

Sustainable cooling solutions with energy efficiency and lifecycle refrigerant management for refrigeration and AC equipment's in Ghana

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Background

- RAC sector shows an average growth rate of approx. 4 %
- **HCFCs** and **HFC** contribute to direct emissions in Ghana
- Emissions are expected to grow considerably for HFC as HCFCs is slowly being phased out

↑ RAC sector energy demand

7.04 TWh (2015) - 20.9 TWh (2050)

↑ GHG emissions

5.05 Mt CO₂eq (2015) - 12.8 Mt CO₂eq (2050)

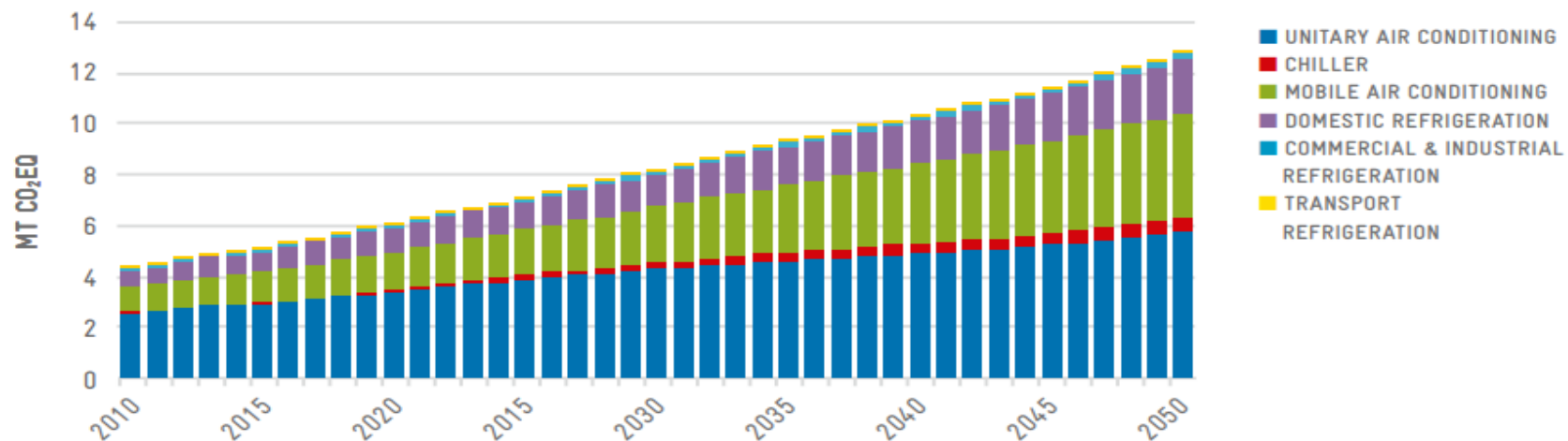


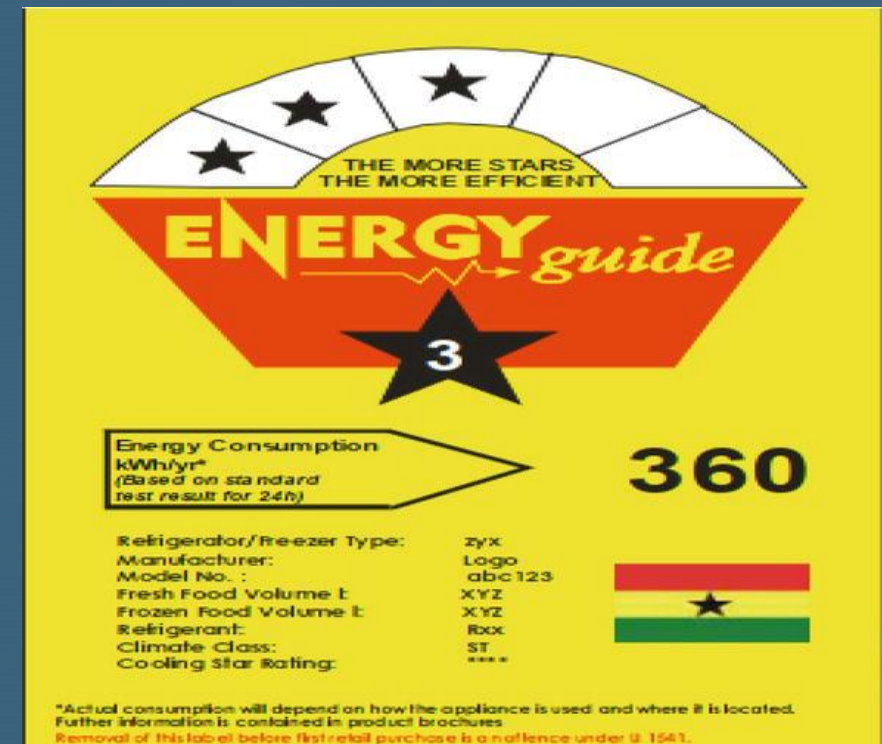
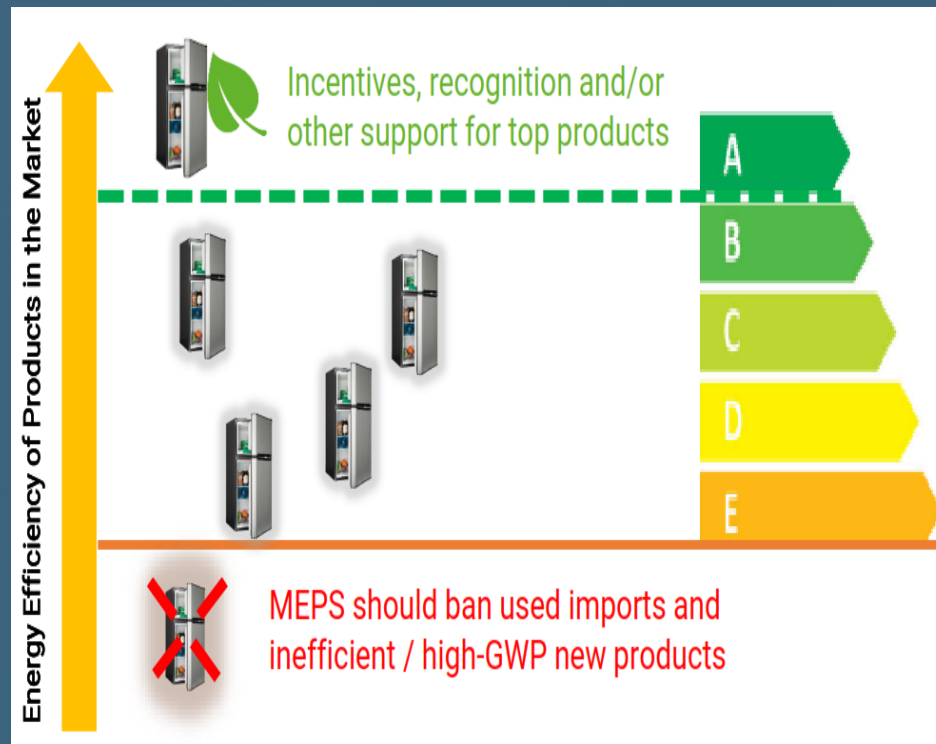
FIGURE 2: CURRENT AND PROJECTED TOTAL EMISSIONS UNTIL 2050

Enabling Policies

- Enacting and enforcing regulations to prevent imports of used and new cooling equipment and managing end of life
 - **Environmental Protection Agency Act (EPA) 490** of 1994 (to oversee, coordinate and regulate all issues regarding the environment in Ghana)
 - **Management of the ozone depleting substances and product, LI 1812:** (requires all importers of chemicals **(including ODS)** to obtain a clearance from EPA , also encourages incentive mechanism
 - **Hazardous and Electronic Waste Control and Management Act, 2016 (Act 917)** (the E-Waste Act) (regulate the treatment of hazardous, electronic and electrical waste (take-back system)
 - **Hazardous, Electronic and Other Wastes (Classification) Control and Management Regulation, 2016 (LI 2250)** - provides comprehensive guidelines on waste classification, control, management, trash disposal, and a host of other issues)
- **Energy Efficiency Standards and Labelling** (Non-Ducted Air- conditioners and Self-Ballasted Fluorescent Lamps) Regulations, **(LI 1815)**. **Energy efficiency Standards & Labelling** (Household Refrigerating Appliances) Regulations, 2009 **(LI1958)** **Energy Efficiency** (Prohibition of Manufacture, Sale or Importation of Incandescent Filament Lamp, Used Air-Conditioner) Regulations, **(LI1932)**
- Ghana intends to sustain the use of **R290 equipment's over a longer period as has been committed in its NDCs (70% market shift)** to support its emission reduction potentials

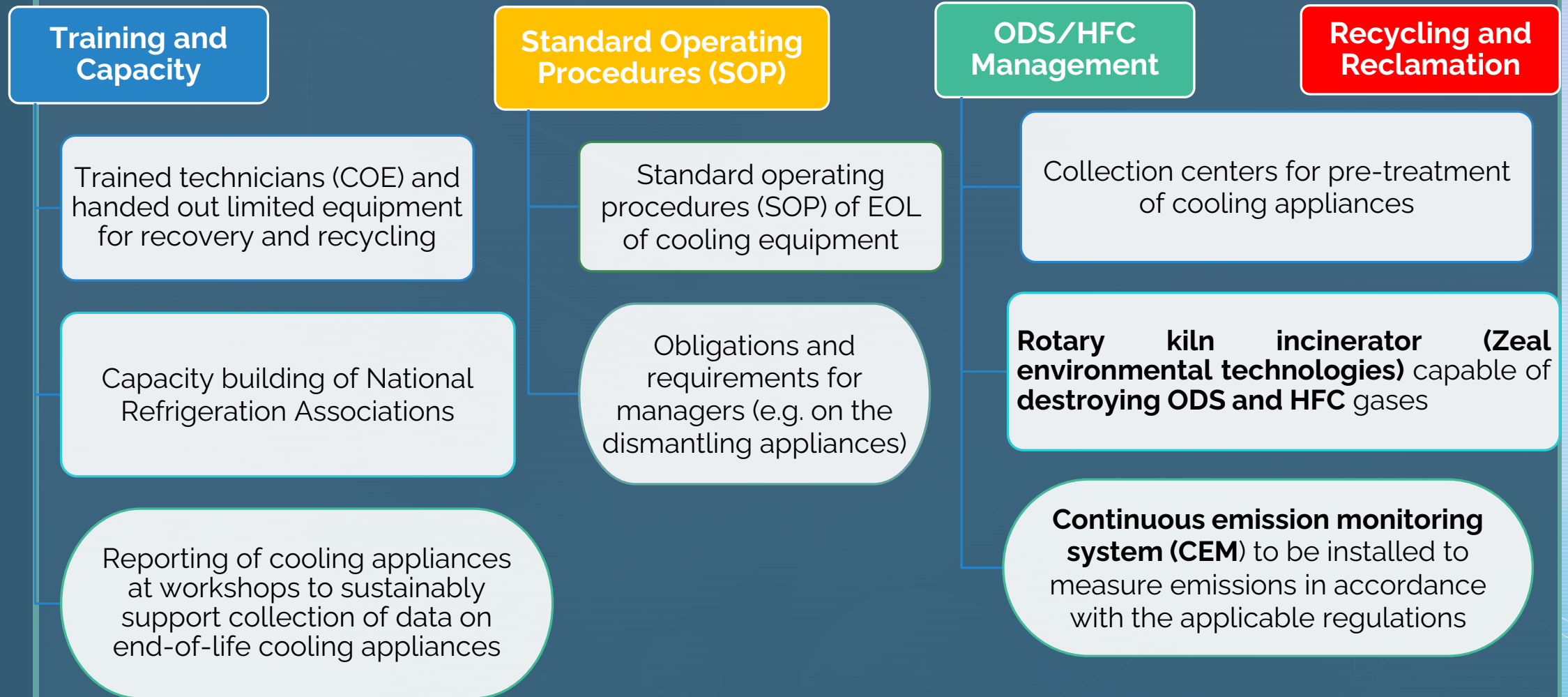
Enabling Policies (energy efficiency standards and labels)

- Upgrading energy efficiency labels and refrigerant metrics
- Strengthening minimum energy performance standards (MEPS)
- Preventing the import of used cooling appliances



End of life solutions

- Measures for the proper collection and disposal of domestic refrigerators and air conditioners.



Markert Interventions

- Promoting and Expanding the supply/consumption of green and high-efficiency cooling products
- A number of efforts to promote the market introduction of natural refrigerants and energy efficient ACs and Refrigerators

Green cooling Project

2012-2017 (Phase I) 2017 – 2021
(Phase II)_410 Acs

To promote the market
introduction of natural refrigerants
and energy efficient ACs

Klik project

Swiss Foundation for Climate
Protection and Carbon Offset (Klik)

Market transformation through the
introduction of green split ACs.
with GIZ – 150000 units

Abating Greenhouse Gas Emissions from Obsolete RAC Equipment (AGORA)

(AGORA) adoption of EE, low-GWP
refrigerators and AC appliances
and adequately managing EoL

HPMP II R290 demonstration

Replacement of HCFC-22-Based
AC Units with R290 units at the
Hostel Facility for the promotion of
the use of low GWP (R290) ACs

ECOWAS Refrigerators and Air Conditioners Initiative (ECOFRIDGES:

Accelerate adoption of energy-
efficient and climate-friendly
domestic refrigerators and ACs,
Eligible salaried employees can
access a 0% interest loan

Refrigerator Market Transformation Project

Involved the turn-in of still working,
but inefficient refrigerating
appliances, in return for a discount
to purchase a new efficient model



- **Thank You**

