



African Energy Commission
(AFREC)



**Training Workshops on Energy Statistics,
Energy Data Collection and Construction of National Energy Balances
for AFREC's National Focal Points, Power Pools and RECs,
in the Central, North and West Africa Region**

(AFREC in Association with the IEA)

CONCEPT NOTE

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**The Training Workshop on Energy Statistics,
Energy Data Collection and Construction of National Energy Balances for
AFREC National Focal Points**

CONCEPT NOTE

Context

Energy is essential for human development and reliable energy information is imperative for formulating sound energy policies and designing strategic development and investment plans. However, the quality and depth of energy information and statistical databanks available in Africa are either absent or fall below the required level of international standards. Therefore, one of the prime responsibilities of the African Energy Commission (AFREC) is to create and manage a comprehensive energy database and Information System for Africa through the establishment of the “African Energy Information System and Database” (AEIS) and make it available for use by the end-users in the African Member States and world energy communities. AFREC has to demonstrate this task in most effective manner in order to be recognized and supported by the highest levels of African governments and specialized institutions. It is evident from the daily practices that reliable information is fundamental to decision making process associated with all energy activities. No policies can be developed without careful analysis of the situation under consideration and that requires information and perfect data. The implication though is that data and information must be collected and prepared in a usable format, continually updated and disseminated through various channels to the end users. AFREC has to undertake such a task through a framework of networking and partnership with various African and international partners and stakeholders.

On the other hand, while data and information is but one piece of the larger range of energy development process, provision of adequate training and capacity building to energy experts and energy statisticians in the African Member States remains essential to the overall development practices.

It is within this context that AFREC has taken all measures to establish and manage the AEIS and to provide training on data collection and energy balances to its Focal Points and energy statisticians in the African ministries in charge of energy. The information and inter-linkages with good training in data energy collection, refinement and delivery to a central databank at the AFREC’s Headquarters represent a central issue in the establishment of the energy databank upon which the Information System will be structured around.

Background

The convention of the AFREC mandated the AFREC’s Secretariat to create and manage an African Energy Database and Information System and make them available to users of the Member States and Regional Economic Communities (RECs) in addition to the whole world energy community. Paragraph (b) of Article 4 (Functions of AFREC) of the AFREC’s Convention states that AFREC shall: “Design, create and update an energy continental database and facilitate rapid dissemination of information and exchange of information among Member States, as well as among the Regional Economic Communities (RECs)”.

In order to undertake such a task, AFREC, in association with the Algerian Ministry of Energy and Mines organized the 1st International Seminar for the Establishment of the AEIS in April 2003 in Algiers, Algeria, which was attended by all international energy database

developers. It identified the parties and stakeholders of the system, recommended the required system infrastructure, specified human resources requirements, proposed the required financial support and sources of funding and suggested the concept and framework of the system.

Furthermore, the AFREC's Secretariat organized the 2nd International Seminar for the Creation of the System in May 2005 in Algiers which was attended by numerous international energy database developers in addition to African energy-related institutions and UN System. The agenda of the seminar were built upon the recommendations of the 1st international Seminar and produced a Road Map for the establishment of the system. The most important feature of the energy database is that once it is established it has to be managed and updated indefinitely which requires sustained efforts of manpower and adequate funding.

Objectives

This course offers hands-on training in the AFREC methodology and tools for collecting and organising national-level energy data by different fuels and sectors of the economy. It focuses on creating complete and accurate energy balances through the use of consistent definitions and units, in order to inform national energy policy and enable consistent international reporting.

It covers the following aspects and issues:

- The fundamentals of energy statistics: purpose, definitions, collection, processing and disseminating data
- Annual data: Biomass, Coal, Oil, Gas, Electricity and Heat, Renewable
- From energy statistics to energy balances
- Estimating carbon dioxide emissions
- Harmonization of energy statistics and definitions internationally
- Using data to build energy efficiency indicators
- Energy prices and taxes
- Where and how to access AFREC data

Components of the Energy Database

Databases are at the heart of applications and developments of energy policies, decision making and strategic planning. Their use extends beyond these applications to wider environments where large amounts of data must be stored for efficient update and easy retrieval. They also represent the frameworks for the development of Information Systems. Basic and standard components of an energy database include the following:

- **Supply-side:** include deliveries of energy products and electricity for consumption by different energy consuming sectors. These include commercial and traditional products, electricity, refined fuels, solid fuels, fossil fuels, renewable energies, nuclear feedstock, energy imports, etc.
- **Demand-side:** include demand and consumption of energy products. Demand is the actual volume, quantity or capacity need by all energy consuming sectors for normal operation while consumption is the actual amount of energy provided and consumed by the sectors.
- **Energy Balance:** it is the contrast between energy supply and demand and usually represented in table format. They reflect the deficiencies or surpluses in energy provisions and often used for modeling future energy developments.

- **Energy Prices:** these are domestic prices of energy products to final consumers. For policy purposes, the size of subsidies assigned by local authorities for each product or electricity should also be reflected.
- **Energy Trades:** including cross-border, regional and international imports and exports of energy products and electricity. Crude oil, natural gas, coal and electricity are the main products in this sense. Biofuels products, such as bio-ethanol and biodiesel, have started to play a growing role in this business.
- **Energy Efficiency and Environment:** this reflects the linkages between economic, demographic, environment and energy consumption parameters for a country or region. It produces indicators through which growth trends and impact of these parameters could be assessed. These parameters include population growth rate, real GDP growth, per capita real income, electricity consumption, energy intensity, carbon intensity, carbon dioxide emissions rates, etc.

Components of the Energy Information System

In a broad sense, the term Information System is frequently used to refer to the interaction between people, processes, data and technology. It is an integrated set of components and a collection of methods, practices, algorithms and methodologies that transforms data into information and knowledge desired by, and useful for, individual and group users in organizations and other entities. This system can involve a combination of work practices, information, people, and technologies structured to accomplish goals in an organization. The following components remain the basic features of an Information System:

- **People:** There are many roles for people in information systems. Common ones include: Systems Analysts, Programmers, Technicians, Engineers, Network Managers, MIS (Manager of Information Systems) and Data Entry Operators.
- **Equipment:** These are Hardware and Software information technologies.
- **Procedures:** A procedure is a series of documented actions taken to achieve something. It is more than a single or simple task and can be quite complex. It involves certain actions such as performing a backup, shutting down a system, patching software, etc.
- **Information:** These are the raw, unorganized, discrete (separate, isolated) potentially-useful facts and figures that are later processed (manipulated) to produce description of a situation. This proves the notion that databases are prerequisites and essential for the creation of information systems.

Challenges to Create Sustainable Energy Databases & Information Systems in Africa

The energy data deficiency in Africa results from several difficulties which can be highlighted in the following:

- Shortage of knowledge and awareness about the importance of reliable data and good information for making energy policies and strategic planning at national and regional levels.
- Energy and statistical matters are often not addressed adequately or taken seriously in the institutional policies within the circles of energy sector and therefore they get little attention and low priority.
- Limited capacities, human resources and financial support. Establishing, updating and managing an energy database or information system requires long-term commitment, training and institutional support.
- Often institutional structures and coordination are lacking. Few countries maintain low standard and poor quality energy databases limited only for minor uses.

- There are often insufficient people with the relevant statistical and analytical capacities to create and correlate the data in the first place.
- The institutional and capacity building to resolve these difficulties is a long-term task, but without it Africa will not have the information needed to support its development

Target Groups

The participants will be :

- The AFREC's Focal Points of the Central, North and West African Region nominated by the African Ministries in-charge of Energy,
- Central, North and West Africa Power Pool,
- Central, North and West Africa Community Economics Region.

Training Requirements

All AFREC's Focal Points in the African Ministries in-charge of energy are expected to collect the energy data of their countries of the last 16 years (2000-2015) using the interactive questionnaire prepared by the WEC and amended by the IEA and transmit them to the AFREC Secretariat in order to be processed and published on annual basis. This requirement is mandatory for participation as the data will be used during the training and for setting up the annually Energy statistics and database.

In addition to the data collection, participants are encouraged to collect and submit the following:

- General summary description of the current situation of the energy database in the country including fresh and up-dated information about the situation of each energy sub-sector (biomass, hydrocarbons, electricity, Oil, etc.)
- Any publications, reports, papers, magazines photos of the energy sector. This is required to support the AFREC's office library in which each African country will be having a private section.

Expected Impacts/Outcomes

The expected outcome of the workshops would include:

- In-depth training in energy statistics based on exercises on fuel types.
- Construction of national energy balances.
- Comprehensive understanding of the present situation of energy Information System in the Africa and the need for coordination and harmonization of activities of different Institutions.
- Adoption of guidelines for a continental strategy suitable for the development of a comprehensive AEIS to serve the African energy sector and the world energy community.
- Creation of a continental network of Energy Information System providers and users and to bring about all active public and private institutions.
- Elaboration of a joint vision and recommend synergies between all energy Information System providers and to create an advisory forum to be hosted by AFREC.
- Elaboration of durability criteria for the sustainability guidelines for the energy Information System in the African continent.

Resource Materials

Participants will receive a number of resource materials for the training course, including:

- Training guides and manuals.
- Copies of the IEA publications.
- Different AFREC's publications and newsletters.

Training Languages

The training will be conducted in English with simultaneous interpretation into French.

Accommodation and Local Logistics

AFREC will full sponsors of the National Focal Point from the African Member States more details will be at the invitation letter

Training Certificates

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