Regional Training Workshop
in
Data Collection and Creation of
African Energy Efficiency Database

CONCEPT NOTE

Algiers, February 2017

1- Background

The state of energy statistics and information system in Africa is poor due to lack of committed system developers and providers, little interest, shortage of expertise, absence of perception about their importance or all that. Until recently, there is no comprehensive database or adequate information for most energy sectors and resources. Such a problem stems from various difficulties often associated with institutional frameworks and lack of coordination among different parties in this area whether that at national or regional levels. Equally, there is also shortage of skilled people with relevant statistical and analytical qualifications to create and correlate the data in the first place. In many cases energy statisticians and analysts in particular are inadequately trained and therefore there is a lack of competency for sustainable and reliable output. The institutional and capacity building effort to resolve these difficulties is, by nature, a long-term task but without it Africa will suffer in terms of planning and policymaking in its energy sector.

In order to tackle the above challenges, AFREC was mandated by the African Union to create and manage a continental energy database and facilitate rapid dissemination of information and exchange of information among Member States as well as among the Regional Economic Communities (RECs). To create such a comprehensive system AFREC planned to build it through creation of a series of energy databases of which the "African Energy Statistics Database" (AESD) has already developed, published and disseminated since 2012. Annual and updated editions were published for 2012, 2013, 2014, 2015 and 2016 while the preparation of 2017 edition is underway. With such a success, AFREC decided to moved forwards and create additional energy databases which will summarize the energy data of most energy sectors and resources in the continent. AFREC has planned to create about 20 different databases to be released by the 2018-2020 and it decided now to create the second database in this series for Energy Efficiency Indicators Database for Africa which is the theme of this Seminar. In doing so, the African Ministers of Energy will appoint energy statisticians in their ministries to fill the role of National Focal Points for data collection and submission to AFREC. In return, AFREC and its partners will provide them training and capacity building to improve their capacities in collecting reliable and good data. This Workshop Training is one way for achieving that.

Thus, while the primary focus of this Workshop Training will be to review and launch work for the creation of the "African Energy Efficiency Indicators Database" (AEED). However, at this initial stage the focus will be only on the residential sector which will be followed successively by the other sectors during the 2nd 3-Year Action Plan (2018-2020) and beyond.

2- Objectives

The main objectives of the Workshop are:

- To understand the importance of energy efficiency as a key component of any energy policy;
- To understand the role of indicators in developing sound energy efficiency policies;
- To identify priority indicators depending on national and local circumstances;
- To identify the necessary data to build selected indicators;
- To provide training to Focal Points on how to collect those data;
- To learn from selected national African experiences methodologies, strengths and weaknesses in collecting their energy efficiency data;
- To review international and regional experiences, best practices, and common procedures in collecting, managing and up-dating energy efficiency data and databases

- To provide training and guidance to the AFREC's National Focal Points on how to collect, validate and transmit the collected indicators data in a way compatible with international common practices;
- To provide the Focal Points with guidance and methodology for calculating indicators on energy efficiency;
- To explore African experience in developing energy efficiency indicators in countries which have taken the lead for initiating such projects and highlight the use of these indicators in energy policy as well the difficulties encountered in building these indicators;

The workshop will also address the following three concerns:

- Commitment, accountability and competency of the National Focal Points as they represent the frontline in the data collection.
- Framework for collecting and submitting the data within a specified timeframe each year for validation and processing in usable formats.
- Strategy for managing and improving the performance of the National Focal Points.

3- Why Focus on Data Collection for Energy Statistics and Energy Efficiency Indictors for Africa

There is a wide recognition of the lack of reliable energy data and information in Africa, a problem which has negatively affected efforts for conducting consistent energy policies or strategic planning. Despite the existence of few attempts in this regards they are generally fragmented, self-oriented and with narrow scopes since they were designed to serve special interests of their developers. Most importantly, these databases are not available for the public or end-users at large and their quality and reliability are questionable. They lack comprehensiveness, consistency, continuity and reliability. Evidently, one solution to these challenges calls for the establishment of a centralized energy databases and information system for Africa similar to those enjoyed by other continents and regions around the world. Only Africa remains idle as the only region in the world without comprehensive energy database. In order to creating such a system, a rationalized collaborative approach is needed to organize and control the collection of the energy data, guarantee the steady flow of information, validate and process the data and disseminate the final products to the clients and end users. Most importantly, the system must be continually up-dated and supplemented with fresh annual data because once the system is established it has to operate indefinitely. In addition, the data collectors, which are the National Focal Points in the case of AFREC, must receive periodic training and retraining in the data collection and quality validation which is the crucial part of creating a system with credible information.

4- Energy Efficiency Indictors

In simple words, energy efficiency means using less energy to accomplish the same task. In detailed manner, it generally means the use of devices, methods, policies, and programs to achieve the same output/goals; using less energy than in conventional situations. More efficient use of energy throughout a country will result in less money spent on energy by homeowners, schools, government agencies, businesses and industries. The money that would have been spent on energy can instead be spent on other things like consumer goods, education, services and products.

By reducing energy consumption, efficiency makes existing energy supply extend further, thus improving the productivity of the country's energy. Thus, it is considered as a source of energy supply because when a consumer reduces energy consumption the surpluses which would have been consumed can instead be delivered to an unconnected consumer.

Globally, rendering energy use more efficient is one of the world's most crucial contributions to mitigate climate change. With enhanced efficiency, air quality is improved, pollution levels are reduced, and the economy benefits. Thus, efficiency is considered one of the most effective tools for combating climate change due to the fact that it helps the country avert construction of new polluted thermal power plants which in turn reduces its share in the global greenhouse gases the biggest cause of global warming.

In addition, the implementation of energy efficiency policies in the production and installation of efficient technologies creates local jobs and a cleaner, healthier planet.

5- The State of Energy Efficiency in Africa

The efficient use of energy involves design, fabrication and use of systems/technologies, processes, structures, and attitudes. While huge savings in energy consumption, and ultimately demands, could be achieved by countries through applying serious measures and policies of energy efficiency at national levels most developing countries, especially in Africa, are still lagging behind. Serious energy efficiency measures could result in multiple benefits to the African nations, including:

- Save huge amounts of energy supplies which could be diverted to new customers;
- Easier to implement than other large energy technologies;
- Encourage energy suppliers to deal rationally with the growing energy markets;
- Reduce the energy bills of customers and modify their attitude towards energy use;
- Significantly reduce the use of fuelwood and charcoal, and as a consequence significantly reduce the ongoing deforestation process in many countries,
- Significantly reduce CO2 and other gases emissions;
- Sustain the role of CO2 sink of African forests; and
- Help achieve the goals of SE4ALL at global level.

Unfortunately, Africa has yet to reap the benefits of this valuable tool as its policies and practices of energy efficiency are generally low all energy sectors. Since higher energy efficiency is often associated with higher productivity, as energy and production technologies are often linked, and energy efficiency implies lower costs. This should be a factor which should trigger efficiency-oriented policies in Africa and convince many countries in the region to express interest in adopting reasonable efficiency measures especially in sectors with high energy consumption including households, industry and transport.

Although sub-Saharan Africa has enough energy resources to meet the requirements of any plausible future industrial development scenarios, the present largely inefficient pattern of energy consumption has an adverse impact on:

- The cost of energy supply;
- The prices of goods produced;
- The environment.

One area where many African countries are lagging behind in applying strong energy efficiency policies is the lack of common reporting requirements as well as agreed and enforced measurement and verification methodology. Companies differed in their perception of energy savings due to lack of agreement on baseline determination and business-as-usual projections of energy demand. This could result in misleading reporting of their achievements. A clear definition of energy efficiency improvements should be agreed to at the onset to avoid misconception in its measurement and reporting. Instead of an absolute reduction of energy consumption, energy intensity improvement should rather be used to give the signatories the flexibility of exploring energy efficiency potentials in the different processes of their production or service delivery.

The complexity of measuring energy efficiency gains has not made it possible for all governments and companies to report on the energy reduction achieved. This is particularly

the case for companies with many diverse product derivatives and changing operating conditions like the mining industry. The analysis of different cases clearly shows lack of reporting of monetary savings from energy efficiency by a significant number of the respondents which gives an impression that adequate monitoring systems are not in place. A greater commitment is required by the top management of such companies to develop and install the appropriate measuring and reporting systems for monitoring the energy efficiency gains.

In addition, while the industrialized countries must accelerate the transition to low-emission technologies, developing countries, many of them growing rapidly and at large scale, have the opportunity to leapfrog conventional energy options in favor of cleaner energy alternatives, coupled with strong energy efficiency policies, that will drive growth and enhance economic and social development.

The United Nations is intended to attract global attention and public and private commitments to meeting three objectives through its Sustainable Energy for All (SE4ALL) initiative and recommended three linked objectives underpin the goal of achieving sustainable energy for all by 2030:

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

In this respect, Africa has the potential to orientate the large future investments needed to scale up its energy generation towards renewable energy technologies and energy efficiency technologies. Africa can benefit from the fast technological advances in renewable energy technologies and energy efficiency technologies that are taking place globally.

6- Barriers to Expand Energy Efficiency Practices in Africa

While it is expected that energy efficiency cannot solve all of Africa's energy problems, it is perceived as having significant potential to meet growing energy requirements in the region. If properly harnessed, this policy could meet a significant proportion of energy demand for the bulk of African countries. However, energy efficiency has not attracted the level of investment or policy commitment it deserves and has not been widely adopted in the region. Resources allocated to developing this system are negligible in comparison to resources allocated to the conventional energy sector. The success of energy efficiency in the region has been limited by a combination of factors that include:

- Inadequate policies and planning;
- Poor institutional framework and infrastructure;
- Pricing distortions that create disadvantages;
- High initial capital costs;
- Weak dissemination strategies;
- Lack of skilled manpower;
- Poor baseline information; and

Other deficiencies that limit the use of energy efficiency measures in particular, especially in the industrial sector, include:

- Lack of commitment by higher policymakers;
- Lack of proper instrumentation and controls;
- Inadequate data collection and analysis capability;
- Substandard plant house-keeping measures;
- Out-dated technologies;
- Poor equipment maintenance;
- Inadequate insulation of hot water and steam piping.

7- Challenges for Creation of Energy Indicators Database for Africa

The deficiency of energy efficiency and indicators data in Africa stems from several factors which can be highlighted in the following points:

- Collecting energy efficiency data is very complicated task, even in the developed countries, and often requires the intervention of governments through regulations and legislations to force energy users, especially industry and private sector, to behave properly in revealing the real data of the energy consumption and savings,
- The data required for developing an assessment of energy efficiency indicators is huge and often well trained expertise and know-how management of these systems. The energy statistical data whether that of demand or supply-side should be disaggregated to sub-sectors and fuel type along with associated parameters such as energy prices and CO2 emissions should be measured with utmost accuracy otherwise the collected data will give misleading information. Energy intensity and CO2 emissions are essential components of an energy efficiency database,

- A continental energy efficiency database for Africa requires harmonization of definitions of energy products and flows, energy transformation indicators, unified thermal efficiencies (input/output balances), and sectoral and sub-sectoral definitions. The UN/IEA InterEnerStat initiative may help in this direction,

- Most countries in Africa are lacking basic understanding of energy efficiency indicators and practices and therefore, except for few countries, there is lack of serious attempts in documenting these indicators among other countries,

- There is deficiency of institutional capacity building for most governments in the continent to apply this important energy policy mechanism which actually helps in the reduction of energy demand along with reduction in CO2 emissions.

8- Outcome & Impact

The successful implementation of the above regional workshops is expected to result in the following:

- Enhance the capacity of the African National Focal Points in energy efficiency and indicators data collection;

- Strengthen the participants' knowledge on how to plan and conduct reliable surveys in different national economic sectors (industrial, residential, service, etc,) and analyze the generated data in a skilled manner;

- Deepen the participants' understanding in areas of formulating energy efficiency policies and programs using real data and case studies;

- Enable participants to comprehend the questionnaire for that data collection and improve their competencies on how to use it;

- Improve the understanding of the higher decision makers in African Member States about the importance of energy efficiency and its impact in the socio-economic development of their countries.

9- Role of IEA and Consultant

The International Energy Agency (IEA) and the Consultant are the main technical advisor for the creation of this system. The contribution of the IEA under such capacity includes the following:

- Design and update the AFREC Questionnaire for the African Energy Data collection and design and update the AFREC Questionnaire for the African Energy Efficiency Data Collection.
- Provide guidance and offer advises to AFREC about the establishment of the African energy and energy efficiency databases and evaluates the performance of the National Focal Points in data collection.

10- Relevance to SE4ALL

The "Sustainable Energy for ALL" (SE4ALL) is a United Nations initiative launched by the UN General Assembly in September 2011 with aim to achieve the following three objectives by 2030:

- 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.

Thus the energy efficiency database will support the second objective of this initiative which is calling to doubling the global rate of improvement in energy efficiency in the following terms:

- Provide extensive data and information about the status of energy efficiency sector by sector in the African energy economies,
- Make the collected information and related data readily available for analysis, comprehension and extrapolation,
- Provide easy reference to decision and policy makers in designing national energy policies and strategies for the development and operation of their energy sectors,
- Energy efficiency programs would not be successful without reliable and concrete data broken sector by sector nationwide.

11- Target Groups

The following are expected to be held at this Workshop on Energy Efficiency:

- the AFREC Focal Points on Energy Efficiency, designated by the African ministers in charge of energy;
- experts from Energy Pools and regional communities,
- the Consultant,
- the IEA experts;

12- Program languages

Presentations during the Workshop will be in English or French depending on the Regions. Simultaneous interpretation will be provided in English or French.

13- Accommodation and Local Logistics

AFREC will sponsor the participation of all National Focal Points of the member state in addition to resource persons and instructors from international institutions. Such sponsorship will include round-trip air tickets, perdiem for accommodation, visa fees and local logistics.

14- Training Certificates

Upon completion of the training course, participants will receive certificates acknowledging their successful participation.

15- Provisory Program of Workshops

Region	Period	Location
East and North Africa Region	28- 30 March 2017	Cairo
Central Africa Region	10- 12 July 2017	Libreville
South Africa Region	25- 27 Septembre 2017	Lusaka
East and North Africa Region	6- 8 Novembre 2017	Dakar