

CEEC

CENTRE FOR ENERGY EFFICIENCY
AND CONSERVATION



At the forefront of Green Growth Sustainability in Kenya



KAM in conjunction with the ministry of energy established the Centre for Energy Efficiency and Conservation (CEEC) to build on the gains made by the GEF-KAM project and to implement future activities related to energy efficiency and conservation.



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Preamble

Background

The Centre for Energy Efficiency and Conservation was formed as a result of the GEF-KAM Energy Efficiency Project 2001-2006. The GEF-KAM project was initiated by the government of Kenya through the Ministry of Trade and Industry and Supported by the Global Environmental Facility (GEF), the UNDP, and implemented through KAM. It was aimed at removing barriers to energy efficiency and conservation in the industrial level.

Following the GEF-KAM project conclusion KAM in conjunction with the ministry of energy established the Centre for Energy Efficiency and Conservation (CEEC) to build on the gains made by the GEF-KAM project and to implement future activities related to energy efficiency and conservation. While in the past the public sector has largely spearheaded energy and conservation efforts, the private sector is now much more aware of the critical role it must play as the primary beneficiary of the energy efficiency and conservation programmes. The industrial sector consumes a large proportion of the available commercial energy which is very costly hence KAM was keen to continue promoting energy efficiency among manufacturers and other sectors. The main aim was to reduce cost and enhance competitiveness and profitability, while promoting a clean and healthy environment.

The Government of Kenya, through the 2004 Sessional Paper No.4 on energy, recognized that energy is a critical input into the country's development process and encouraged energy efficiency and conservation in all sectors of the economy to reduce cost and wastage, and enhance competitiveness. With this increasing national focus on the scarcity and cost of energy, stakeholder collaboration was necessary to achieve the overall objectives:

- ⊕ Lower energy intensities in production processes and reduce the emission of greenhouse gases to the atmosphere.
- ⊕ Set an example of public-private partnership for mutual benefits and demonstrate a model that can be replicated in the country for national and strategic benefits.

The main activities of the CEEC included:

- ⊕ Carry out comprehensive energy audits.
- ⊕ Identify, develop and implement bankable energy efficiency projects jointly with the concerned energy consumers, where the consumer pays for the project and benefits from the savings;
- ⊕ Promote energy efficiency through events, promotional material and use of appropriate media;
- ⊕ Build national capacity to train in energy efficiency and conservation;
- ⊕ Disseminate energy efficiency and conservation information to consumers;
- ⊕ Develop energy usage benchmarks for various sectors of the economy;
- ⊕ Develop standards and codes of practice on cost effective energy use;
- ⊕ Support the government in formulating and implementing policies aimed at encouraging rational use of energy.
- ⊕ Organize and manage the annual Energy Management Award



A GEF-KAM engineer assists company personnel to conduct energy audit



Engineers conducting energy audit during the GEF-KAM project



The first CEEC brochure in 2006

Centre for Energy Efficiency and Conservation (CEECE)

KAM in conjunction with the Ministry of Energy and Petroleum established CEEC in 2006. The center runs energy efficiency and conservation programs designed to help companies identify energy wastage, determine saving potential and give recommendation on measures to be implemented.

Key products include; Energy Audits, Specialized Trainings, Certification Services, Energy Management Awards (EMA), Exchange Visits, Resource Audits and Climate Change.

The Kenyan Government continue to support the promotion of energy efficiency as one way of harnessing energy services and security, lowering cost of goods and services, thereby improving competitiveness, increasing jobs and reducing poverty and more importantly as one way of reducing dependence on emergency power. In addition, it helps to reduce greenhouse gas emissions and thus contribute to mitigation of climate change.

The aim of the Centre for Energy Efficiency and Conservation (CEECE), based at the Kenya Association of Manufacturers (KAM), and supported by the Ministry of Energy is to both promote the efficient utilization of energy and ensure sustainability of energy efficiency and conservation activities in Kenya.

Energy Audits

Introduction

Energy Audits are a legal requirement, the Energy Management Regulations 2012, stipulate that companies consuming more than 180,000 units of energy per year should carry out an energy audit every 3 years and implement at least 50 % of the recommendations.

CEEC offers subsidized energy auditing services with the support from the government of Kenya (Ministry of Energy and Petroleum Development-MoEP) and the Danish International Development Agency (DANIDA). The Centre runs an energy audit programme which is open to all companies doing business in Kenya who are interested in reducing their energy consumption. The energy audits offered by CEEC and the recommendations save companies an average of 20% of their energy budget.

KAM through CEEC has;

- + Carried out more than 850 energy audits. In total around 1005 energy audits have been carried out around the country.
- + Supported the formation of the Association of Energy Professionals of East Africa (AEPEA) in 2014 to self regulate the profession.
- + Trained more than 400 energy managers in industry to help enhance the scope of knowledge in energy management.
- + Through the various initiatives, we have saved industry more than KES 12 billion in the last 12 years.

Over the last 16 years, many organizations have undertaken energy audits with KAM which has resulted in significant savings to the tune of over KShs 10 Billion. So far we have audited over 850 companies, hospitals, public institutions, hospitality sector and energy sector- Tsavo Power in Mombasa, Kengen GT plant and numerous small Solar PV plants . These savings have enhanced local production and service delivery thus impacting positively towards the national GDP. The energy audit will identify and quantify the opportunities for energy savings. As an individual consumer, an energy audit can save you up to 30% of monthly energy budget upon implementation of the measures recommended.

From impact assessment, the above facilities have realized considerable savings after implementation. Renewable energy and energy efficiency projects have also been considered for financing with the financing energy arm at KAM, SUNREF through their credit line.

Depending on the nature of the facility; Measurements are carried out on all major energy consuming equipment like motors, compressors, fans, boilers, lighting, pumps etc. and analysis done to give recommendations accordingly. Use of renewable energy will also be explored.

Types of Energy Audits Offered

We offer two types of energy audits namely; general energy audit and investment grade energy audit.

General energy auditing involves inspection, survey and analysis of energy flows for energy conservation in a facility, process, or system to reduce the amount of energy input into the system without negatively affecting the output.

Investment grade energy audits entails inspection, survey and analysis of energy flows for energy conservation in a facility, process, or system to reduce the amount of energy input into the system without negatively affecting the output. It also entails consideration of economic analysis of the recommended measures and viability of their implementation at firm level. The ultimate report shall qualify as a bankable document for financing of the recommendations.

KAM-CEEC team works with Class A and firm of experts registered consultants with the Energy Regulatory Commission (ERC). We have a total of 14 consultants working with the CEEC.

Once KAM wins the tender, the team led by Energy Engineers house at KAM will contract experienced licensed ERC auditor to undertake the audit. KAM officers will ensure the audit complies with the Energy Management Regulations of 2012 and submission to ERC for filling.

KAM will also do the following;

- + KAM will offer quality check systems to the audit conducted by the assigned auditor sealing out any possibility of “generic auditing”
- + Audit work completion will be made through a presentation of the work by the auditor to the client in the presence of KAM’s representatives and any queries or concerns ironed out during the meeting
- + CEEC will make an audit follow up after a period less than a year to engage the client on the progress, challenges and wins towards audit recommendations implementation
- + KAM is available to engage for any support or guidance towards energy efficiency and compliance with the regulation of which audit is a single component out of several other requirements.
- + CEEC will ensure the audit report and energy policy is filed with the Energy Regulatory Commission (ERC)

Overview of CEEC energy audits

From the year 2010-2015 CEEC was engaged in the Fast Start Climate Change Programme (FSCCP), under the Danish International Development Agency (DANIDA). The table below indicates the number of audits undertaken and equivalent anticipated energy savings in megawatt hours. The table below indicates the summary of milestone during the programme period.

The main aim of the programme was to reduce cost and enhance competitiveness and profitability while promoting a clean and healthy environment. The global ‘fast start’ climate change finance initiative targeted the challenges of addressing climate change in developing countries. The programme in Kenya will catalyse private sector innovation and business opportunities in water and other natural resources management areas for reducing the risk of climate change (climate change adaptation) and development of energy efficiency and renewable energy options contributing to a low carbon development path (climate change mitigation). The ‘fast start’ climate programme will reach both community level development options involving innovations that can be scaled up, and more high-end already developed business models that can have systemic impacts on addressing climate change through private sector development.

Overview of CEEC energy audits in FSCCP

-	Potential savings p.a. (mio KES)	Investment required (mio KES)	Simple Payback Period (SPP) (Yrs)	Energy savings (MW eq.)
General audits: 118	631	1,535	2.4	4.9
IGA: 87	3,267	2,939	0.9	22.8
Sum: 205	3,898	4,474	1.1	27.7

Note: Anticipated CO₂ emission reduction = 143,560 Tonnes/year

Energy Efficiency Sector Agreement with KAM through the Ministry of Energy and Petroleum

The Kenyan Government continues to support the promotion of energy efficiency as one way of harnessing energy services and security, lowering cost of goods and services, thereby improving competitiveness, increasing jobs and reducing poverty and more importantly as one way of reducing dependence on emergency power. In addition, it helps to reduce greenhouse gas emissions and thus contribute to mitigation of climate change.

The aim of the Centre for Energy Efficiency and Conservation (CEEC), based at the Kenya Association of Manufacturers (KAM), and supported by the Ministry of Energy is to both promote the efficient utilization of energy and ensure sustainability of energy efficiency and conservation activities in Kenya.

The table below indicates audits under the energy efficiency programme funded the Ministry of Energy and petroleum

	General Audits	Investment Grade Audits (IGAs)	
Audits under MOE upto 2016	205	95	
	Potential savings:kshs	Investment: kshs	Simple Payback Period (SPP)
General audits	1,741,755,686.22	1,712,981,172.00	2

Green Growth and Employment programme funded by DANIDA

This engagement primarily envisages instituting low carbon climate resilient practices within Kenya's private sector. Core to this will be increasing private sector engagement in inclusive green growth facilitated by improved business environment and the adoption of sustainable business practices. These initiatives shall mainly consist of energy and resource auditors, financial institutions, equipment leasing services, matchmaking services and technology providers. Capacity building will be done to ensure there are adequate qualified auditors in the market; and that financial institutions comprehend energy and resource efficiency project financing. KAM will work both at national and sub-national levels. In tandem, companies will be sensitized and supported to commit to UN Global Compact practices.

Under this programme, Output indicator 1.1 sub activity on number of energy and resource audits carried out . The table below shows summary of energy audits undertaken.

Type	Period 2015	Number	PROPOSED CAPITAL INVEST.Ksh.	TOTAL ANNUAL SAVINGS (P.a)	Payback Period (Yrs)
GAs	Jan-July	14	34,757,606	25,013,214	1.389569769
	Jun-Dec	32	113,394,662.00	119,004,824.80	0.9528576862
	Total	46	148,152,268	144,018,039	1.028706329
	Period 2015	Number	PROPOSED CAPITAL INVEST.Ksh.	Net Present Value	Payback Period (Yrs)
IGA	Jan-July	17	566,677,745.00	557,342,796.00	1
	Jun-Dec	21	1,350,399,250.00	698,206,648.68	0.67
	Total		1,917,076,995.00	1,255,549,444.68	1.67

DANIDA 2016 AUDITS ANALYSIS

Type	Period 2016	PROPOSED CAPITAL INVEST.Ksh.	TOTAL ANNUAL SAVINGS (P.a)	Payback Period (Yrs)
GAs-SMES	5	19,841,186.59	12,423,096.20	1.60
GA	29	162,981,172.00	78,648,202.59	2.32
Total	44	182,822,358.59	78,648,202.59	2.32
		PROPOSED CAPITAL INVEST.Ksh.	Net Present Value	Payback Period (Yrs)
IGA	13	563,215,731.00	230,005,003.50	2.4
Sub-Total	57	746,038,089.59	308,653,206.09	2.42

The general audits conducted constitute approximately 30% of SME's and the rest as large companies.

Resource audits-water and wastewater audits.

Water and Wastewater Audit study is a qualitative and quantitative analysis of water consumption and waste water discharge which helps efficient water utilization and conservation and reuse of wastewater after suitable treatment.

It helps in determining the amount of water lost from a distribution system and cost of this loss to the utility. Water audits assist manufacturers and other target sectors to reduce production costs through increased efficiency, thereby increasing profits, increasing employment opportunities, creating more wealth and alleviating poverty.

Objectives of Water Audits:

- + To utilize water resources effectively and more efficiently.
- + To keep check on unwanted excess usage of water, for cost-benefit study for optimum recovery of water loss.
- + To identify thefts, meter inaccuracies, record inaccuracies and unauthorized water use.
- + To identify priorities area which need immediate attention for control and maintenance.
- + To identify saving opportunities for the company.

Kenya Association of Manufacturers (KAM) identifies different companies as potential member to gain from the resource audit services it offers. The audit process is undertaken by The Federation of Indian Chambers of Commerce and Industry (FICCI) supported by KAM. So far, FICCI in collaboration with KAM and CEEC have undertaken over 20 water audits.

Case study on the very first water audit performed by KAM,

The Federation of Indian Chambers of Commerce and Industry (FICCI) were contracted and conducted 4 resource audits in the year 2015 on Water and Wastewater Management. Audits conducted were conducted at the following institutions; Kenyatta National Hospital, Thika Water Company, Sarova Whitesands Hotel and Kenyatta University-Ruiru Campus.

The consultants also conducted 3 days training to energy consultants among others and 50 attendants participated.



Participants attending the water and wastewater audit training (left) and auditors doing the audit

The consolidated savings potential for the four facilities totaled KShs 287.2 million with an investment of KShs 411 million translating to a simple payback period of 1.4 years.

Key Measures recommended were:

- + Controlling high flow rates in the taps by using water efficient tap aerators/nozzles
- + Regular inspection, Maintenance & Repair of Water Fixtures & pipelines and Stop leakages
- + Regular Calibration & Maintenance of existing flow meters and installation of flow meters at major water consuming areas
- + Installation of Sewage Treatment Plant (STP) for treating the sewage and Recycle/Reuse of treated water for flushing, landscaping & scrubbing in Incinerators
- + Rainwater Harvesting (RWH) for storm-water management, groundwater recharge & storage



Water and waste management audit training to participants, 2017

to use for gardening, Laundry & floor cleaning

- + Maintenance of Log-Book for recording the various pumps operating hours

Capacity Building/Trainings

To satisfy our clients, members, and partners' specific needs and anticipated regulatory requirements, CEEC offers a wide range of energy related training courses for employees at all levels of the organization. All courses are delivered to the highest levels of expertise, integrity, and professionalism. Our energy training courses are designed:

- + To be able to develop and implement a systematic strategy to address the technical aspects on energy management.
- + To equip participants with practical knowledge on water and energy efficiency and management.
- + To equip the technical personnel with detailed knowledge on energy efficiency opportunities on compressed air systems.

Through the different trainings we have been able to achieve the following:

- + Raise awareness of energy management for general employees
- + Equipped industry personnel especially financial managers with skills to develop bankable financial models for energy efficiency projects at industry levels.
- + By improving the energy performance of your building, you will:
- + Reduce your energy costs.
- + Cut the carbon emissions. Through energy efficiency efforts we have reduced the greenhouse gas emissions that contribute to climate change and demonstrated organizations' corporate commitment to the environment at the same time.
- + Strengthen organization's image. A commitment to energy efficiency goes a long way in today's eco-conscious economy. The trainings help you attract the right kind of consumer and stakeholder attention with a greener approach to energy management.

All of these benefits provide a significant competitive advantage in the marketplace.

The Centre offers Energy related trainings at subsidized fee. The trainings cover a wide scope of courses with practical approaches to energy management by offering hands-on approaches to assist industries successfully implement energy management programs in the current energy scenario.

The energy trainings serve to equip participants with understanding on how to apply energy management principles resulting in reduced energy consumption and significant cost savings.

Some of the trainings offered by CEEC are;

- + Certified Energy Auditor
- + Certified Measurement and Verification Professional
- + Certified Water Professional and Water Efficiency Training
- + Energy Audit Training
- + Energy Management Training
- + Heating, Ventilation and Air Conditioning Systems
- + Refrigeration and Cold Room Operations Training
- + Solar Technology Training
- + Electrical And Compressed Air Systems Training
- + Boilers And Steams Training
- + Financial Engineering



Financial Engineering Training at Golden Tulips Hotel held in May 2017.



Solar Technology Training, Merica Hotel Nakuru, 2016

Certification Services

On top of the regular trainings offered by CEEC, we also offer Certification services in conjunction with the Association of Energy Engineers (AEE) in the USA. The certification offered include:

- Certified Energy Manager (CEM)
- Certified Measurement and Verification Professional (CMVP)



Certified Energy Manager class 2011



Certified Energy Manager course June 2017 class



KAM Regional Award Presentation by the AEE Executive Director, Albert Thuman (Third From Left): 29th September 2015

Since its inception in 1981, the Certified Energy Manager (CEM) credential has become widely accepted and used as a measure of professional accomplishment within the energy management field. It has gained industry-wide use as the standard for qualifying energy professionals both in Kenya, the United States and Europe. It is recognized by the Energy Regulatory commission and the U.S. Department of Energy, as well as by numerous state energy offices, major utilities, corporations and energy service companies.

When you've earned the right to put the initials "CEM" behind your name, you've distinguished yourself among energy management professionals. Simply put, the designation CEM, recognizes individuals who have demonstrated high levels of experience, competence, proficiency, and ethical fitness in the energy management profession. By attaining the status of CEM, you will be joining an elite group of 14,500 professionals serving industry, business and government throughout Kenya and the U.S. and in 25 countries abroad.

KAM was the first organization in Kenya to offer CEM certification.

Energy Management Awards (EMA)

EMA is an annual award that promotes excellence in energy management and recognizes enterprises that have achieved significant reduction in their energy consumption through implementation of energy efficient measures and technologies.

EMA was launched in 2004 by the GEF-KAM Energy Efficiency Project which was the predecessor to the CEEC. Since 2006, the awards have been organized by the CEEC. KAM took over the running and management of the Energy Management Award from GEF-KAM Energy Efficiency Project after the project came to an end in November 2006.

The 2006 EMA gala dinner took place on the 7th March 2007 at the Grand Regency Hotel with the Hon. Abdi Hassan, the Assistant Minister for Trade and Industry, as the Chief Guest.

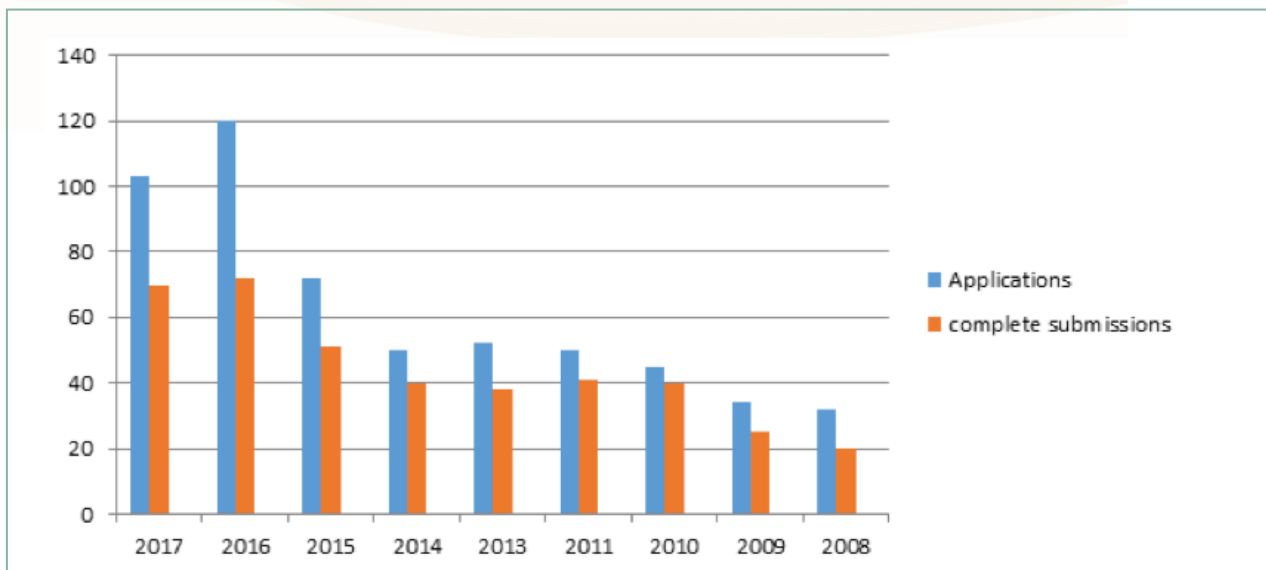
EMA still does offer Sponsorship Opportunities which provides a platform for sponsors to be recognized and applauded for playing a key role in promoting energy efficiency.

Participation in the Energy Management Award (EMA) is open to all medium to large scale industries and the services sector. Participating enterprises have to demonstrate a commitment to improving energy utilization in their operations through policy, training, planning, and implementation of planned activities and measurement, verification, and documentation of achievements.

Awards are won in the following categories:

- + Overall Energy Management Award
- + Best Energy Management Team Award
- + Fuel Savings Award (SME, Large)
- + Electricity Savings Award (SME, Large)
- + Service Sector Award
- + Energy Innovation Award
- + Sustained High Performance Award
- + Best New Entrant (SME, Large)
- + Technical committee Award
- + Student's Award
- + Public Institutions Award

The energy management awards are not targeted at the achievement of the highest level of savings (which may be the result of a one-off energy investment measure), but rather to the overall systems, which encourage continual improvements in energy performance.



Participation data 2008-2017



EMA 2006 Committee team



EMA 2010 Overall Winners - Kenafric Industries



EMA 2014 overall winners – Bidco Ltd.



EMA winners, Sarova Group of Hotels, 2014.



EMA 2015 Overall award to Mzuri Sweets Ltd



EMA 2016 Dr. Ben Chumo awarding Brookside Dairy Ltd.



EMA overall winner 2017, Chandaria Group.

CEO's Forum

The Kenya Association of Manufacturers (KAM) and GIZ held the CEO forum alongside the Kenya Renewable Energy Conference and Exhibition on 30th March, 2017. The theme of the CEO'S Forum was 'Financing the Next Phase in Clean Energy Development' while that of the conference and exhibition was 'Catalyzing Sustainable Renewable Energy & Energy Efficiency Growth in Kenya'. The event brought together various stakeholders and especially decision makers from Kenya's manufacturing, financial and service sector and large energy consumers who are keen on conserving energy by using energy efficient technologies and implementing renewable energies.

The CEO's forum had varied presentations from speakers covering a range of topics including renewable energy project development, financing options and experiences from both private and public sector in establishing specific energy projects. The event served as a platform for stakeholders to engage in cross cutting issues in renewable energy and energy efficiency uptake. The CEO Forum entailed moderated panel discussions from different stakeholders in the renewable energy sector ranging from private sector, public sector, financial institutions, renewable energy social enterprises, renewable energy associations and civil society.

Objectives

The overall objective of the CEO's forum was to engage on energy efficiency, renewable energy uptake and financing options. A secondary objective was to identify investment and cooperation opportunities especially for German Companies in the field of renewable energy and energy efficiency. Updates on the energy situation and projects in Kenya were provided by the Ministry of Energy and Petroleum, the Kenya Power and Lighting Company, the Energy Regulatory Commission as well as several developers and project implementers. The private sector emphasised on project development, training, policy and regulations. Discussions of the CEO forum covered the following specific topics;

1. Greening Kenya's industry through sustainable energy solutions
2. The potential, profitability, and brand value add of the corporate solar market in Kenya
3. A lender's perspective to financing green growth
4. A developers' perspective to project finance

Key Issues

Key issues emanating from the forum include but not limited to:

- + Private Sector engagement has contributed to and remains critical for energy access in the country with innovative business models.
- + Current electrification coverage is 63%. Kenya Power targets to connect 70% of the population by the end of 2017 and universal access by the year 2020. The scope and framework for private sector participation in the hybrid mini grid space to achieve universal access exists.
- + To encourage investment in the renewable energy sector and uptake of RE, ERC is supporting the development and enforcement of efficient regulation and licensing procedures.
- + The government is working towards an auctions system for renewable energy to achieve competitive tariffs.
- + Opportunities to reduce over reliance on fossil fuel in industry exists and can be achieved through innovation that is geared towards sustainable industrial processes.
- + Learning opportunities through exchange programmes implemented individually and through KAM including field useful in delivering change.
- + The Project Development Program (PDP) focuses on business development and promotes business partnership by linking German business to Kenyan businesses.
- + The reduction of cost for solar components has contributed to increased uptake of solar technologies.
- + Design and installation of systems needs to be proper and optimal sizing i.e. consider the demand of the consumer, space available and investment. Sizing tools and software exist in the market and should be used.
- + The SUNREF programme provides awareness raising, capacity building on different financial models to accelerate uptake of RE and EE.
- + KAM links developers to financiers whose mandate as experts is to review and analyze the feasibility of the project. The program provides the bank with technical assistance since the bank takes care of the credit risk.
- + Companies are attracted more to the Build Own Operate (BOO) model by providing electricity or leasing the power.
- + Lack of expertise from the project developers to deliver bankable projects remains a challenge
- + Credit lines for RE and EE projects eligible for funding are available from local banks through the support of DFIs.
- + The Technical Assistance component still required by most developers and local banks as there is still an appetite and need for financing of RE projects
- + One credible off take model ideal as it guarantees lenders that you will be able to pay back the money you have borrowed. There are also options for anchor clients/ off takers
- + A key challenge for financing is that requirements for bankability are similar across project sizes i.e. same for small and large scale projects
- + It is important to mitigate project risks early by either getting insurance or assurance
- + Technical and legal capacities are required to develop projects. Accurate data is essential in sizing projects, else will have financial implication if wrongly sized.
- + Land is a challenge, lenders will ask for either a title deed or the lease agreement.



Panel discussion during the CEO's forum 2015

Impact Assessment

A comprehensive Impact Assessment Study on firms that had energy audits in 2009 to 2012 commenced in April 2014. Two consultants were contracted to carry out the study of a total of 200 firms audited during that period.

The main objective is to ascertain the level of implementation of the recommendations made in the audits, the savings achieved, find out the barriers to implementation of EE measures and explore ways that can be used to overcome the barriers and Green Gas Emissions mitigated as a direct result of these initiatives. Out of the 200 firms targeted, 80 of them have implemented at least 30% or more of the recommended measures. In total they have enjoyed accumulated savings of KShs 286 million annually and investing KShs 340 million.



Solar Water heating project at Sarova Whitesands Hotel, Mombasa

Exchange Visits

The centre coordinates exchange visits to enable engineers, energy managers, consultants among other players get a firsthand experience on application of various EE/RE technologies and enable technology transfer among individuals in the industry. Technical personnel of audited facilities participated in the case study visits to the identified companies, Mini hydro site, Solar PV Farm, Biogas projects and geothermal power plants. As a result 4 flowers farms have installed Solar PV (ranging between 60-500 kW) in their facilities and 2 water companies are at advanced stage of developing mini hydro projects. There has been a lot of interest from the visits as evidenced by the growth in interest.

The tours include visits to Solar powered farms, Mini-hydro projects, Biogas generation sites and energy efficiency projects.

Several companies are at various stages of developing their own RE projects as a result of this study tours.

A total of 20 exchange visits have been carried out so far. The visits are aimed sharing of ideas on energy efficiency and renewable energy.



Redlands Roses

Redlands Roses on 3rd March, 2017.

Redland Roses embarked on renewable energy project on solar PV which was implemented at the farm by Urbasolar.

Urbasolar develops projects from engineering and obtaining administrative authorizations, to finance and build the plants and ensures the operation and maintenance, while remaining capital investment companies, either to the owners of the buildings or investors.

The exchange visit participants will be drawn from;

- ⊕ Industry representatives
- ⊕ Energy Engineers/auditors/consultants



Kaysalt, Malindi

Kaysalt, Malindi on 31st May, 2017.

In 2016 kaysalt installed a 991kW solar PV system at their salt factory.

During the exchange visit, participants were exposed to the following key areas:

- ⊕ Solar PV feasibility study
- ⊕ Solar PV financing
- ⊕ Solar PV installation and maintenance
- ⊕ Impact of electricity self-generation to the facility
- ⊕ Solar PV site visit



Nampak Kenya, Thika

Nampak Kenya, Thika on 17th June, 2016

Nampak has employed the following EE measures:
Energy policy

- ⊕ Shift of tariff from C11 to C12 which costed them 16 Million with a payback period of 3 years
- ⊕ Power factor correction
- ⊕ Installation of solar tubes
- ⊕ Variable speed drives
- ⊕ Replacement of bulbs with LED bulbs.



Kenya Breweries, Ruaraka

Kenya Breweries, 19th AUGUST 2016

- ⊕ Energy conservation measures successfully implemented: Utilities (Fuel efficiency in Boilers, compressed air systems, Chillers etc.), Energy efficient lighting systems, Motors, Variable speed drives (VSDs), PLC controls,
- ⊕ Key areas that participants were exposed to; Industrial automation and energy efficiency, Variable speed drives installation on motors, Use of SCADA, Fridge plant optimization, Thermal energy storage system, process heat recovery.



Solinc East Africa, Naivasha

Solinc East Africa, Naivasha on 18th October, 2016.

Participants were exposed to the following key areas:

- ⊕ Solar PV Assembly Process
- ⊕ Solar Home System Assembly
- ⊕ Case Study of installed grid tie Solar System



Mombasa Cement, Athi River

Mombasa Cement Ltd Athi River 21st May 2015

- ⊕ Energy efficiency measures implemented: Installation of local motor capacitors, use of variable frequency drives, voltage optimization at the transformers and enhanced controls for street lighting.
- ⊕ Energy policy and an energy management committee with clear guidelines on the energy function.
- ⊕ Energy management program with objectives and targets.



Tropical Power, Naivasha

Tropical Power, Naivasha 13th November 2015

- ⊕ 2.2 MW anaerobic digester producing 18,000MWh of electricity each year
- ⊕ 50,000 tonnes of organic waste used each year to produce clean energy
- ⊕ 35,000 tons of liquid and solid output of natural fertilizer back to local farms
- ⊕ 7,000 tons of CO2 reduction each year from an equivalent of 5M liters of diesel if it were burnt in thermal plants



Brookside Dairy Ltd, Ruiru

Brookside Dairy Ltd, Ruiru 11th December 2015

- ⊕ Application of variable speed drives on pumps/fans and adoption of high efficiency motors
- ⊕ Application of air curtains in cold rooms and efficient refrigeration units
- ⊕ Utilization of natural lighting and efficient lighting systems
- ⊕ Energy management for industries
- ⊕ Best practices in steam and compressed air systems



Rukuriri Tea, Embu

Rukuriri Tea Factory, Embu

14th March 2014

- + Fuel switch. The factory has switched from using HFO to biomass briquettes from sawdust.
- + Energy Management program
- + Proper maintenance of steam system by lagging and having efficient steam traps.
- + Placement of translucent sheets
- + Installation of online capacitor banks for power factor improvement.
- + Load Scheduling



Embu Water and Sanitation Company , Embu

Embu Water and Sanitation Company , Embu

14th March 2014

- + Small hydro power generated from passing intake water at a head through a turbine as it goes to the treatment tank. The electricity is used for water treatment process.



Olkaria Geothermal Plant, Naivasha

Olkaria Geothermal Plant, Naivasha

11th June 2014

- + Evaluate the progress of 280MW capacity which is meant to stabilize supply and reduce energy costs.
- + Exploring possibilities of the mentioned Industrial Park near the site for Steam intense processes.



Bamburi Cement (Nairobi Grinding Plant)

Bamburi Cement (Nairobi Grinding Plant)

30th July 2014

- + Roadmap for energy efficiency with set targets
- + Recirculation of hot air in the combustion chamber and fuel preparation which improves the air fuel ratio efficiency.
- + Fuel switch from HFO to rice husks and burnt tires
- + Vector graph software which monitors power quality (black outs and dips). Capacitor bank to control power factor
- + Load scheduling and load matching

Enhanced Enabling Environment for investment in RE & EE

Policy and regulations that support private sector investment in RE & EE developed

KAM supported development of Time of Use Tariff structure to be undertaken on pilot basis. Supported by administering a survey amongst our members on their demand loads, installed capacity utilization and whether interested in the program. We also sought to find out the challenges anticipated by additional shifts at night. ERC has contracted a consultant; Feradon Associates who have gathered the relevant information and currently preparing the draft report.

KAM will be spearheaded in the review and validation workshops before the program is formally rolled out. The program, if well administered will ensure maximization of power and hence improved efficiency.

KAM made major contribution in the Energy Bill 2015. Our position was eventually incorporated in the draft bill whereby KPLC will be required to compensate for losses occurring as a result of unplanned power interruptions lasting for more than 3 hours.

Climate Change awareness

The one day awareness creation workshop was held in Safari Park on 8th April 2016 and brought together representatives from the private sector, civil society, Government Institutions and County Governments (Kiambu County). The awareness session came at a point when the Government of Kenya was preparing to send a delegation to the UN headquarters in New York for the signing ceremony of the Paris Agreement. The ceremony was held on 22nd April 2016 and saw over 157 countries committing to the new Paris Climate change agreement on commitment towards reduction in global temperatures.

The Paris Agreement, a legally binding treaty on climate action contains emission reduction commitments from 187 countries starting in 2020. The Paris Agreement entered into force once 55 countries covering 55% of global emissions acceded to it.

The awareness session saw a total of 95 participants attending to chart on the role of private, national and county governments on adaptive resilience to climate change related disasters in Kenya. In the forum, private sector representatives discussed on possible partnerships and agreed to work together with the county government led by the national climate change coordination mechanism and ensure the mainstreaming of climate change functions by the National, County governments and the private sector approve and oversee the implementation of the Climate Change Act.



Dr. Mohamed Ali, Special Advisor to the Presidency on Climate Change giving the keynote address on outcomes of COP 21 and left participants who attended the forum.



In the middle, Ms. Esther Njuguna CEC Environment, Kiambu County and right Dr. Chumo, CEC Environment Nandi County

Enactment of Climate Change Bill, 2014

After a period of KAM lobbying and advocacy to the Senate and the Parliament, the climate change bill was enacted on 6th May 2016. Awareness sessions were also held to both houses before debates on the bill in both houses.

Following KAMs effort in policy support, the bill became an act on 6th April 2015 whose purpose is to develop, manage, implement and regulate mechanisms to enhance climate change resilience and low carbon development in Kenya. Our Environment Sector Chair, Mr. Suresh Patel was also appointed to sit in the climate change council as a representative of the private sector.

The National Climate change council, is a high level national climate change mechanism chaired by the President and a climate change directorate. The is empowered to assign duties relating to climate change to both public and private entities.

Kisumu County Climate Change Awareness forum

Kisumu awareness forum held with 62 participants attending at Acacia Premier Hotel in the month of September 2016.

Uasin Gishu County Climate change awareness forum

The Uasin Gishu county forum was held on 8th November 2016 at Boma Inn Hotel in Eldoret. The forum attracted a total of 62 participants drawn from the County Government, Private sector, Civil society and the National Environment Management Authority.

The forum was opened by Hon. Mary Njogu, CEC Industry, Energy and Environment. She emphasized on the role of the county government in combating the negative impacts of Climate change in the county and promoting investments in clean energy sources for the county.

Nakuru County climate change awareness forum

The Nakuru forum was held on the 5th of August 2016 at Merica Hotel and brought together more than 70 (seventy) participants from the private sector, national and county governments and civil society.

The forum was opened by Hon. Richard Rop, CEC Energy & Environment. He emphasized on the role of the private sector and government in combating climate change and appreciated the efforts being made by the private sector. He appreciated the actions that industry has taken so far to mitigate on the effects of climate change including the adoption of clean energy such as solar and small hydro and energy efficiency. He highlighted the importance of COP 21, the Paris Agreement and Kenya's commitments to combat climate change (INDCs). He also made reference to the ongoing support to Nakuru County to help the county develop a Clean Energy Policy and Plan to help mainstream climate change in their energy planning and budgeting.

In summary, KAM has reached over 321 KAM members and partners have been sensitized on Climate change with plug in support on development of clean county energy policies.

CEEC was also actively involved in advocacy for climate change mitigation and adaptation for the private sector. In May the CC Bill was assented to and became an Act of Parliament. CEEC also gave their inputs into the background report for the Paris Agreement and seeks to strengthen private sector engagement in implementation of Kenya's intended national determined contributions.

Publicity

The Centre for Energy Efficiency and Conservation runs annual media campaigns using several platforms including print, television and electronic (social media) aimed at creating awareness on energy efficiency and conservation. The programs are designed to help companies identify energy wastage, determine saving potential and give recommendation on measures to be implemented. The products showcased are; General Audits, Investment Grade Audits, Resource Audits, Exchange Visits, Specialized Training and Energy Management Awards.

The campaigns have yielded a lot of results: In 2015, 125 Energy audits were conducted, 320 technical personnel trained and more than 100 people participated in the exchange visits.

Testimonials

- ① *"We as the Sotik Tea team greatly appreciate your exceptional service, guidance and assistance through this entire process and will definitely keep in touch during implementation of the same. The training was perfectly done and on behalf of the trained team, I would like to congratulate Brian and Elizabeth for their excellent job. We are quite confident in using the PEL"*

On the energy management in-house training-Sotik Tea Company Ltd, Daniel Mwago M, Ass Eng Manager

- ② *"... we made significant progress with implementation of energy efficiency and renewable energy measures with Thika WSP. Thika WSP was able to save 2.25 million in KES from EE measures alone in 2013. In 2014, we supported a full feasibility study for 225kW mini-hydro that was proposed and conducted by the same energy auditor. The project was determined as technically and financially viable and at the moment has been approved by the water services regulator and the county government for implementation."*

Energy Audit at-Thika Water, Eng. Alec Kimathi

- ③ *"We take this chance to appreciate your support by sending Energy Auditors. We undertook above IGA at our Saosa Plant through Negawatt who did a professional exercise."*

Energy Audit-Job Kaibei, James Finlay

- ④ *"I would like to thank you for a course that was well organized. Though technical, the lecturer made it simple enough such that those of us who are not engineers also greatly benefited. I will be on the look out early next year for courses related to Climate Change and Clean Development."*

Solar technology training - Mercy Mwangi

- ⑤ *The month of July 2016 the performance was impressive, less interruption in terms of frequency and duration. Hoping to have more stable power supply this month of August 2016.*

Power advocacy-Duncan Njoka, Umoja Rubber

Energy Audit Advert

Other Partnership

a) AFD-Sustainable Use of Natural Resources and Energy Finance (SUNREF)

- In order to support the Governments of Kenya, Tanzania and Uganda implementing their policies in the energy sector with the objectives to increase the share of renewable energy resources and to promote at large scale the energy efficiency to facilitate their energy transition, The “Agence Française de Développement” (AFD) launched a regional Programme in August 2011 (The initial program, called Regional Technical Assistance Program (RTAP), ran from Aug 2011 to May 2014. The second phase of this program, renamed and branded as SUNREF – Sustainable Use of Natural Resources and Energy Financing – began in May 2014 and will continue for 2 years) with two main components:
- Credit facilities to provide banks with the necessary long term financing deemed to overcome the financial barriers met by projects sponsors.
- A Regional Technical Assistance Programme, whose role is to facilitate the origination of viable and bankable projects, provide technical and financial assessment support at critical stages of project development and increase the knowledge and the expertise of renewable energy and energy efficiency of the main stakeholders (sponsors, banks, consultants, equipment providers).

Over the past 6 years, Regional Technical Assistance Programme (RTAP) under SUNREF has built a pipeline of over 250 renewable and energy efficiency projects accounting for debt finance over \$700 million, which supersedes about 6 times the AFD credit line

Summary list of closed projects by RTAP and cooperative bank pipeline. (2011-2015).

#	Project Name	Nature / technology type	Energy Capacity Vol (MW)	Volume (Debt RTAP estimate) MUSD	Loan approved as per CO-OP Bank Schedule. MUSD (Actual)	Capex MUSD
I.	Gura KTDA	Mini Hydro RE	5.0	10.4	10.14	16.0
II.	Chania KTDA	Mini Hydro RE	1.0	2.8	1.625	4.3
III.	North Mathioya KTDA / Metumi	Mini Hydro RE	5.0	10.3	9.941	15.9
IV.	Strathmore university	Solar PV EE	.50	1.2	1.3	1.2
V.	Gen pro Terem	Mini Hydro RE	5.0	10.4	11.593	13.4
VI.	Meru central Dairy	Industrial process improvement and retrofits EE	.17	2.3	2.3	3.0
VII.	Alpha knits Ltd.	Industrial process improvement and retrofits EE	.084	1.1	1.1	1.1
VIII.	Lean energy solutions	Biomass EE	5.3	1.0	1.0	1.5
	Total	-----	22.054	39.5	38.99	56.4

Chase bank disbursements (2015)

#	Project Name	Nature / technology type	Energy Capacity Vol (MW)	Volume (Debt RTAP estimate) MUSD	Loan approved as per Chase Bank Schedule. MUSD (Actual)	Capex MUSD
IX.	Olivado	Biogas	0.325	2.02	1.648	2.1
X.	Redland Roses	Solar PV captive consumption	0.33	0.33	0.33	0.33
XI.	Alpha fine foods	Energy efficiency, Equipment retrofit and Production expansion	0.22	0.97	0.7	0.97
	Total	-----	0.875	3.32	2.678	3.4

CBA Disbursement

#	Project Name	Nature / technology type	Energy Capacity Vol (MW)	Volume (Debt RTAP estimate) MUSD	Loan approved as per CBA MUSD (Actual)	Capex MUSD
I.	Thika Cloth mills	Energy efficiency		0.1	0.1	0.2
II	Mt. Elgon Orchards	Hydro Project	0.3	0.9	0.9	1.4
III	Two rivers	Solar PV	1.28	1.3	1.3	2.7
	Total		1.58	1	2.3	4.3

DTB Uganda Disbursement

#	Project Name	Nature / technology type	Energy Capacity Vol (MW)	Volume (Debt RTAP estimate) MUSD	Loan approved as per CBA MUSD (Actual)	Capex MUSD
I.	Fine Spinners	Energy efficiency		0.1	0.1	0.2
	Total			0.1	1	0.2

Tanzania with Bank of Africa Tanzania

#	Project Name	Nature / technology type	Energy Capacity Vol (MW)	Volume (Debt RTAP estimate) MUSD	Loan approved as per Chase Bank Schedule. MUSD (Actual)	Capex MUSD
I.	Baobab school	Biogas	0.07	0.037	0.037	0.037
	Total	-----	0.07	0.037	0.037	0.037

Capacity Building

To date the programme has been able to train over 105 bank staff for Bank of Africa Tanzania, Commercial Bank of Africa, Cooperative Bank, Diamond Trust Bank Kenya and Uganda on renewable energy and energy efficiency. The approach is to make sure that the banks are in a position to assess projects that come their way and are of less risk.

b) DFID-Strengthening Business Society Engagement in Climate Change (SBSECC)

KAM with support from DFID has been working to strengthen business engagement in climate sensitive development under the 'Strengthening Business Society Engagement in Climate Change Mitigation' project (SBSECC). The goal of the project is to support low carbon development growth in Kenya, Energy is a major input of most commercial activities and studies have shown that the source of energy, distribution and efficiency of energy use are major considerations for climate change.

In addition to providing the private sector with the know-how to invest in clean energy technologies, the program supported counties where KAM is working to create an enabling regulatory environment at county level to encourage investments in clean energy. The goal is to ensure that energy generation and distribution are climate proofed. Efforts focus specifically on developing an energy policy and action plans for sustainable energy for Mombasa, Machakos, Nairobi, Kiambu, Nakuru, Uasin Gishu and Kisumu Counties.

Program Objectives:

- ✚ Catalyze Private-sector Investment in Renewables
- ✚ Improve Renewable Energy Policy in County Governments to attract Investments
- ✚ Reduce CO2 Emissions

- ⊕ Job Creation
- ⊕ Promotion of Sustainable Clean Energy Technologies & Solutions (in Solar, Hydro, Biogas, Biomass, Wind, and Geothermal)

The KAM Program – Relevance to Kenya & to KAM Member

The Government of Kenya has set forth its “Vision 2030,” to transform Kenya into a “newly industrializing, middle-income” country. At the inception of the program in 2014, Kenya had approximately 1,800 MW of generation capacity. This capacity was serving a population of over 43 million, resulting in constrained economic growth. Kenya is believed to possess over 7,000 MW of undeveloped geothermal energy resources in the Rift Valley. Wind, Solar, Hydro and Biomass energy are also significant potential sources for power generation.

Kenya aims to increase generation capacity by 23,000 MW in 2030 and has launched a medium-term initiative to inject 5,000 MW by 2016. The Government of Kenya is focused on sustaining a stable investment climate for private sector participation in the sector, developing expanded transmission and distribution networks to deliver power to customers, maintaining a creditworthy off-taker, maintaining cost reflective tariffs, and reducing inefficiency in the sector to support more affordable end-user tariffs.

Value for KAM Members:

- ⊕ Provision of free Technical Assistance for development of Clean Energy Projects (Feasibility Studies, Financial Advisory, and Project Development);
- ⊕ Advocacy at county-level to allow more investments in sustainable energy generation and supply to KAM members;
- ⊕ Capacity Building and training of KAM members in best practices in design and development of clean energy infrastructure;
- ⊕ Awareness creation of the latest Clean Energy technologies and solutions;
- ⊕ Facilitating on-site generation which will result in lower power tariffs and more reliable supply of power to members.

KAM has been implementing a Department for International Development (DFID) programme on Strengthening Business Society Engagement in Climate Change (SBSECC) mitigation in Kenya. The program launched in April 2014 with the primary goal of enabling Kenya to cope with the effects of climate change and improve access to clean energy. This will be achieved by providing transformational change by helping Kenya to scale up private sector innovation and investment in low carbon services and assets, such as, clean renewable energy. Enabling this change will require targeted support to critical aspects of climate change governance, and stimulation of the private sector demand.

Under this programme the following have been achieved to date;

- a. Encouraging Private Sector Participation in Climate Change Mitigation Solutions
Successfully completed the development of Solar PV design and installation guidelines that will be adopted by ERC and solar PV stakeholders in collaboration with KEREAA.
- b. Support Improved Policy & Regulatory Framework
Supported 7 counties develop draft Sustainable Energy policies. Work is ongoing to support Kiambu prepare a final Clean Energy Policy and Action plan to create awareness, build capacity and an enabling environment for investment of RE & EE in the counties.
- c. Strengthen Business Society Engagement in Climate Mitigation Investment
Completed prefeasibility studies for 16 project developers (6 hydro, 5 solar, 4 biogas and 1 biomass) and supported the office of the Deputy President carry out an energy audit. Successfully organized the first KAM Clean Energy Conference and Exhibition. Attracting more than 250 participants, 35 exhibitors and 8M worth of sponsorship. In 2017 the number of participants was over 400, with 23 exhibitors and 9M worth of sponsorship.

C) DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ)

KAM and GIZ have endeavored to work together to provide businesses and industries with the opportunity to become sustainable and efficient through the implementation of renewable energies and energy efficient technologies. The unique capabilities within KAM and GIZ complement each other with the aim to raise awareness of new RE and energy efficient technologies, aid businesses in the uptake of RE and energy efficient technologies, and investigate and analyze market potentials for RE and energy efficient technologies. GIZ and KAM aim at working jointly to create awareness of RE & EE technologies, identifying market potentials for the uptake of RE & EE solutions and aiding businesses to realize RE & EE investments.

KAM as the representative organization for businesses, manufacturing, and value adding industries, intends to channel identified concerns, recommendations, and tools towards common shared project goals in cooperation with GIZ.

GIZ intends to offer their technical expertise and value, and to provide solutions towards common shared project goals in cooperation with KAM.

KAM and GIZ declare their willingness to jointly explore opportunities and raise awareness for RE & EE solutions for businesses and industries. KAM or GIZ, in mutual project cooperation, may request support in terms of research facilitation, with the goal to advance discussions around policy and regulatory concerns and ultimately contribute to a more friendly investment climate and to facilitate market development.

2. Activities of the Cooperation

In the framework of the MoU, the parties intend to embark on the various activities that improve the awareness and uptake of RE & EE solutions within the business community and industries. Possible activities of cooperation are listed below and will be reviewed from time to time to ensure relevance and a reflection of gains achieved.

GIZ intends to provide technical assistance through studies and in-depth research and identify opportunities for RE & EE uptake, as well as bring in German RE & EE experts for knowledge sharing with Kenyan counterparts.

As part of KAM's mission to promote competitive local manufacturing, KAM strives to improve awareness and uptake of RE and EE solutions within its members, many of whom are large energy consumers and would benefit from incorporating RE & EE solutions.

GIZ and KAM both aim to jointly organize workshops, trainings, and conferences which endeavor to benefit the energy sector as a whole.

Under the Partnership, KAM-CEEC and GIZ were able to achieve the following,

1. Collaboration in Trainings – KAM and GIZ conducted trainings in new RE technologies and in EE solutions. Such trainings can be carried out during KAM or GIZ energy events such as the KAM sustainable energy week or the GIZ German Solar Training Week.
2. Regional Conferences – KAM and GIZ collaborated together in planning and arranging Clean Energy and RE & EE awareness conferences such as the Clean Energy Conference and Exhibition held at Safari Park Hotel in 2017.
3. As part of the Energy Management Awards (EMA), GIZ supported the CEO's forum.

Way Forward

The global drive on green growth, sustainable development and KAM's vision to support industry in its competitiveness resonate well enough and prudence in aligning itself with other upcoming projects cannot be over emphasised. Further deliberation and alignment with key Country plans: GESIP, SE4ALL, The SDGs, Vision 2030 and the Constitution would also enhance achievements portfolio.

Green Economy Strategy Implementation Plan (GESIP)

GESIP is the national strategic document that addresses and sets the path for Kenya's transition into a green economy, including contribution to her strive to meet the Sustainable Development Goals (SDG's). In particular, the Strategic

Sector Cooperation (SSC) will accommodate the following objectives:

- + Manage waste as a resource
- + Green innovation and technology development
- + Reduce environmental related health risks
- + Accelerate the creation of green jobs
- + Enhance water use efficiency in urban and rural areas

Sustainable Development Goals (SDGs)

Access to clean energy is critical to economic development that leaves no one behind and gives everyone a fair chance of leading a decent life. The seventh goal acknowledges the importance of affordable, reliable, sustainable and modern energy for all. But energy is also essential for all the other targets, including eradicating extreme poverty, good health, quality education, clean water and sanitation, inclusive growth, gender equity, sustainable land-use limiting climate change, adopting renewable energy and managing resources sustainably.

Sustainable Energy for All (SE4All)

SE4All was launched in 2011 where Kenya opted in 2012. The high level mission was started by UNDP and The World Bank. The template for stock-taking and gap analysis was supported by UNDP New York, and a Country Focal Point (CFP) was appointed within the Directorate of Renewable Energy in the Ministry of Energy and Petroleum (MoEP).

The key objectives in the action agenda are;

- + Ensuring universal access to modern energy services
- + Doubling the global rate of improvement in energy efficiency
- + Doubling the share of renewable energy in the global energy mix

Vision 2030

The Kenyan Vision 2030 is a long term plan aimed at leading the nation increased industrialization with improved quality of life to all citizens in a clean environment as a middle income country. Increase in national power generation will provide the energy required to accelerate growth and mobilize private sector capital for generation of electricity from renewable energy. The three key pillars are:

- + Economic Pillar - aims to achieve an average economic growth rate of 10 per cent per annum and sustaining the same until 2030.
- + Social Pillar - seeks to engender just, cohesive and equitable social development in a clean and secure environment.
- + Political Pillar - aims to realize an issue-based, people-centered, result-oriented and accountable democratic system.

The Kenyan Constitution, 2010

The Kenyan Constitution, 2010 has guided the development of energy policy, acts and regulations. Access to energy is a Constitutional right in the context of Kenya as well as a human right requisite for the enjoyment of other fundamental rights and freedoms. Access to energy is fundamental to the right to development among other critical rights.

Conclusion

Over the years, CEEC has been on the forefront of green growth and sustainability in Kenya. The projects we will continue to undertake will contribute to stimulating investment and policy initiatives that promote Green Economy in Kenya. By doing this, we aim to enhance and support the existing and future national programmes on sustainable clean energy production, climate change and to continue to promote energy efficiency, management and conservation.

In the next few years we aim to continue our work in EE and RE and will focus on the following

- + Enhancing productivity by creating incentives for greater efficiency in the use of natural resources, reducing waste and energy consumption, unlocking opportunities for innovation and value creation, and allocating resources to the highest value use.
- + Boosting investor confidence through greater predictability in how government deals with major environmental issues, energy management, capacity building and water and waste water management.
- + Opening up new markets by stimulating demand for green goods, services and technologies.
- + Reducing risks of negative shocks to growth in the manufacturing industry due to resource bottlenecks, as well as damaging and potentially irreversible environmental impacts.

As Kenya continues to face the challenge of an expanding economic opportunities for all and addressing environmental pressures that, if left unaddressed, could undermine our ability to seize these opportunities, KAM is looking at our members, our partners and the GOK to continue the focus of green growth, RE and EE strategies in ensuring that our resources can deliver their full economic potential on a sustainable basis.



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