 5151: 2017 (which is adopted by the Ghana Standards Authority). This standard defines the calculation of energy consumption TCSPF ratio, which shall be performed with the standard outdoor temperature bin hours specified in ISO 16358-1: 2013, table 3. A conformity assessment report must be submitted to the project oversight body by the supplier from an ISO/IEC 17025 certified laboratory

Refrigerating Appliances

Testing: Products should be tested according to IEC 62552: 2015 (which is adopted in GS IEC 62552: 2015). This standard defines the calculation of the equipment energy consumption and EEI ratio. A conformity assessment report must be submitted to the project oversight body by an ISO/IEC 17025 certified laboratory.

² This will be verified by company registration certificate and certificates to commence business.

