OVERVIEW OF «LESSONS LEARNED FROM GHANA'S EXPERIENCE IN ENERGY EFFICIENCY INTERVENTIONS»

Challenges may arise during the implementation of energy efficiency programmes and, for countries that have yet to start the process of implementation, the lessons learnt from Ghana's experience may help them to overcome barriers, adopt the proper strategy and approach and avoid pitfalls.

The Refrigerator Market Transformation Project started in 2011 with the objective of improving the energy efficiency of appliances sold and used in Ghana. This was to be achieved through the introduction of a combination of regulatory tools, such as **minimum energy performance standards (MEPS)** and **energy labels**, as well as **rebates**. The project aimed to strengthen the regulatory and institutional framework, develop monitoring and enforcement mechanisms, and provide training to private sector players (distributors, retailers, recyclers), while exploring and testing financial incentives supported by regular public outreach campaigns. Special attention was given to the safe and environmentally-sound disposal of old refrigerators.

This case study summarizes some of the key initiatives and measures that have been employed in Ghana's Refrigerator Market Transformation Project, along with the challenges and opportunities that resulted from the implementation of the project.

POLICY

The main body responsible for developing policies in Ghana is the Ministry of Energy. Supporting this, the Energy Commission of Ghana, as part of its mission and functions, recommends national policies and advises the Minister of Energy on national policies for the efficient, economical, and safe supply of electricity, natural gas, and petroleum products. Another key role of the Energy Commission relates to the establishment of standards and enforcement.

In 2010, the Ministry of Energy prepared the National Energy Policy to provide direction in the development of the energy sector. The policy direction for energy efficiency dealt with both electricity and transportation sectors.

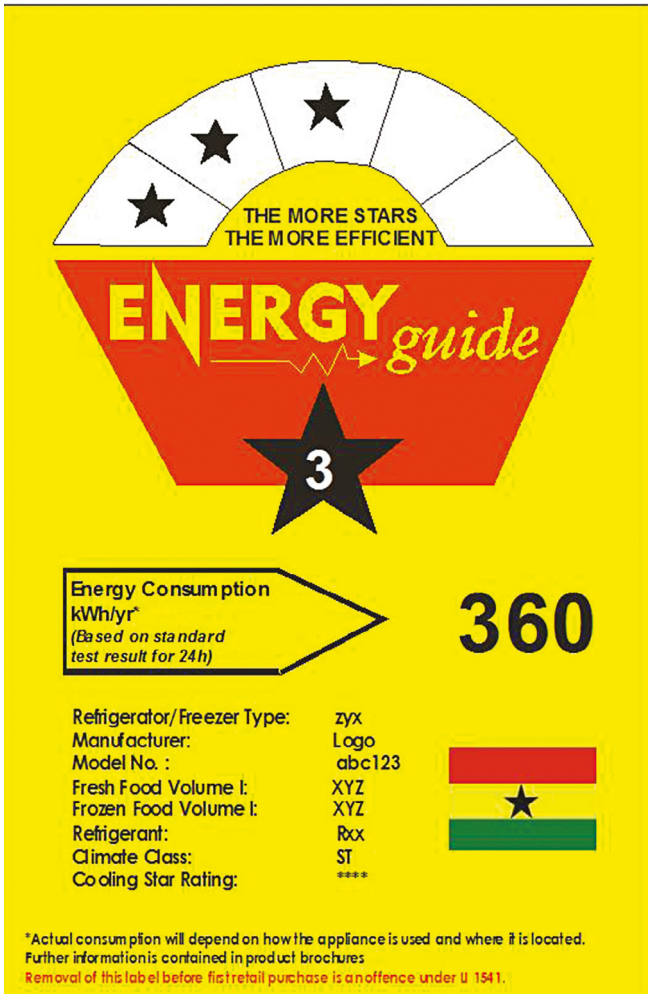
Based on the development and implementation of Ghana's National Energy Policy over the years, the following lessons can be drawn:

- **Coherent policy guidance and Government commitment to initiatives** on energy-efficient appliances (development of MEPS/appliance labelling) have been the strength of Ghana. The energy policies that were developed at the time considered the overriding National Development Plans to ensure continuity even when political regimes change.
- Implementation of the policy measures requires strong institutions with competent staff. This has been demonstrated in Ghana with the **Energy Commission playing a pivotal role** in developing the necessary standards to regulate the sector. Institutions should **have clear mandates** to prevent **overlap of roles and responsibilities**. Thus, in the case of Ghana, the Energy Commission is the lead agency in promoting energy efficiency and works with allied institutions whenever necessary to accomplish specific objectives.
- **Broad stakeholder engagement** is necessary to capture the needs of all related sectors, such as agriculture, health, etc., and to facilitate buy-in commitment to government development initiatives.
- Importantly, the **collaboration with development partners** such as the UNDP, USAID, GIZ, SNV has also been key as it helped to propel the development and implementation of these energy efficiency policies by providing critical support (technical, capacity building, funding). However, the reduction of such support over time can become a threat and therefore needs to be addressed early on.

LABELLING/FUNDING/STAKEHOLDER ENGAGEMENT

Labelling

Energy labels were developed as a mandatory requirement for suppliers and retailers of CFLs, air conditioners and refrigerators. The **strong institutional support and legal backing** has facilitated enforcement and compliance by appliance importers and suppliers of these appliances who initially wanted to maintain the status quo. Ultimately these labels have allowed consumers to make more informed decisions on appliance purchases, while suppliers and retailers increased the availability of more efficient appliances on the market.



Careful consideration was given to the design and colors used in the label to reflect Ghana's identity.

Ghana labels are also linked with the establishment of **minimum performance standards (MEPS).** However, before establishing the MEPS, understanding the market and household usage of the appliance of interest is paramount. Such understanding can come through field metering which provides baseline data. Presently, Ghana is receiving support from the Millennium Challenge Corporation (MCC) to conduct field testing of household appliances nationwide in order to establish baselines towards the development of several appliance labels in 2020.

Funding

Ghana has benefited from multilateral funds to finance key aspects of energy labelling. For example, the refrigerator project funded by UNDP-GEF provided funds to support **awareness programmes**, the establishment of a refrigerator **testing laboratory**, the development of a **monitoring verification and enforcement (MV&E) framework**, data collection and collaboration with the private sector to set up e-waste management facilities.

Stakeholder engagement

Stakeholders' engagement is also key. The following measures were adopted:

1. Organize the sector, by creating an association assembling importers and other suppliers of appliances. This association played a vital role in representing the private sector's interest, as well as in facilitating consultation with the private sector.
2. Involve the private sector, including importers of second-hand appliances, in the design and implementation of the consumer awareness campaigns.

In collaboration with the Energy Commission, the UNDP-GEF funded a US$1.7 million project on refrigerator market transformation from 2011-2014. This stimulated the Government to provide co-finance of US$800,000 to fund a refrigerator rebate scheme which replaced close to 10,000 old and inefficient appliances.

The dialogue created by this stakeholder engagement, and especially through the creation of the association, allowed for the adoption of a grace period of two years for importers and suppliers to adapt themselves to the newly passed regulations and to comply with the MEPS and labeling requirements and the subsequent ban of inefficient appliances.

Overall, although the implementation of labelling presented some initial challenges, standards and **labeling has been very successful in Ghana** which has led to market transformation of these appliances.

REBATE SCHEME

Between 2012 to 2015, Ghana implemented a refrigerator rebate scheme as part of the Refrigerator Market Transformation Project. Handled by the Energy Commission, the scheme involved the turn-in of still working, but inefficient refrigerating appliances, in return for a discount to purchase a new efficient model. The rebate scheme was handled by the Energy Commission in partnership with retailers (who sell energy-efficient refrigerators and freezers, and collect old ones, which are still in working condition), banks (who process the rebate vouchers and provide consumer loans) and a private company (which dismantles the old refrigerating appliances). The scheme also involved the Environmental Protection Agency, (EPA Ghana) which was a key institutional partner based on their particular interest in recovering refrigerants from decommissioned appliances as part of the Multilateral Fund project on recovery of refrigerants which run concurrent to the Refrigerator Market Transformation Project.

A project oversight team was established at the Energy Commission to develop the rebate scheme, execute the plans, conduct monitoring activities, vet claims from participating retailers and approve payments. The Project Office was managed by a Project Coordinator appointed by UNDP and assisted by a Project Assistant.

Prior to the implementation of the project, a steering committee was established to develop the rebate scheme and evaluate tenders from partner entities (the retailers, financial institutions and e-waste companies). These measures were put in place to provide a transparent selection process, as well as to engage the best candidates for the rebate programme.

To test all assumptions, a pilot programme was implemented for three months, with just two retailers, limiting geographical coverage of the scheme to the capital, Accra. Accra was chosen because it was also the location of the Project Office which made it easier for the project staff to train partners and monitor implementation and address issues. It also helped to evaluate the transportation arrangement for all returned appliances between the collection points and the single recycling facility which was in place at the time (another was added at a later stage).

The Project Oversight Team printed vouchers with a face value of GHS150 and GHS200 and built-in security features. A counterfeit testing machine was acquired for the Project Office to check all vouchers that were tendered by partner institutions to redeem payment.

The project also developed a tracking code for marking all the refrigerators that were to be turned in which could provide information on the region where the sale was made, the retailer, date of sale and the number of sales at a particular retail outlet. This code was communicated to retailers who were supposed to mark all refrigerators that were turned-in with permanent markers.

The rebate scheme presented multiple challenges during its implementation, and the following lessons can be drawn:

- **Methodology for impact assessment**: Being critically important, the methodology to assess impact needs to be established **prior to the initiation of the programme** through the identification of a control and treatment group.

> **The depreciation of the Cedi to the US dollar affected the target of 50,000 energy-efficient refrigerators which was established two years prior to implementation of the scheme. The target was revised to 15,000 to accommodate price increases resulting from the depreciation. By the end of 2016, 10,745 energy-efficient refrigerators had been sold under the scheme.**

- **Number of participating entities**: A low number of partners may make management easier but can disrupt the scheme if some of them decide to opt out or are removed due to certain infractions.
- **Circumvention and fraud**: The Project Oversight Unit checked the veracity of claims made by retailers to prevent attempts to misuse the rebate scheme. Some consumers wanted to submit refrigerators that were not functional, whilst some shop attendants included non-functional appliances from their repair workshop in order to benefit from rebates for items that were not sold. This practice by the retailers were quickly checked by calling the customer whose details were provided on the form and funds were withheld from retailers if the customer did not have any knowledge of the rebate transaction. If left unchecked this can affect the transparency and public trust in the programme.

COLLECTION, RECYCLING AND REFRIGERANT GAS PROCESSING

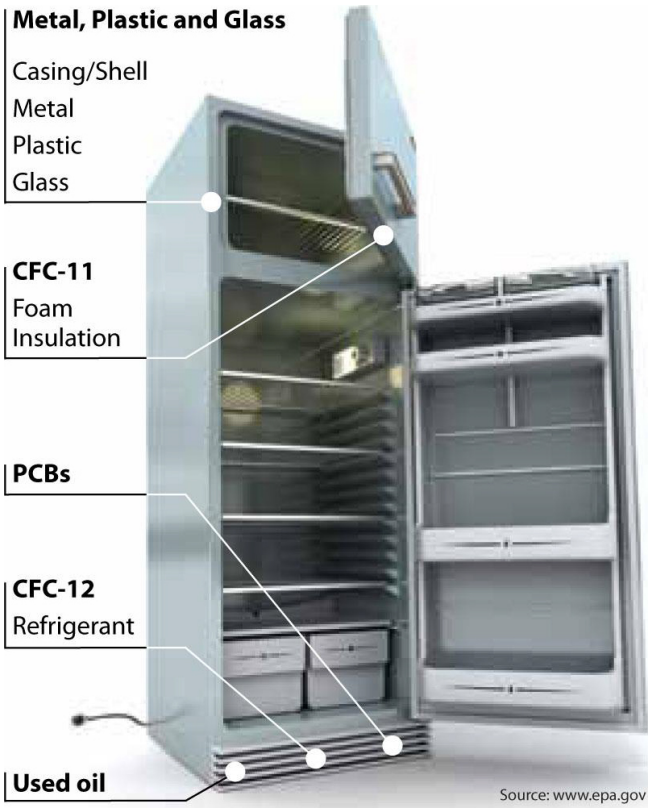
Ghana has a large informal e-waste collection arrangement. It is made up of collectors who go around the communities picking up waste metals and broken equipment. Mostly, the items are sold to the collectors at a marginal cost or, in rare cases, given free of charge when the items have stockpiled and disposal is required.

Because special attention was given to the safe and environmentally sound disposal of old refrigerators, all working but inefficient refrigerating appliances that were turned in during the project were decommissioned at an e-waste facility.

Initially, the rationale to set up an e-waste facility was mainly to support the operationalization of the refrigerator rebate scheme in Ghana. There was a possibility that if all collected refrigerators were not decommissioned, they could find their way back to households which would defeat the purpose of the rebate scheme. Importantly, the plan was also to recover refrigerants from the refrigerators before they were decommissioned, which EPA did by setting up an office at the e-waste site. This also facilitated monitoring of the operations.

The involvement of the private sector helped to quickly establish a robust recycling process. Involving already established recycling companies was a cost-effective way to carry out the recycling component of the project. With the promise of a constant stream of recyclable units, these companies could recover their costs in a relatively short period.

As a recommendation, there is the need to involve at least three companies in the scheme. This allows the project to continue should one or two companies pull out of the arrangement. It also prevents a single company from monopolizing the scheme.



Overall, the **institutional partnership** between the Energy Commission and the EPA helped to facilitate approvals for the establishment of the e-waste facility purposely for refrigerators and provided the needed confidence to the general public on the recycling process.

MARKET MONITORING

The approach taken by Ghana in developing the **monitoring, verification and enforcement (MV&E)** framework has been deliberate and brought together relevant institutions during the planning and implementation phases. The first step to initiate the process is **institution of regulations and definition of roles with a clear lead organization** to drive the process.

The Energy Commission has been leading efforts in monitoring and enforcement together with other Government agencies such as the Ghana Standards Authority, EPA and Customs Excise and Preventive Services (CEPS). Other collaborators include the Ghana Ports and Harbours Authority (GPHA), the Ghana Police and the media. The Energy Commission has established an Inspectorate Unit that is responsible for conducting market surveys and checking goods for compliance at the entry ports. The Energy Commission has also set up a small office at the ports to support other officials in enforcing the prohibition on the imports of used refrigerating and air-conditioning appliances.

In the implementation phase, it is recommended that regulators should avoid starting enforcement of standards and regulations during election years. Regulations, which are always intended for good purposes, often present temporary difficulties to a segment of the population. Affected people may rally around a cause that impacts them negatively and lobby incumbent Governments to either delay or cancel intended actions.

Also, MV&E requires significant human and financial resources to implement successfully. These funds are required to build local laboratories and send officials to the field to conduct market surveillance. Development of the database and updates also requires operational funds. For instance, the Energy Commission has been able to develop a database on the back of the work done in MV&E. A mobile app was also developed based on the database which enables customers to verify if models they plan to purchase are certified. Overall, regulators should strive to include these initiatives in their Nationally Determined Contributions (NDCs) to make it a priority, and also obtain multilateral and green funding support.

Because enforcement of the regulations can sometimes be difficult due to bureaucracy and delays in receiving judgement from the court system, the regulator has adopted lenient measures, such as naming and shaming, market recalls and re-export, to penalize offenders. Strict enforcement of the sanctions was nonetheless relaxed in the early period of implementation of the project to make room for importers who needed time to make the needed changes and who were unaware of the new regulations.

Finally, because Ghana imports all its refrigerating and AC appliances, import data through the ports is used as a proxy for sales on the local market. The Ghana Community Network System (GCNet) has enabled regulators to track imports in Ghana, by linking to the system. This has significantly helped in tracking imports and approving importation of regulated appliances.

OUTREACH AND AWARENESS RAISING

Ghana has carried out several energy efficiency campaigns to inform the public about the need to conserve energy and use energy-efficient appliances. Most of the well-organized efficiency campaigns have come out of specific energy efficiency projects. The most recent campaign was conducted during the Refrigerator Market Transformation Project in 2011-2014. Several communication channels were employed to reach various target groups nationwide. The campaign had to be conducted with limited budget and as such it was coordinated to reach the intended target at a fraction of the cost. For example, because the programme was run by a Government agency, some of the advertisement costs were discounted by the media houses.

The targets for the awareness campaign were households and appliance suppliers. Sales assistants were trained to understand the benefits of using energy-efficient appliances and the rationale for the standards and labeling. The personnel trained were also advised on how to train other staff members. A team from the Energy Commission also visited major shopping outlets to train staff on the rationale for the standards and labels and the benefits to the consumers. Training is also carried out continually by the regulator whenever its staff go on surveillance, due to the high turnover rate of shop assistants.

In the case of households, the messaging of all the awareness campaigns was first to highlight the introduction of the standards and labels and the benefits of using high-tier appliances. The benefits were monetized by presenting the actual cost savings one could make by buying a typical refrigerator to replace an old model. The message was then packaged and shared through television, radio, newspapers, billboards and other channels.

Funding is often a major bottleneck to wide scale implementation of energy efficiency awareness campaigns. Ghana was able to utilize the opportunity presented by green funding through the GEF-sponsored refrigerator project to implement a coordinated awareness campaign that contributed to shifting the market towards labelled refrigerator appliances. An independent evaluation of the refrigerator project recognized the crucial role of the awareness programme in changing attitudes over a relatively short period.

KEY TAKEAWAYS

Policy Framework and Funding

A strong Government commitment and a broad stakeholder engagement to initiatives on energy efficiency appliances, along with coherent policy guidance, are the prerequisite to achieving successful energy efficiency initiatives. While it is also key for the country's institutions to have well defined mandates, collaboration with development partners can also greatly accelerate development and implementation of energy efficiency policies through technical, human and funding support. Yet, the sustainability of energy efficiency programmes is largely dependent on the participation of the private sector.

Labels, Standards and Outreach

Minimum energy performance standards (MEPS) raise the average energy efficiency of regulated goods in the market, while labels enable consumers to make more informed decisions. Therefore, careful consideration is needed during label development. Making these standards and labels mandatory, while having strong institutional support and legal backing, facilitates enforcement and compliance by appliance suppliers. Raising awareness at all levels of society by carrying out energy efficiency promoting campaigns through various means is equally important.

Rebate Scheme, Recycling and MV&E

Rebate schemes, financing, training and impact assessment are critical pillars of a successful programme. Equally important is the proper decommissioning of old non-efficient appliances, which requires proper planning and funding. Therefore, key institutional and private stakeholders need to be involved at the early stages of a rebate scheme as it offers them a sense of ownership but also allows accountability while permitting refining of strategies.

Overall, monitoring, evaluation and enforcement are key supporting mechanisms in energy-efficient appliances market transformation initiatives. Compliance monitoring will ensure the integrity of a standard or programme in meeting its objective to promote efficiency and provides feedback to the authorities on the performance of their measures. Monitoring also provides requisite data to measure results and impact of the interventions.