Market Assessment on Room Air Conditioners and Refrigerating Appliances

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Objective and Scope

Included countries
- Includes 21 countries of both regions
- Representative set of countries for each region for more detailed information

Technologies
- Room Air Conditioners
- Residential Refrigerators

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## Methodology for Data Collection

<table>
<thead>
<tr>
<th>Type of source</th>
<th>SADC</th>
<th>EAC</th>
</tr>
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<tbody>
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</table>
| Data from key stakeholders                  | • Revenue, Environment & Standard Authorities  
• Energy Departments & Ministries          |                                    |
| Internet research                           | • Databases                          |                                    |
|                                             | • Reports                            |                                    |
|                                             | • Business & Internet sales webpages |                                    |
| Project partner data                        | • Lighting market assessment         |                                    |
|                                             | • Data from projects in countries    |                                    |
| Country Saving Assessments data             | • High level data to support data validation, fill missing data and used for future projections | |
### Main Conclusions

| Minimum Energy Performance Standards (MEPS) | • Only 7 countries have MEPS in place (3 in EAC and 4 in SADC)  
• About half of those MEPS are voluntary  
• Mostly not harmonized |
| Labels | • Even less countries (3) have labels, which are all mandatory  
• Many of the appliances have already labels from their country of origin |
| Refrigerants | • Three countries have committed to the Kigali Amendment to the Montreal protocol  
• Room Air Conditioners are mostly equipped with R-410a (HFC) or R-22 (HCFC)  
• Residential Refrigerators are mostly equipped with R-134a (HFC) and in very rare cases with R-600a (HC) |
| Institutions | • Nearly all countries have standards bodies, while energy efficiency entities are not very common  
• Most of the countries have developed general energy policies |
| Additional conclusions | • Product registration systems are not very common and in place in 5 countries  
• Financial incentives for cooling appliances are implemented in 2 countries |
Key Findings EAC Region

Eng. Godfrey Marambe
Policy Frameworks in EAC Region

Findings

- Rwanda, Kenya and Uganda are the only countries with energy policy in place
- Kenya and Uganda are the only countries with energy efficiency strategy in place in the region
- Kenya is the only country with energy efficiency regulations in the region
- Kenya Rwanda and Uganda are the only countries with environmental regulations in the region
Refrigerators- Technology and Supply Chain

Common Brands in EAC Region

- Samsung
- LG
- Whirlpool
- AEG
- Hisense
- Siemens
- Sharp

Technologies
- Refrigerator, Freezer

Supply Chain

Region Manufacturers
- ALMAHA in Rwanda
- Gayaza Electronic Works in Uganda

Importers
- Brand subsidiaries
- Brand dealers
- Individual importers

Retail
- Furniture Shops
- Supermarkets
- Electronic Shops
Air Conditioners- Technology and Supply Chain

Common Brands in EAC Region

Technologies

- Portable, Window Units, Split units: Constant Speed, Inverter Units.

Supply Chain

Manufacture
- No Air conditioner manufacturers in the region

Importers
- Brand subsidiaries
- Brand dealers
- Individual importers

Retail
- Furniture Shops
- Electronic Shops
MEPS for Refrigerators & AC’s in EAC Region

**Refrigerators:**
- MEPS requirements in the EAC region is a limit of appliance’s maximum annual energy consumption.
- Based on appliance capacity, technology, climate conditions.
- Rating of appliances vary from region: RSEER (Rwanda), SRI (Kenya).

**Air Conditioners.**
- Rating of appliances vary from region: RSEER (Rwanda), EER(Kenya).
- MEPS requirement is a limit of appliances rating based capacity and technology.
Air Conditioner & Refrigerator Labels in EAC

Labels developed within EAC region

Other Labels in EAC region
Refrigerating Gases

• **Countries in the EAC region have enacted policies controlling the use of Ozone depleting Substances including refrigerants used in AC and refrigerators.**

• **These policies outline the phase out/phase down of substances with different ODP’s and GWP’s in accordance with international protocols.**

• **The countries are also set GWP limit for there refrigerants used in the countries.**
Key findings in the SADC region

Mzwandile Thwala
## Policy Framework in SADC Countries

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14 3 7 2 16 2
Refrigerators - Technology, Supply Chain, MEPS & Labels

**Manufacturers**
- **South Africa**: Defy, Whirlpool/KIC
- **Eswatini**: Fridge Factory
- **Zimbabwe**: CAPRI, Imperial/Commercial Refrigeration

**Importers**
- Furniture Shops
- Brand Companies/Agencies
- Individual

**Retailers**
- Furniture Shops
- Supermarkets
- Household Appliance Shops
- Online Shops

**MEPS&Labels**
- Freezers: **Class C** (75 ≤ EEI < 90)
- Refrigerators: **Class B** (55 ≤ EEI < 75)

**Technology**
- Direct-cool type
- Frost Free type
Air Conditioners – Common Brands

- DEFY
- GREE
- LG
- GOLDAIR
- LIEBHERR
- CHIGO
- SAMSUNG
- SHARP
- BOSCH
- Alliance
- Carrier
- HITACHI
- MITSUBISHI ELECTRIC
- TOSHIBA
- Midea
- YORK
- Panasonic
- SIEMENS

Types of Air Conditioners:
- Window/Wall
- Underceiling
- Standing
- Portable
- Wall mounted
- Cassette/Ceiling
Air Conditioners - Technology, Supply Chain, MEPS & Labels

MEPS&Labels:
UPTO 7.1 kW (24 000 btu/h)

Wall Mounted Split:
Class B (3.2 ≥ EER > 3.0)
Portable:
Class B (2.6 ≥ EER > 2.4)
Window:
Class B (3.0 ≥ EER > 2.8)

Technology
• Inverter type
• Non-Inverter type

Importers
• International brand subsidiaries
• Representatives or agencies
• Independent distributors

Retailers
• Household Appliance Shops
• Refrigeration and Air Conditioners Companies

Manufacturing of Air Conditioners in the SADC Region

NO
## Applications of the appliances

<table>
<thead>
<tr>
<th>Refrigerators/Freezers</th>
<th>Air Conditioners</th>
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</thead>
<tbody>
<tr>
<td>Refrigerators - households</td>
<td>Commercial Sector</td>
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<td></td>
<td><em>Office buildings, hotels</em></td>
</tr>
<tr>
<td>Freezers – households and small businesses</td>
<td>Residential Sector</td>
</tr>
</tbody>
</table>

**NB:**
- Some households have more than one refrigerator.
- Lower income households or rented facilities are more likely to have one refrigerator,
- Middle to high income households having several units per home with some owning more than one dwelling

**NB:**
- Mostly used by middle to high income households especially in urban areas
- Lower to middle-income brackets find cooling fans as an affordable alternative to air conditioners
Energy Labels in SADC