

**AFSEC Presentation at  
AFRIMETS General  
Assembly Meeting  
26<sup>th</sup> July 2021**

**African  
Electrotechnical  
Standardization  
Commission  
(AFSEC)**



**AFSEC**



# Formation of AFSEC



The need for Harmonization of the Electrotechnical Standards to ensure the reliable and safe operation of the evolving Pan-African power grid was recognized by the Top African Institutions.

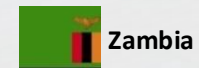
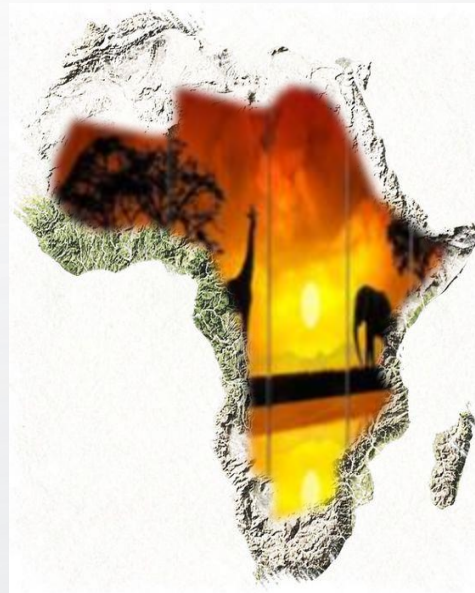


This was the initial motivation for the formation of AFSEC in 2008 as a subsidiary body of the African Energy Commission (AFREC), which clearly has a major role in supporting electrotechnical industrialization of Africa with adequate quality and reliability.

Inauguration of AFSEC HQ  
Cairo Egypt, July 2019

# AFSEC Statutory Members

AFSEC Council is presented  
by the National Electro  
Technical Committees in 17  
Member States



# AFSEC Affiliated Members

**AFREC**



**APUA**



## **African Power Pools:**

- Southern (SAPP),
- Eastern (EAPP),
- Central (PEAC),
- West (WAPP)



**SADC, via SADCSTAN**



**COMESA**



# Signed MOUs

Signed MOUs with partners include exchange of info. of both technical and Institutional, capacity building, establishing joint committees, experts info, share of publications, participation in general meetings, Strengthen the development...etc.

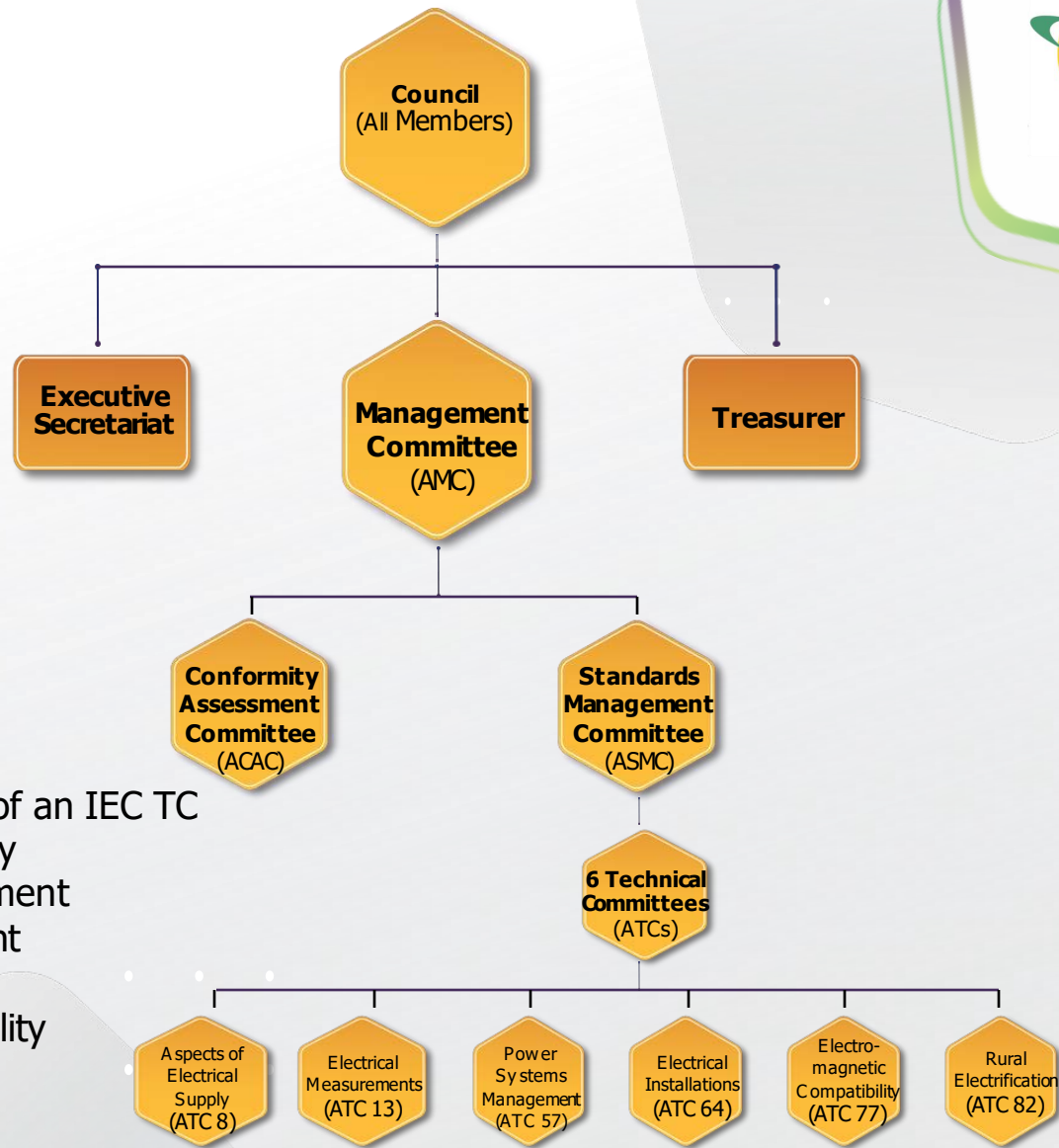
Many of these activities have been already implemented with most of those partners.



- AFUR
- ARSO
- CENELEC
- CIGRE
- PAQI
- DKE
- IEC
- IEEE



# AFSEC Structure



Currently each ATC mirrors the work of an IEC TC

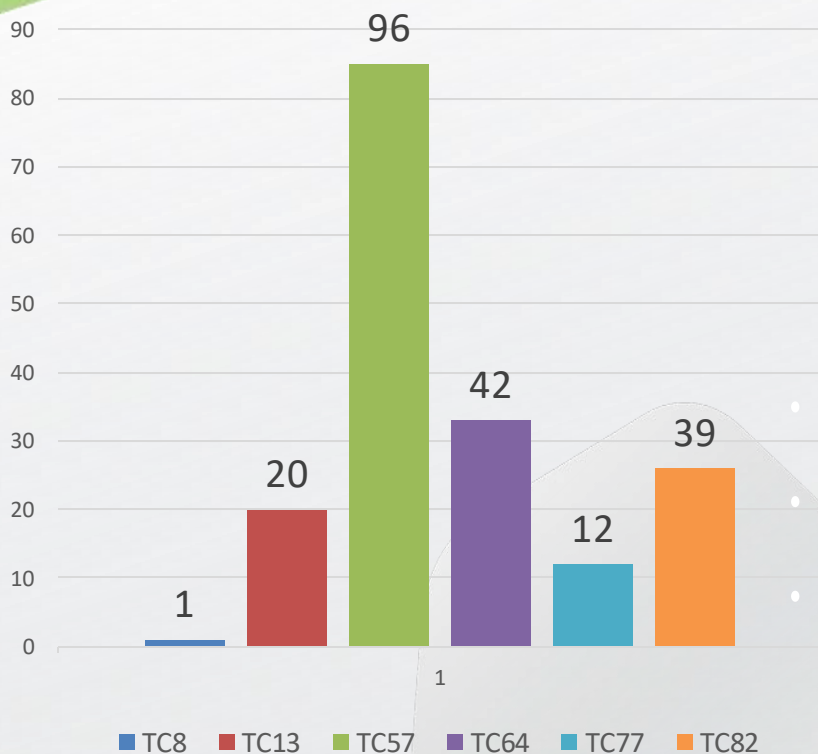
- ATC 8 Aspects of Electrical Energy
- ATC13 Electrical Energy Measurement
- ATC 57 Power System Management
- ATC 64 Electrical Installations
- ATC 77 Electromagnetic Compatibility
- ATC 82 Rural Electrification

# AFSEC Recommended Standards for Adoption

The ATC reviewed **215 standards** and were approved by the General Assembly in addition to 35 Standards are in the voting process for adoption by National Electro technical Committees and they are covering the following topics:



215 AFSEC Standards issued by ATCs  
(33 of which issued in 2019/2020)



- Electricity Metering.
- Communication Networks
- Low-voltage Electrical Installations.
- Electrical Installations of Buildings.
- Renewable Energy.



# AFSEC Database



The Database can be used by the public (investors, industry, universities, laboratories, researchers, consumer associations, etc.) to identify existing standards in countries, take note of the status of standards (mandatory – voluntary) and be informed about the accredited laboratories allowing the verification of the conformity of the equipment following these standards.

This will facilitate trade between African Countries by providing Stakeholders with the information needed to produce compliant products.

## AFSEC identifies countries that have adopted AFSEC Standards

Current Statistics of adopted standards in AFSEC Database

1. Only 10 out of 17 countries have adopted AFSEC standards
2. More than 80 standards were issued but no countries have adopted them yet.
3. The highest country that adopted standards were South Africa

Access Number	Type	Recommended by AFSEC	Status	Date	Title	Organization	Language	AFSEC Year	Publication Year	Countries have adopted
ISIRI-2014-440-011 CEN International Annex	IEC	Yes	0.1	Adhoc	Low voltage electrical installations - Part 4-41 Protection for safety - Protection against electric shock	IEC	English-French	66	2017	0
ISIRI-43-2014-440-011 CEN International Annex	IEC	Yes	0.1	Adhoc	Low voltage electrical installations - Part 4-42 Protection for safety - Protection against thermal effects	IEC	English-French	66	2014	1
ISIRI-43-2014-440-011 CEN International Annex	IEC	Yes	0.1	Adhoc	Low voltage electrical installations - Part 4-43 Protection for safety - Protection against voltage disturbances and electromagnetic disturbances	IEC	English-French	66	2016	1
ISIRI-43-2014-440-011 CEN International Annex	IEC	No	0	Adhoc	Electrical installations of buildings - Part 5-01 Selection and	IEC	English-French	66	2008	1



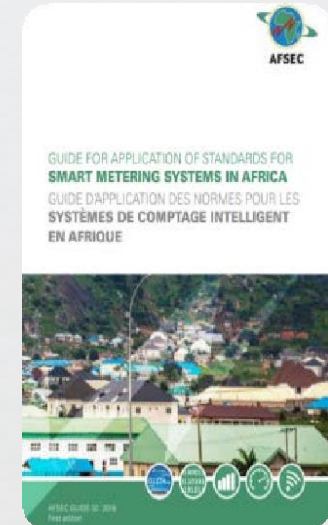
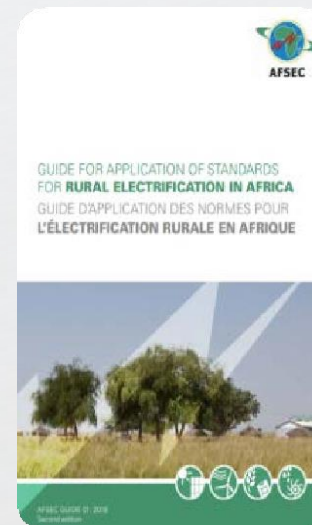
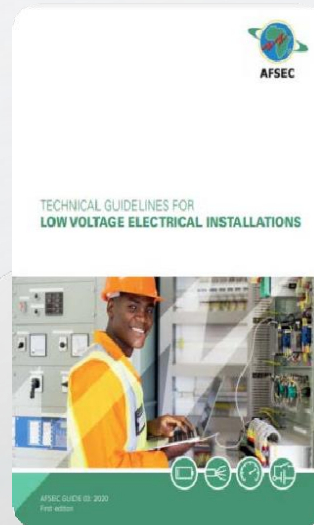
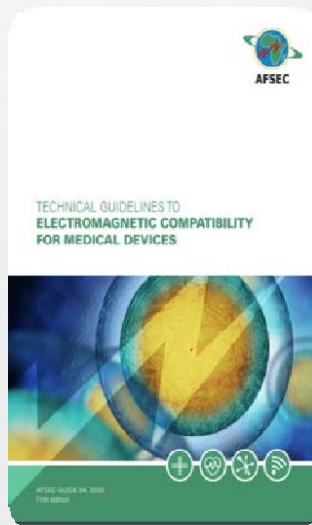
# AFSEC Guides



The objective of the published Guides is to provide guidance to utilities in Africa in respect of open international Standards to ensure interoperability and to allow African utilities and their suppliers to establish an agreed core system architecture and set of functions that will represent an African “companion specification” based on the relevant international Standards.

Four Guides were published with the Support of PTB/DKE and are available in both English and French languages on AFSEC Website

## 4 Published Guides



# Ongoing Conformity Assessment (CA) Guide



This guide aims on assisting AFSEC members in supporting the development of an electro technical CA strategy in their countries and also support the AfCFTA (TBT) in the field of electrical/electronic equipment traded in Africa, aiming as well :

- To develop good regulatory practice in conformity assessment activities whose economic impact in Africa is vital.
- To serve as a framework to harmonize initiatives by various countries and Sister Organizations for conformity assessment (CA) systems in the Africa Continent.

The CA application guide will cover RE Systems (Wind, Solar PV & Marine Energy), Electrotechnical/Electronic Equipment and Components (EE) Explosive Atmospheres (Ex) and Electronic Components (CQ)

A roadmap of actions will be considered and a program to measure progress.



## CONFORMITY ASSESSMENT APPLICATION GUIDE IN AFRICA



# AFSEC Strategic Plan (2019-2024)

**AFSEC Strategic Plan (2019 – 2024) identifies AFSEC vision and mission, its strategic direction, Strategic Goals and Objectives towards AfCFTA .**



## **AFSEC Roadmap based on Strategic Goals**

- Enhance the recognition of AFSEC as the preeminent authority in Electrotechnical Standardization.
- Provide a harmonized Standardization platform connecting all key Stakeholders.
- Foster the involvement of all African Stakeholders through their National Electrotechnical Committee (NEC)/Standardization Body.
- Increase the Statutory Membership, encouraging their involvement in technical work of AFSEC.
- Develop mechanisms for focused technical collaboration among Technical Committees (TCs).
- Foster involvement of Academia in Standardization with Young Professionals providing a system that can attract and increase industry participation.
- Promote Conformity Assessment.
- Develop AFSEC Guides

# Communication Marketing Strategy



- ❑ For AFSEC to achieve its Strategic Goals, a Communication Marketing Strategy was developed with support of PTB, and approved by AFSEC Council in November 2020.
- ❑ The Communication Marketing Strategy main objective is to provide a platform to enable Stakeholders (External and Internal) to effectively participate in the development of Standards, and to promote the Conformity Assessment activities as well as to increase the Statutory Membership

## ❑ Targeted Stakeholders

AFSEC the Strategic Goals cannot be realized without the involvement of all Stakeholders:

- APUA & Power Pools
- CREEEs
- Regional Economic Communities (RECs)
- Regulatory Bodies
- PAQI/ARSO
- Industry and Private Sector, Academia/ Research via National Electro Technical Committees
- Regional Representatives
- Young Professionals



# Awareness Materials



**AFSEC**  
APUA/  
African  
Power Pools

**African  
Electrotechnical  
Standardisation  
Commission  
(AFSEC)**

**Formation of AFSEC**  
The need for Harmonization of the electrotechnical standards to ensure the reliable and safe operation of the evolving Pan-African power grid was recognized by the Top African Institutions. This was the initial motivation for the formation of AFSEC in 2008 as a subsidiary body of the African Energy Commission (AFREC), which clearly has a major role in supporting electrotechnical industrialization of Africa with adequate quality and reliability. The scope also includes collaboration with related organisations to develop related standards and conformance assurance systems.

The AFSEC Secretariat was located in South Africa until 2018. Since 2019, it has been transferred to Cairo Egypt, where the permanent Head Quarter is now hosted by the Egyptian Ministry of Electricity and Renewable Energy.

**Vision**  
AFSEC's vision is to enhance Africa's development and competitiveness through excellence in electrotechnical standardization.

**Mission**

- To promote an inter-African cooperation for everything related to electrotechnical standardisation.
- Harmonization of standards and related specifications.
- Remove barriers to trade, to create markets.
- Enhance safety of products.
- Reduce the cost of assurance of compliance.

APUA &  
Power Pools

**AFSEC**  
4 CREEEs

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CREEEs

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RECs

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RECs

**AFSEC**  
Regulatory  
Bodies

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REGs

# Awareness Materials

Flyer for NECs Addressing Industry/Private Sector



The flyer features the AFSEC logo at the top left, a central image of wind turbines, and a hexagonal graphic containing the text 'African Electrotechnical Standardisation Commission (AFSEC)'. Below this, the text is organized into sections: 'Formation of AFSEC', 'Vision', and 'Mission'. The 'Formation of AFSEC' section explains the need for harmonization of standards. The 'Vision' section states the goal of enhancing Africa's development. The 'Mission' section lists five key objectives: promoting inter-African cooperation, harmonizing standards, removing trade barriers, enhancing safety, and reducing compliance costs.

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Flyer for NECs Addressing Academia and Young Professionals



This flyer is identical in content to the one for the industry/private sector, featuring the AFSEC logo, wind turbine imagery, and a hexagonal AFSEC logo graphic. It details the formation of AFSEC, its vision to enhance Africa's development, and its mission to promote inter-African cooperation, harmonize standards, remove trade barriers, enhance safety, and reduce compliance costs.

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These flyers includes a key message to as well the impact of cooperating when being a member of AFSEC TCs

# Flyer about AFSEC Guides



**African Electrotechnical Standardisation Commission (AFSEC)**

### General Description of the Guides Published by AFSEC

The objective of the Guides published by AFSEC is to provide guidance to utilities in Africa in respect of open international standards to ensure interoperability and to allow African utilities and their suppliers to establish an agreed core system architecture and set of functions that will represent an African "companion specification" based on the relevant international standards.

The Following Guides were published with the Support of PTB/ DKE and are available in both English and French languages.

#### Low Voltage Electrical Installations Guide (by ATC64)

This technical guideline for "low voltage electrical installation" is to provide electrical technicians, engineers and many others with a quick reference, immediate use working tool. The Guide is relevant for electrical professionals in companies, design offices and inspection organizations. This document guide covers techniques and standards related to low-voltage electrical installations. It will provide an overview of standards and regulations suitable for application in low voltage electrical installations in Africa. It is not a substitute for technical manuals or standards. This document will be used in conjunction with IEC standards and AFSEC standards, national codes and regulations.

## Including Future/Ongoing Guides:

### Future/ Ongoing Guides

#### Smart Meters Technologies (by ATC13)

The guide on Smart Metering communication protocols serves to provide utilities with relevant information on which technologies are available and suitable to meet its metering needs. The utilities can then make informed decisions on which of these are most suitable to deploy in its network.

#### Implementation of Automation Standards (by ATC57)

Well-proven, international and regional standards in the utility business which will be included in The "Automation Standards Guide" aim to provide guidance to African utilities concerning the application of power systems control, to allow to the equipment and systems to be interoperable, and to allow to interfaces, protocols and data models to be compatible, in order to optimize the use of the power system in the energy market.

#### Interconnection Guideline (by ATC8)

A guide about factors to take into consideration, when connecting power systems of different countries focusing on AC networks. When finally completed it shall:

- Cover planning requirements such as system strength, inertia and short circuit ratios.
- Specify network observability requirements and cover key operational requirements such as voltage and frequency control requirements.
- Specify performance requirements in the event of disturbances and protection requirements.
- Specify the network synchronization criteria in the event the systems are separated.
- Cover issues relating to compatibility of equipment.

#### Power Quality & Reliability (by ATC77)

This guide provides a thorough description of standard power quality and reliability parameters and provide guidance to ensure reliable and quality power supply for both customers and service providers in a complex, intelligent and growing power network.

The guide presents power quality from three main rubrics namely: disturbances, steady-state phenomena, and continuity and provides strategies to mitigate or eliminate most of these indices of imperfection in power network while ensure a safe, reliable and continuous supply to customers.

#### EMF PROTECTION Guide (by ATC77)

The aim of this Electromagnetic Field (EMF) Guide is to provide guidelines based on international criteria for protection against established adverse health effects in humans, associated with EMF exposure.

The attention of the guide is mostly on non-ionizing radiation types affecting humans, meanwhile references have been made to the ionizing radiation types and standards, wherever necessary for clarification.

This guide further suggests measures and strategies to minimize EMF exposures and impacts on humans and also presents some outcomes of laboratory experiments and research outputs on EMF conducted by AFSEC TC 77 members.

#### Conformity Assessment Application Guide In Africa (by ACAC)

The overall objective of the development of the guide is to attract high-level professional expertise and to provide an appropriate framework for reflection and sharing of experiences, where topics relating to the issues affecting the development of standardization and conformity assessment will be discussed. The CA application guide aims to develop good regulatory practice in conformity assessment activities whose economic impact in Africa is vital.



## Including Published Guides:

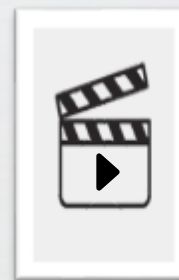
- Low Voltage Electric Installation Guide (TC 64)
- EMC Guide for Medical Devices (TC 77)
- Smart Metering System Guide (TC 13)
- Application for Standards for Rural Electrification (TC 82)

# AFSEC Website

www.afsec-africa.org



Designed by the IT Dept. at the Egyptian Ministry of Electricity and Renewable Energy MoERE



motion graphic video clip promoting for AFSEC



*Thanks*



<http://www.afsec-africa.org>



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