



ENERGY COMMISSION OF NIGERIA

FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY

"Improving Nigeria's Industrial Energy Performance through Programmatic Approaches and the Promotion of Innovation in Clean Technology Solutions (NIG IEE/RECP Project)":

INDUSTRIAL ENERGY EFFICIENCY (IEE) TECHNICAL WORKING GROUP

TRAINING NEEDS ASSESSMENT REPORT

(For Government Policy Makers & Regulators)



AUGUST 2022

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1.0 Introduction

1.1 Background

Under a 4 - Year GEF-UNIDO Project titled *"Improving Nigeria's Industrial Energy Performance through Programmatic Approaches and the Promotion of Innovation in Clean Technology Solutions (NIG IEE/RECP Project)"* that is aimed at accelerating the adoption of industrial energy efficiency (IEE) and improving enterprise environmental performance through Resource Efficiency and Cleaner Production (RECP) best practices and innovative approaches in Nigeria, UNIDO through the Energy Commission of Nigeria (ECN) is *"strengthening National Industrial Energy Efficiency (IEE) Policies and Regulatory Frameworks towards the adoption of it's Energy Management Systems Standards (EnMS/ESO/ISO 50001) in Nigeria"*. To achieve this, one of the activities was to develop a long term training strategy that addresses the current and future training needs of policy makers in government who are expected to mainstream energy efficiency best practices into the day-to-day operation of the Nigerian manufacturing industries in Nigeria through the formulation of Energy Efficiency and conservation policy.

As a first step, a comprehensive assessment and analysis of energy policies, regulations and standards for Nigerian industrial sector was conducted and was discovered that while there exist overarching energy efficiency policies in the National energy Policy (NEP) document, there is little or no concrete specific policies formulated by individual organizations and companies to mainstream energy efficiency best practices into the day-to-day operation of the government agencies in their individual sectors. This was attributed to limited capacity and knowledge of policy makers in the area of energy-efficiency.

To bridge this gap, the Energy Commission of Nigeria (ECN) with support from United Nations Industrial Development Organization (UNIDO) conducted an industrial energy efficiency policy, regulation, standards *training needs assessment among government ministries, Departments and Agencies (MDAs)*. "Training Needs Assessment" (TNA) is the method of determining if a training need exists and, if it does, what training is required to fill the gaps.

1.2 Objective

The overall objective of this study was to identify training needs towards strengthening institutional capacity and building technical capacity focusing on improving policy and regulatory frameworks on: (i) Energy Management Systems (EnMS), based on the ISO 50001 standard, and (ii) Energy Supply Optimization (ESO), as well as establishing demonstration pilot projects and mechanisms for scaling up investments in ESO measures in Nigeria. This TNA therefore, is to identify the knowledge and skills requirements of Policy makers in MDAs and evaluate how these requirements can be met through appropriate training programmes.

2.0 Training Needs Assessment (TNA) Approach and Scope

The approach adopted in conducting this TNA was to achieve the overall objective of the study, which is to identify training needs towards strengthening institutional capacity and building technical capacity focusing on improving policy, regulatory, and financing frameworks on: (i) Energy Management Systems (EnMS), based on the ISO 50001 standard, and (ii) Energy Supply Optimization (ESO), as well as establishing demonstration pilot projects and mechanisms for scaling up investments in ESO measures.

The first step we took in conducting this training needs assessment (TNA) was to conduct a survey of the target beneficiaries of the planned training programmes, being government officials in Ministries, Department and Agencies (MDA) to know whether training is needed by asking questions to help us identify organizational context in terms of policy, goal, roles and responsibilities.

Questionnaire was developed and distributed among Ministries, Departments and Agencies (MDAs). The questionnaire was sent to many stakeholders, but nine (9) agencies of government responded. The interesting thing was the uniformity of their responses pointing to the inadequate knowledge of policy makers regarding energy efficiency and conservation best practices and the need for capacity building for them. This was like Focused Group Interview/discussions.

The questionnaire (Annex I) was divided into four (4) main sections: General Information; Organizational Context; Training Needs; and Gender. First, the initial information gathering focused on identifying current and desired capacity usually in a broader organizational perspective. Later, the specific training needs were investigated (See Annex 1: Questionnaire for the Training Needs Assessment).

Through this survey, we reviewed the goals and mandates of concerned Ministries, Departments and Agencies (MDAs). This review provides valuable baseline information about organizational policy/mandates, goals, roles and responsibilities with focus on energy policy and regulations development and implementation. It sets the stage for a comparison of what the organization are currently doing and what knowledge gaps exist as the Energy Management Systems (ESO) - ISO 50001 standards with related policy framework is to be mainstreamed into the nation's energy sector.

Generally, the processes of Training Needs Assessment can be divided into five steps: i) identify problem and needs; ii) design needs assessment; iii) collect data; iv) analyze data; and v) provide feedback.

3.0 DATA ANALYSIS AND RESULTS

Data collected from the administration of the questionnaire were analyzed using Microsoft excel and the results are presented in this section.

MDAs respondents were asked which of the nation's economy sector they belong, the main focus of their organizations and their knowledge of the nation's/foreign energy sectors. This was to help us understand organizational context with regards to their policy, goal, roles and responsibilities. The agencies that participated in the study fell under the following economic sectors: power/energy, industry, Power, Industry, Oil & Gas, and Transport with focus on Policy, Regulations/Standards, Enforcement, Training and R & D.

3.1 Organizational Context: Policy, Goal, Roles and Responsibilities

The survey reviewed the MDA's goals, mandates, roles and responsibilities to determine what they were doing now and to identify areas where skills were lacking. The

3.1.1 Assessment of their skills to evaluate complex energy programs and issues like ESO and EnMS

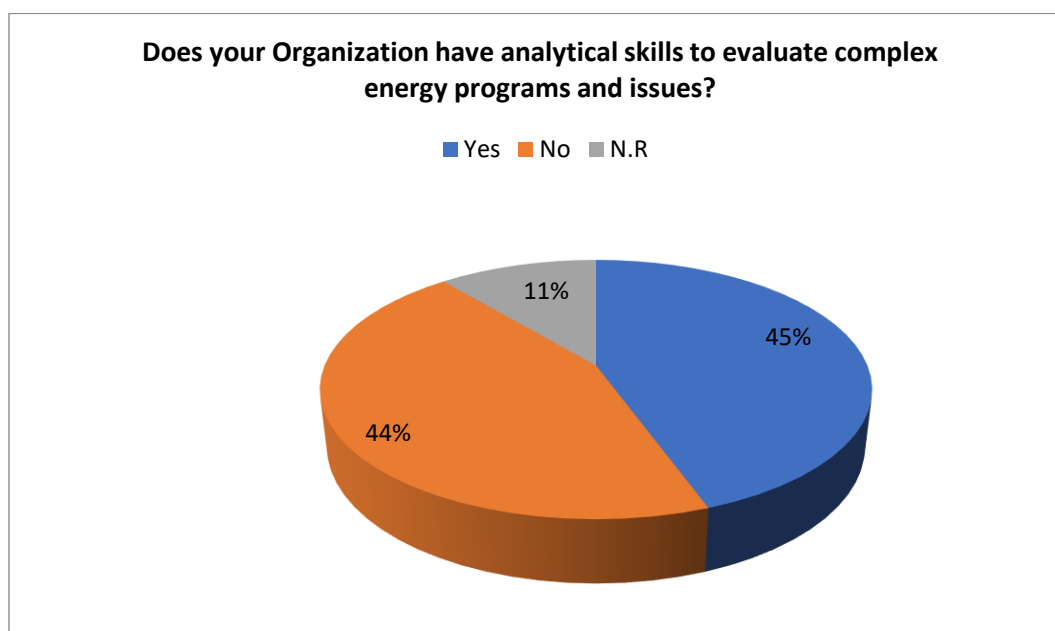


Figure 3.1: % of MDAs with analytical skills to evaluate complex energy programs and issues like ESO and EnMS

It is clear from Figure 3.1 that 45% of MDAs interviewed lack analytical skills to evaluate complex energy programs and issues like ESO and EnMS, which implies that knowledge and skills gap exist in most of the government agencies we expect to mainstream EnMS ISO 50001 into the nation's policy framework. This justifies training of these policy makers. Only 44% claimed to have the skills.

3.1.2 Investigating how organization understands the structure of energy sector in Nigeria

When asked whether the organizations have good understanding of how the energy sector is structured in Nigeria, 78% confirmed to have good understanding of how the energy sector is

structured in Nigeria, while 22% had none as shown in Figure 2. This shows that most of them are involved in the nation's energy sector and therefore would be interested in promoting energy efficiency policies and standards in Nigeria.

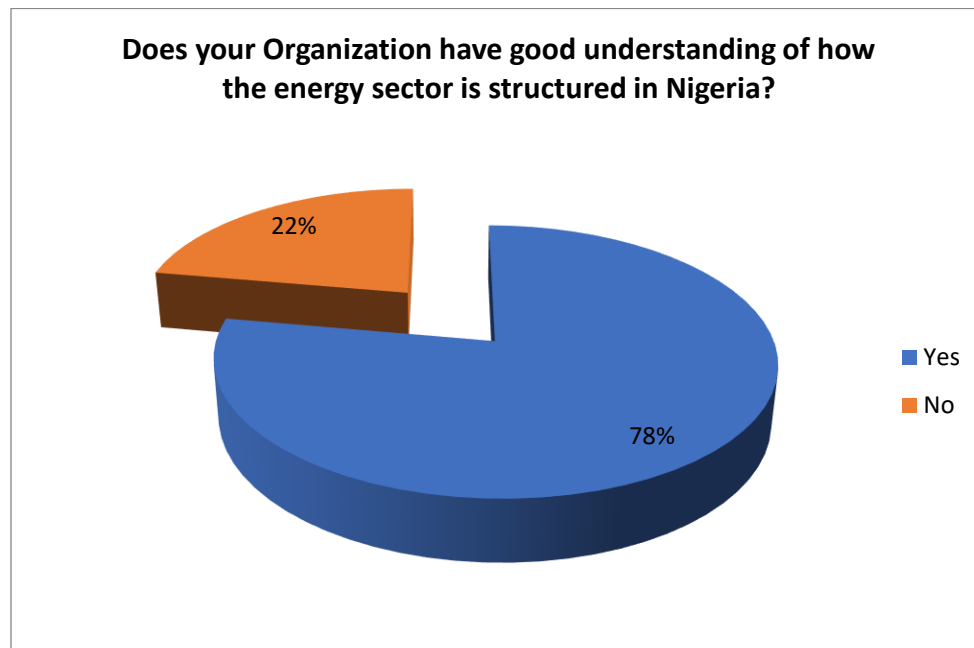


Figure 3.2: Percentage of your Organization have good understanding of how the energy sector is structured in Nigeria

But the reverse was the case in Figure 3.3, when asked whether their organizations have good understanding of how the energy sector is structured in other countries. It was discovered that 67% were ignorance of international best practices regarding energy, while only 33% had good understanding. This is still pointing to the knowledge and skills gaps among energy government officials. Respondents stressed the lack of familiarity with the experiences of other countries in energy efficiency and conservation best practices (Energy Management Systems). As a result, they felt the need to be trained for them to have access to best practices in these areas.

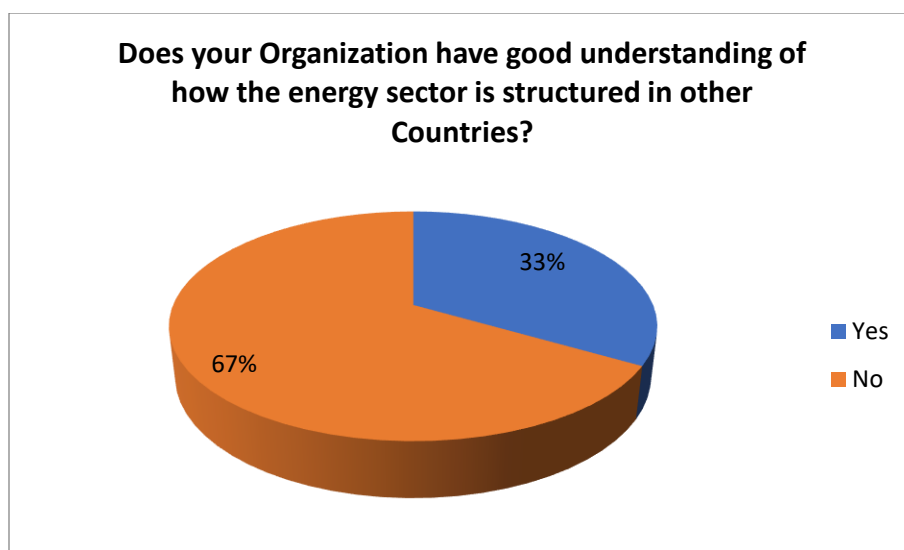


Figure 3.3: Organization have good understanding of how the energy sector is structured in other Countries

3.1.3 Agency's Involvement in the formulation of, and/or implementation of sectoral energy and energy related policies, regulations, standards

Participants were also asked whether their agencies formulate and/or implements sectoral energy and energy related policies, regulations, standards. From Figure 3.4, we discovered that 56% responded that they were involved, while 44% responded not involved. This tells us that government officials need sensitization and training if EnMS/ESO is to be mainstreamed into the system. Table 3.1 shows the type of sectoral energy policies the 56% of agencies who responded positively are involved in.

Table 3.1: Sectoral energy and energy related policies, regulations, standards

MDAs	Sectoral energy and energy related policies, regulations, standards
NOA	Sentization, Awareness, Educating, Communication, Mobilization of Citizens to adopt polices
SMEDAN	No response
SON	MEPS; RE/EE Standards, AFSEC EI Guidelines; Household appliance standards; Electric energy meters; Nigeria National Standardization Strategy (NNSS)
FMW&H	Building Energy Efficiency Guidelines; Building Energy Efficiency Code
FMFB&NP	National Development Plan (NDP) 2021-2025; Economic Recovery and Growth Plan (ERGP) 2017-2020; Vision 2020
FMP	Renewable energy, Rural electrification, Energy efficiency
FMEEnv	No response
FMEEnvDCC	National Policy on Environment, National Renewable Energy, National Policy on Climate Change
NOTAP	No response

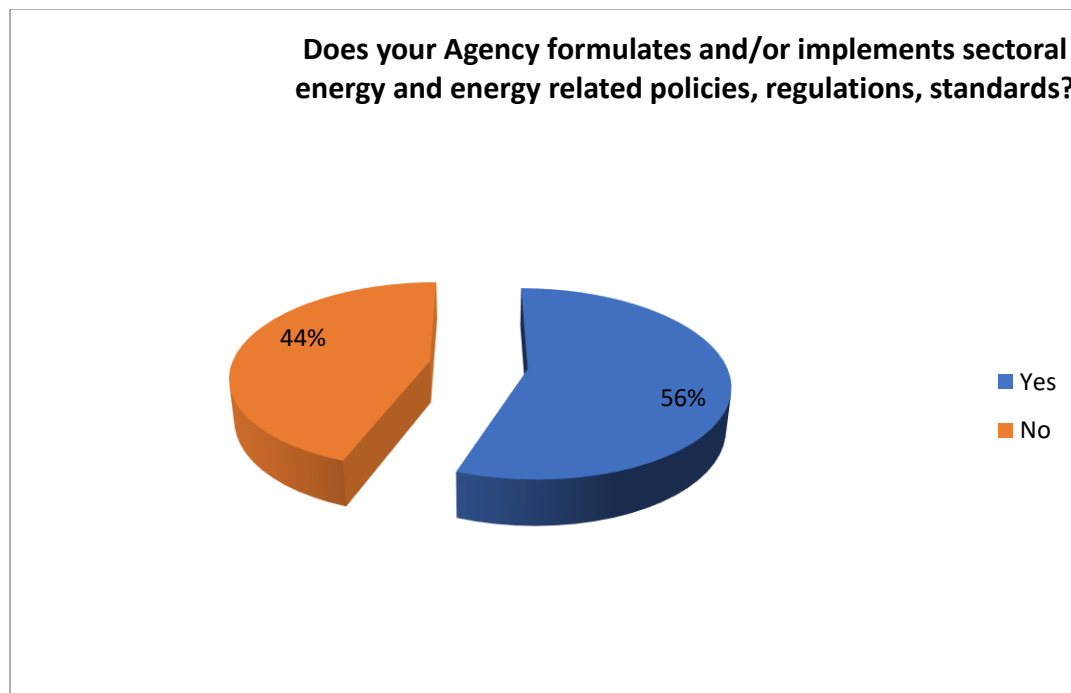


Figure 3.4: % of Respondent's Involvement in Energy Policy Formulation/Implementation

3.1.4: How energy production and/or use relevant to Organization's core mandate(s)?

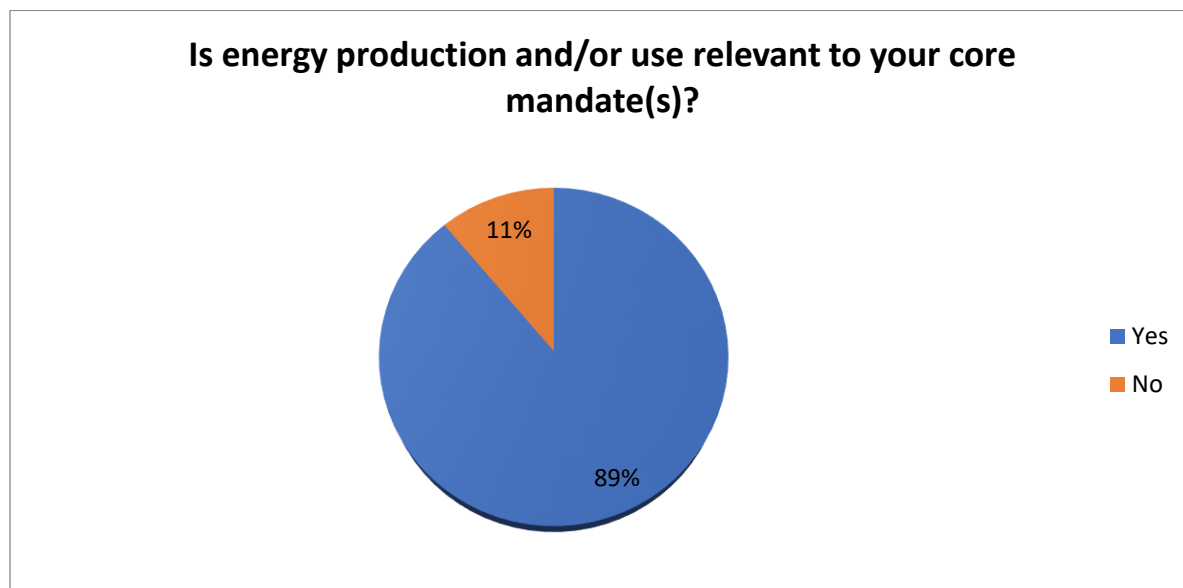


Figure 3.5: % of Organization with energy/energy related mandate

From Figure 3.5, when asked whether energy production and/or use are relevant to their organization's core mandate(s), 89% said YES! while 11% said No! Figure 3.5 implies that most of the organizations were involved in the nation's energy sector and therefore would be interested in the training and in promoting energy efficiency policies and standards.

3.1.5 Energy issue (production and/or use) captured in MDA's policy or regulatory documents

Respondents were asked whether energy issue (production and/or use) captured in MDA's policy or regulatory documents. The survey revealed that 78% had energy issues in their policy documents; while 22% had none. This implies that most of them are involved in the nation's energy sector and therefore could be interested in promoting energy efficiency policies and standards.

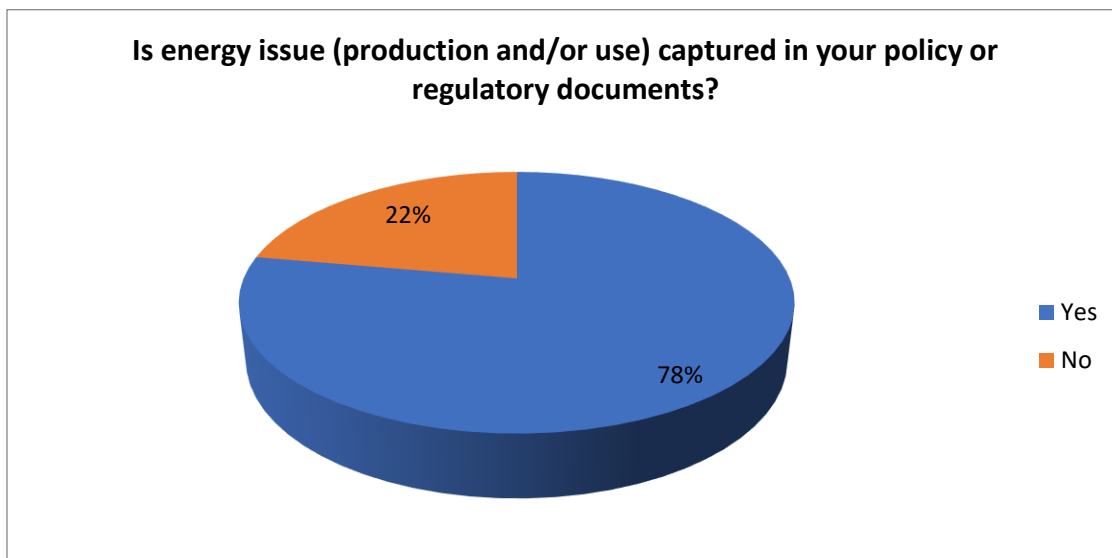


Figure 3.6: % of organizations that energy issue (production and/or use) captured in your policy or regulatory documents

The investigation on how participating Organizations contribute to the development of the Nation's energy sector revealed that most government agencies are involved in one or more energy issues, namely: Policy-making, Regulations/Standards, Enforcement, Training, R & D as well as production/generation and distribution. Hence, this proposed training would be useful to

3.1.6 The need to mainstream economy-wide energy efficiency and conservation (EEC) into policy and regulatory frameworks in Nigeria

When asked whether economy-wide energy efficiency and conservation (EEC) measures should be mainstreamed into policy and regulatory frameworks in Nigeria, the survey revealed that 89% supported the need for energy efficiency measures: justifying the urgent need for the training (Figure 3.7).

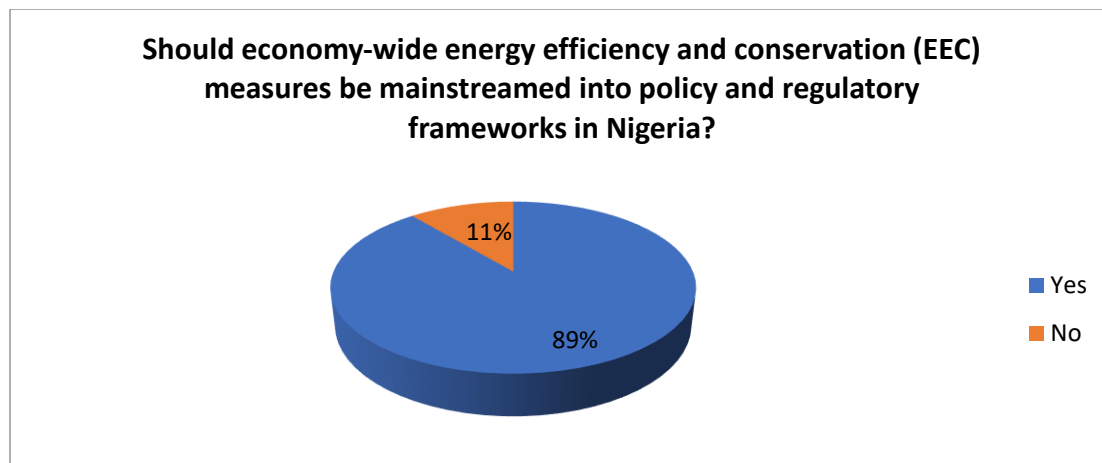


Figure 3.7: Should economy-wide energy efficiency and conservation (EEC) measures be mainstreamed into policy and regulatory frameworks in Nigeria

4.0 Knowledge and Awareness Level of EE among Policy Makers

4.1 Energy Efficiency and Conservation EEC in MDA's policy document(s)

The study revealed that 67% of the respondent MDAs already have energy efficiency policies in their organization's policy documents, while 33% have not (. This implies that the training must start with the basic knowledge of EE before introducing EnMS and ESO and ISO 50001.

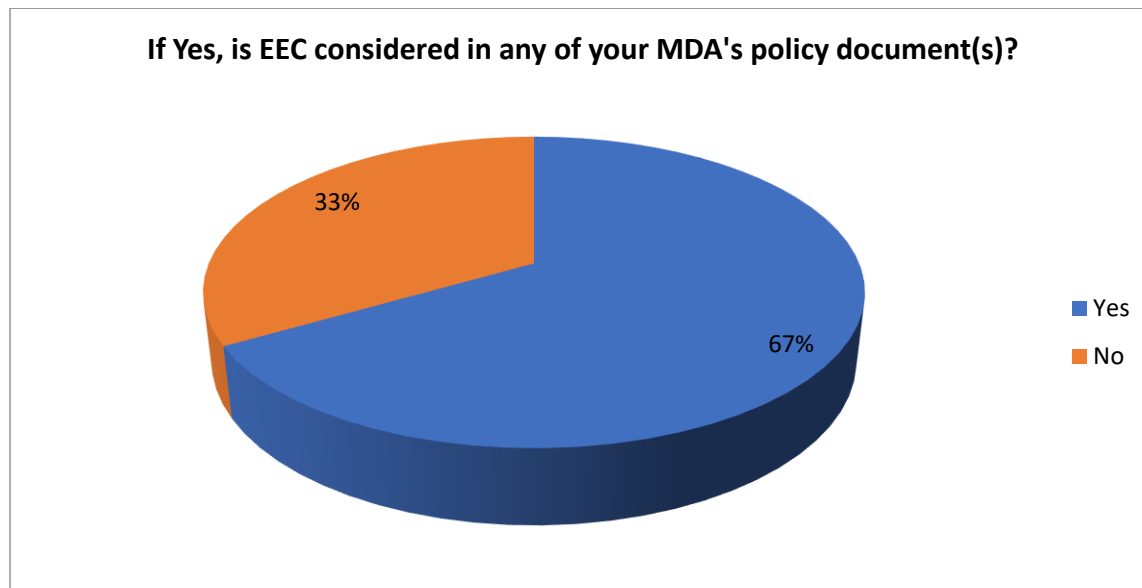


Figure 4.1: EEC considered in any of your MDA's policy document(s)?

Table 2: The MDAs listed out some of the EE related policies that they have

MDAs	The policy documents with EEC issues addressed.
NOA	N.R
SMEDAN	Energy need for MSMEs development; Expand opportunities for alternative energy sources MSMEs
SON	SON Act No.14 of 2015 (Section 5, parts 1, 2, & 3); Nigeria National Standardization Strategy (NNSS)
FMW&H	Building Energy Efficiency Guidelines; Building Energy Efficiency Code; National Housing Code, National Building Code
FMFB&NP	National Development Plan (NDP) 2021-2025; Economic Recovery and Growth Plan (ERGP) 2017-2020; Vision 2020
FMP	National Renewable Energy and Energy Efficiency Policy (NREEEP); National Energy Efficiency Action Plan (2016); Sustainable Energy for All Action Agenda (SE4ALL-AA)
FMEEnv	National Policy on Solid Waste Management 2020; National Policy on Plastic Waste Management 2020
FMEEnvDCC	National Policy on Environment; National Renewable Energy; National Policy on Climate Change
NOTAP	N.R

Apart from the National Orientation Agency and National Office for Technology Acquisition and Promotion (NOTAP) that are concerned with awareness creation and intellectual property rights respectively, all other MDAs have energy related policies.

4.2 Level of Awareness of Energy Efficiency/Energy Management Systems among Policy Makers

The level of awareness of energy efficiency/conservation (EEC) and energy management system (EnMS) was assessed and was discovered that only 33% had excellent knowledge of EEC as shown in Figure 4.2. Also, 45% had either no or fair knowledge of EnMS.

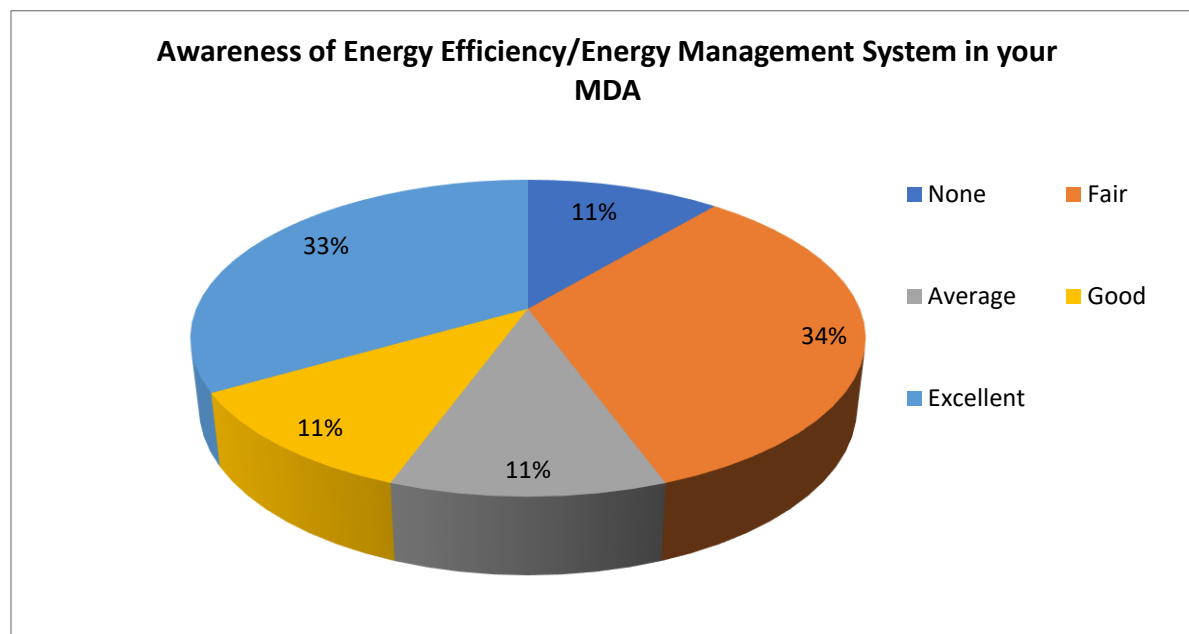


Figure 4.2: Level of Awareness of Energy Efficiency/Energy Management Systems among Policy Makers

4.3 Level of Implementation of Energy Efficiency/Energy Management system in your MDA among Policy Makers

We investigated the level of implementation of Energy Efficiency/Energy Management system in MDAs in Nigeria and discovered that only 22% are involved in either formulating or implementing EEC policies and 22% are not concerned at all (See Figure 4.3. This still points to the need to organize training and capacity building programme on EEC and EnMS for policy makers in government

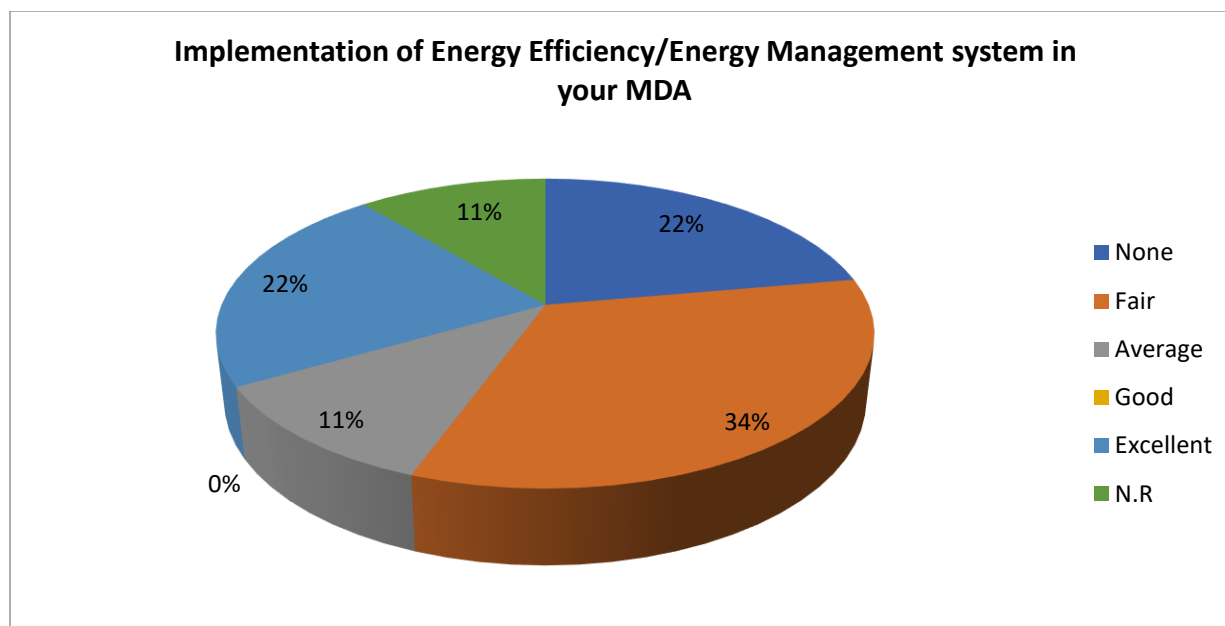


Figure 4.3: Level of Implementation of Energy Efficiency/Energy Management system among Policy Makers

4.4 Level of Knowledge of Energy Auditing among Policy Makers

The knowledge of energy audit among energy policy makers in MDAs is very low. From Figure 4.4, 34% of MDAs surveyed had no knowledge of energy audit. So, how can they mainstream EnMS/ESO into their respective sectoral policies, except they be trained on the fundamentals of energy audit and energy efficiency best practices.

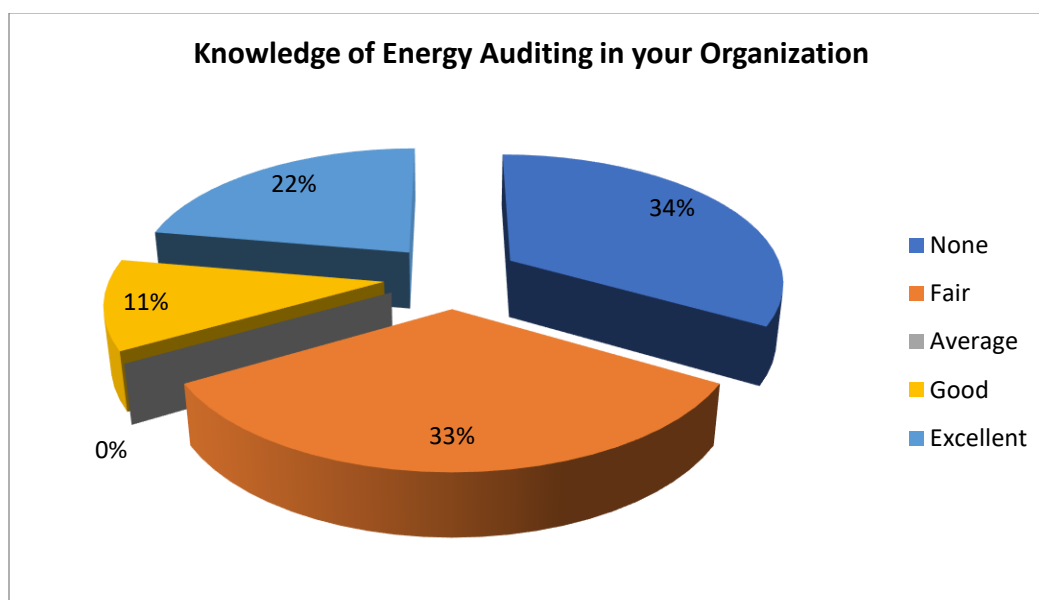


Figure 4.4: Level of Energy Audit among Policy Makers

4.5 Level of Familiarity with global best practices as it relates to Energy Efficiency/ Energy Management \system Policy, Standards and Regulations and Codes among Policy Makers

From Figure 4.5 reveals that 67% of the MDAs assessed were not very familiar with global best practices as it relates to Energy Efficiency/ Energy Management \system Policy, Standards and Regulations and Codes. This is a big knowledge gap to be filled if we are to mainstream UNIDO's Energy Management Systems Standards (EnMS/ESO/ISO 50001) in Nigeria.

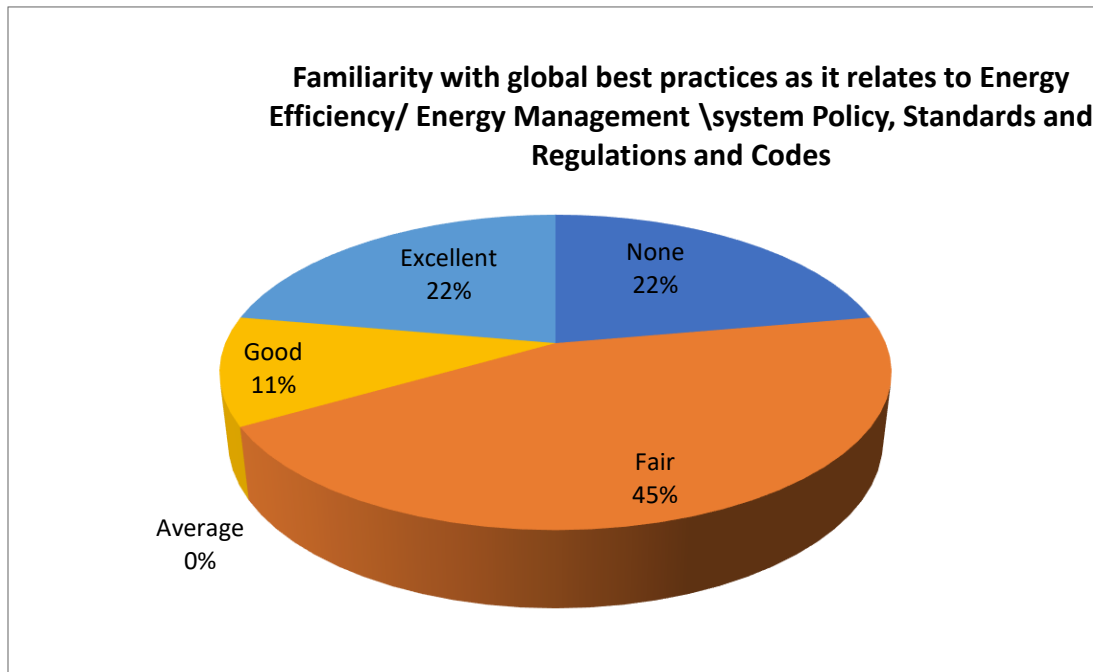


Figure 4.5: Familiarity with global best practices as it relates to Energy Efficiency/ Energy Management \system Policy, Standards and Regulations and Codes among Policy Makers

4.6 Level of Familiarity with Energy Management Standard - ISO 50001 among Policy Makers

From Figure 4.6 reveals that 67% ("none", "fair" and "average" combined) of the MDAs assessed were not familiar with Energy Management Standard - ISO 50001. This is a big knowledge gap to be filled if we are to mainstream UNIDO's Energy Management Systems Standards (EnMS/ESO/ISO 50001) in Nigeria.

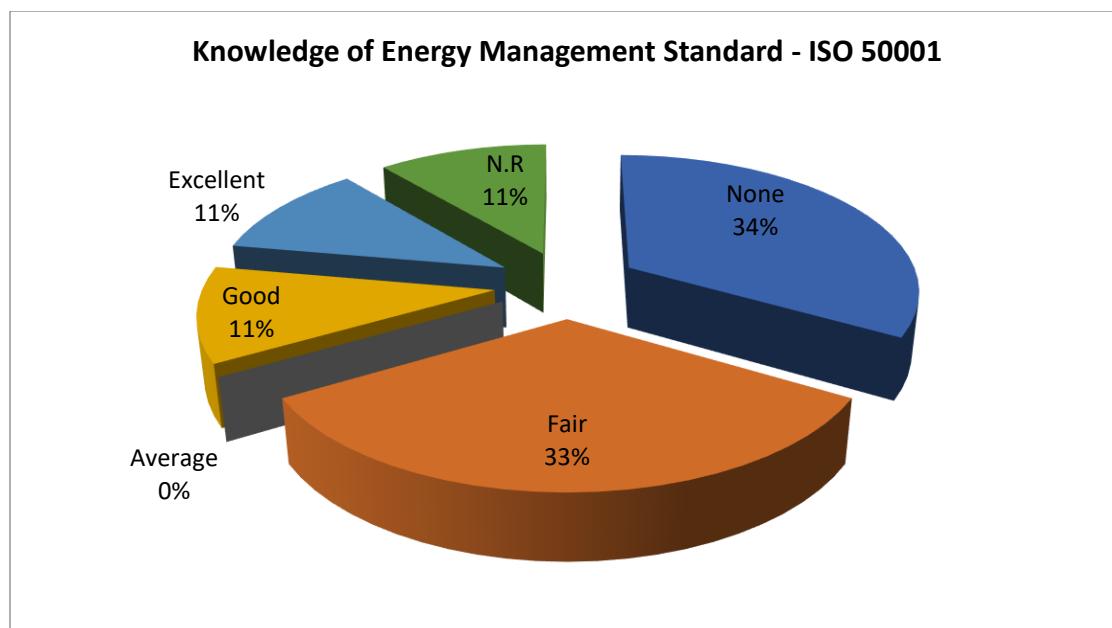


Figure 4.6: Level of Familiarity with Knowledge of Energy Management Standard - ISO 50001 among Policy Makers

4.7 Level of Familiarity with Energy System Optimization (ESO) among Policy Makers

From Figure 4.7 reveals that 67% (“none” and “fair” combined) of the MDAs assessed were not very familiar with global Energy System Optimization (ESO). This is a big knowledge gap to be filled if we are to mainstream UNIDO’s Energy Management Systems Standards (EnMS/ESO/ISO 50001) in Nigeria.

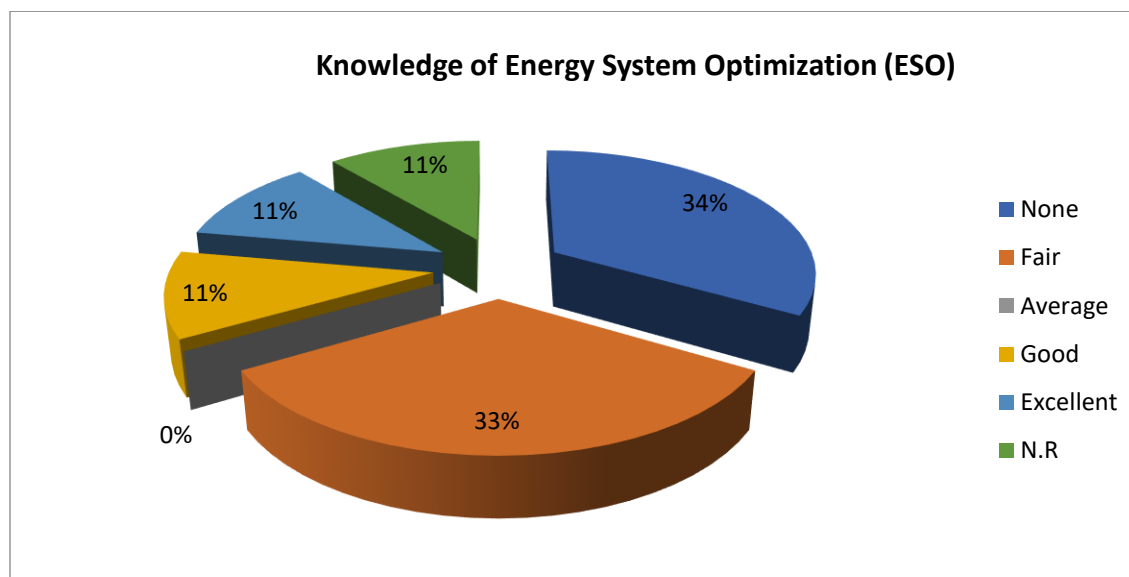


Figure 4.7: Level of Familiarity with Energy System Optimization (ESO) among Policy Makers

4.8 Level of expertise on Energy Efficiency and Energy Management among Policy Makers

From Figure 4.8 reveals that 67% (“none”, “fair” and “average” combined) of the MDAs assessed had no experience on energy efficiency and energy management. This is a big knowledge gap to be filled if we are to mainstream UNIDO’s Energy Management Systems Standards (EnMS/ESO/ISO 50001) in Nigeria

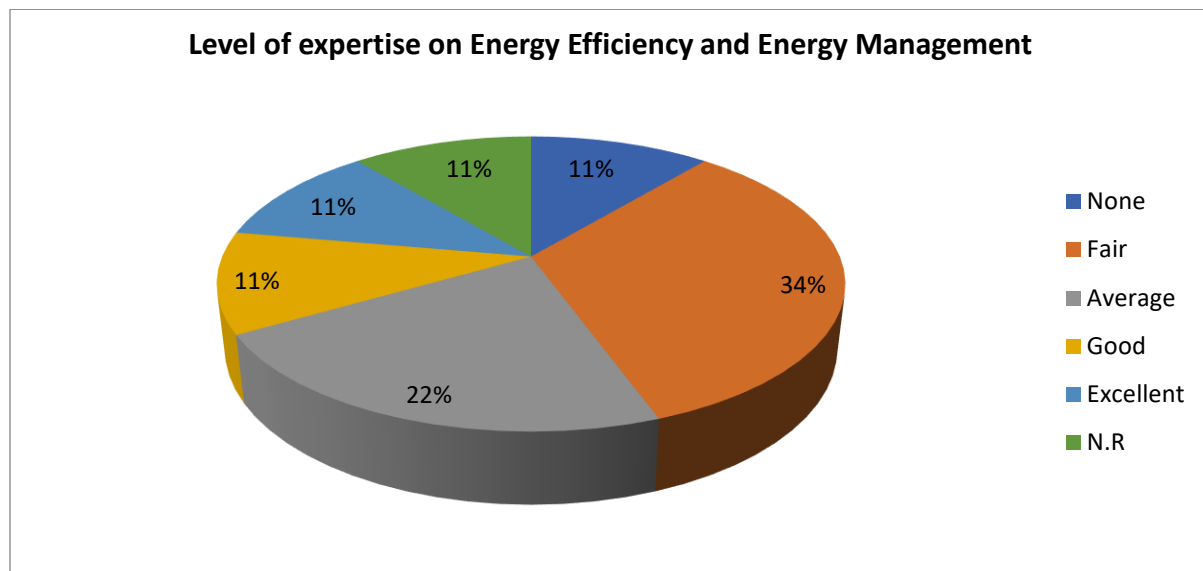


Figure 4.8: Level of Level of expertise on Energy Efficiency and Energy Management among Policy Makers

5.0 Training Needs – Identifying Skills Gaps and Shortages

This section describes the skills shortages identified among government officials handling energy policy formulation. In the survey, we looked at gaps and shortages that cut across the energy subsectors, and then at gaps and shortages specific to energy efficiency best practices in the industrial subsector in particular.

The training needs/requirements of policy makers in MDAs in terms of subject matter vary widely, depending on the type and experience of the MDA and their mandate/role. For example, there are big differences between core energy Ministries and other energy-related Ministries concerned only with energy consumption like transport, industry sub-sectors. At one end of the spectrum, there is a relatively small group of experienced government officials in energy Commission of Nigeria that tend to be interested in more targeted training support. At the other end, many other MDAs like officers in SON, Industry, Transport have little or no EEC experience and require basic training covering all aspects of EEC/EnMS/ESO/ ISO 50001.

5.1 EEC Trainings Participated in the Past

When the respondents were asked whether they were aware and/or participated in any energy efficiency and conservation training programmes/projects, we discovered that almost all the MDAs had not participated in such trainings. This is not surprising, because the concept of energy efficiency is still at its infant stage in Nigeria. Only Department of Climate Change under the Federal Ministry of Environment, Federal Ministry of Works & Housing and Energy Commission of Nigeria indicated to have in some training on EEC.

5.2 Identification of EEC Training Needs

Participating Ministries, Departments and Agencies (MDAs) were asked to list in the order of priority, areas of energy efficiency and conservation they need training on and in summary, the following knowledge gaps and skills and experiences of policy makers in MDAs and the areas of immediate training needs were identified (Table 5.1):

Table 5.1: Areas in ENERGY EFFICIENCY AND CONSERVATION Policy makers need training

MDAs	Areas in ENERGY EFFICIENCY AND CONSERVATION Policy makers need training
NOA	How to create awareness on Energy Efficiency/Energy Management
SMEDAN	Energy Efficiency and Energy Management; Energy Audit
FMW&H	Energy Efficiency Optimization; Safety in Energy Efficiency; Principles in Building Energy Audit; Energy System Optimization; Energy Management Systems Standards
FMFB&NP	Policy Formulation and Implementation; Monitoring and Evaluation
FMP	Energy Management; Energy Audit
FMEnv/DCC	Energy Conservation Methods; Energy Audit; Smart Metering
NOTAP	Energy Efficiency and Energy Management; Energy Audit; Global best practices as it relates to Energy Efficiency and Energy Management System;

Source: Survey Data

5.3 Assessment of MDA's Experience with EEC

Part of the assessment was to ask respondents to rate their organization's level of experiences in a variety of different areas (1 to 6) as indicated in Table 5.2. The idea was to get an understanding of organization's level of training, the type of training they may need and areas where they may have expertise to train others.

Our investigations on the experiences of organizations regarding conducting technical energy analysis, statistical and policy analyses in energy and in the development of complex written documentation involving thorough energy policy analyses and recommendations as indicated in Table 5.2 revealed that 45% had no experience, education, or training in any energy-related issues. 11% of respondents had staffs with formal education or training, but have not performed any EEC task on their job. The same apply to organizations that had performed this function, but in partnership with other agencies/experts. None Only 11% responded that EEC is part of their core mandate, which points to the big knowledge gap in MDAs with regards to energy management systems.

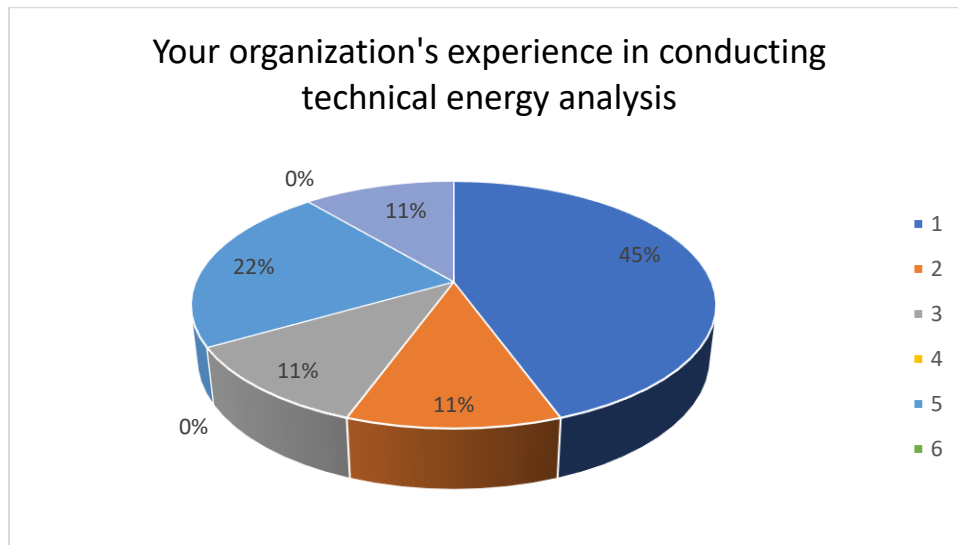


Figure 5.1: Organization's Experience in Conducting Technical Energy Analysis

Table 5.2: Organization's Level of Experiences on Energy-Related Training

Organization's Level of Energy-Related Training	Rate your organization					
	1	2	3	4	5	6
Your organization's experience in conducting technical energy analyses	45%	11%	11%	0%	22%	11%
Your organization's experience in conducting statistical and policy analyses in energy	45%	11%	11%	11%	11%	11%
Your organization's experience in development of complex written documentation involving thorough energy policy analyses and recommendations	45%	11%	11%	11%	11%	11%
Your organization's experience in formulating policy and assessing resource issues on new and/or current programs	5%	9%	14%	19%	24%	29%

1. We have not had experience, education, or training in this area. 2. We have staffs with formal education or training, but have not performed this task on the job. 3. We have performed this function, but in partnership with other agencies/experts. 4. We have performed this function as a routine job, independently and usually with little supervision. 5. This function is our core mandate 6. Not applicable

5.4 Organization's Level of Energy-Related Training

From the issues raised in Table 5.3 and the results of the survey (Figure 5.2), only 5% of the respondents indicated to “have had experience, education, or training in EEC”. 9 % of the respondents had staffs with formal education or training, but have not performed this task on the job; while 14% of the respondents reported to have performed EEC function, but in partnership with other agencies/experts. 19% of the respondents indicated to have performed EEC function as a routine job, independently and usually with little supervision. But, 24% of the respondents reported that EEC function is their core mandate. But, majority (29 %) of the respondents reported that EEC function is not applicable to them. This is probably because of their limited knowledge about EEC best practices.

Table 5.3: Level of Energy-Related Training

Organization's Level of Energy-Related Training	Rate your organization					
	1	2	3	4	5	6
Strengthen skills to ensure that energy efficiency & conservation (EEC) policies, standards and regulations are well designed with specific targets & according to recommended specifications	5%	9%	14%	19%	24%	29%
Your organization's experience in safety aspects of EEC technologies	5%	9%	14%	19%	24%	29%
Know-how of identifying sectoral EE&C opportunities in Nigeria, including EE&C Resource Assessments (What is needed? How to do it?)	5%	9%	14%	19%	24%	29%
Understand the operation of EE technologies; Know how to appraise & monitor EE programmes +Planning & designing EEC projects (system sizing)	5%	9%	14%	19%	24%	29%

Develop skills and knowledge on identifying appropriate EEC technologies	5%	9%	14%	19%	24%	29%
Formulation and Analysis of practical EEC policies, regulations and standards	5%	9%	14%	19%	24%	29%
<i>UNIDO's Energy Management Systems Standards (EnMS/ESO/ISO 50001)</i>	5%	9%	14%	19%	24%	29%
Energy Auditing	5%	9%	14%	19%	24%	29%
Certified Energy Auditing	5%	9%	14%	19%	24%	29%
Understanding of all EEC concepts and issues	5%	9%	14%	19%	24%	29%
Incorporation EEC policies in your sectoral policy documents	5%	9%	14%	19%	24%	29%

1. We have not had experience, education, or training in this area. 2. We have staffs with formal education or training, but have not performed this task on the job. 3. We have performed this function, but in partnership with other agencies/experts. 4. We have performed this function as a routine job, independently and usually with little supervision. 5. This function is our core mandate 6. Not applicable

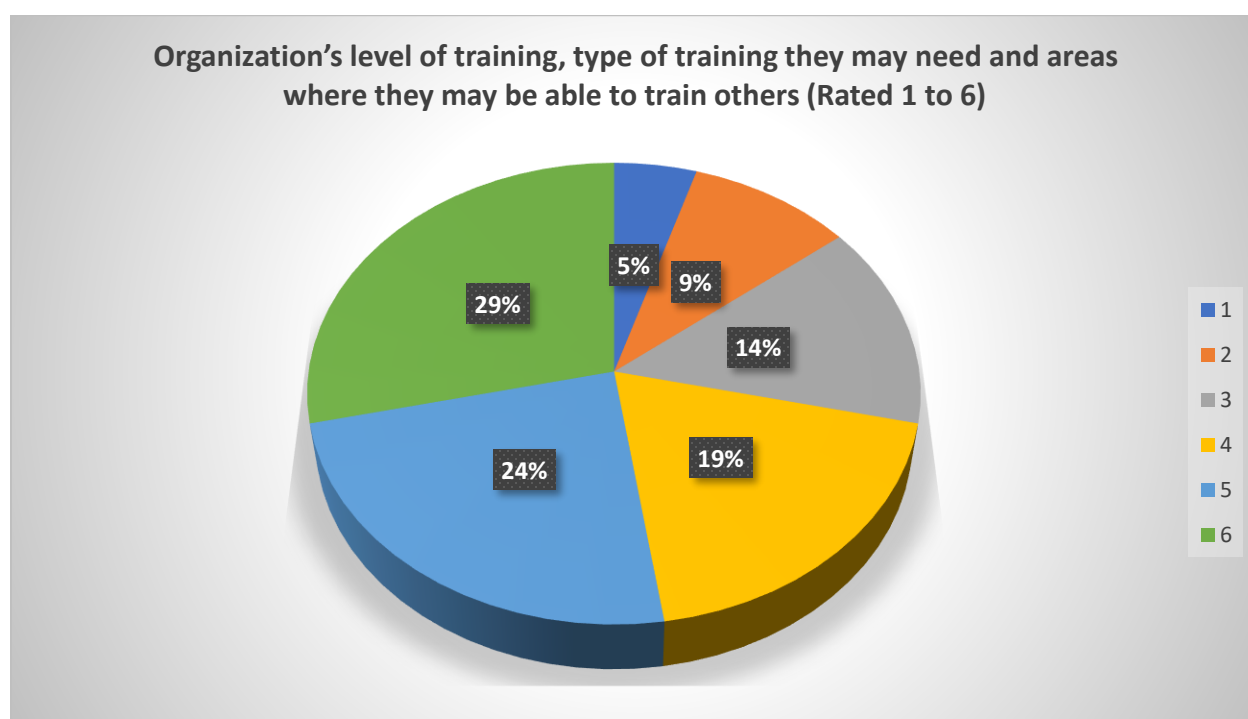


Figure 5.2: Organization's level of training, type of training they may need and areas where they may be able to train others (Rated 1 to 6)

Generally, the survey centered on the type of trainings they need. The challenge here was to keep them focused on what they need rather than what they want as most government officials often are interested in foreign trips or training that is unrelated to their job functions. We noticed that in most cases, they don't know what they need since energy efficiency and conservation best practices (EnMS/ESO ISO50001) is completely new to them. For example, some of the Ministry staff will need to understand the principles of energy and energy efficiency so that they can properly mainstream it into the nation's sectoral policies. However, with the exception of Energy

Commission of Nigeria, none of the agencies have good energy efficiency or Energy Management Systems experience or training.

5.5. General views of Policy makers in MDAs/Government Officials

Policy makers in MDAs/Government Officials have broadly similar views about the kind of training they want:

- They prefer shorter, practical or field-based courses lasting a few weeks or months over courses lasting several years.
- They prefer professional development and vocational training courses which address particular skills gaps over academic courses.
- They find face-to-face training more effective than online or distant learning.
- They prefer training courses and providers to be accredited by local authorities to ensure consistent high quality.
- They like training that is tailored for the local context and implemented by local training institutions.
- They would like to increase the opportunities for peer-to-peer learning.
- They would like training courses to be developed that are targeted at different types of officials depending on their level of knowledge/experiences.
- They want training providers to collaborate more closely with the industry in the development and delivery of training programmes.

6.0 Gender Mainstreaming

Gender dimension of energy production and utilization cannot be over-emphasized. On the social aspects, energy policy has the ability to address inequalities including those between men and women, rich and poor and other population groups. When integrating gender into an energy policy, gender differences should be explicitly acknowledged. Access to modern energy can reduce women and men's work load and a gender-sensitive energy policy will ensure that this is achieved equitably. Energy services can also contribute to women's empowerment, particularly through freeing their time for other activities and through communication media, which can increase their knowledge on technical and social issues, including their legal rights.

During our study, respondents were asked what their organizations were doing in terms of mainstreaming gender issues into their respective policy formulation process. To achieve this, four issues were raised and respondents were required to rate themselves based on "Never", "Rarely", "Sometimes" and "Always" as shown in Table 6.1.

Table 6.1: Gender Mainstreaming Rating in MDAs

Gender Balance Considerations	Rating			
	Never	Rarely	Sometimes	Always
Thorough gender analysis is conducted before policy formulation				
"gender check" done once a policy document is completed to make sure that gender is sufficiently addressed				
there is a regular monitoring and evaluation of on-going policy implementation from a gender perspective				
Project/programme include resources dedicated to increase gender equality				

The following sections analyzed responses received from the MDAs surveyed.

6.1 Thorough gender analysis is conducted before and during policy formulation

From the survey, we discovered that 57% (Figure 6.1) responded that they rarely conduct thorough gender analysis before and during policy formulation. There are a number of reasons why gender had not been mainstreamed into energy policy in the past, but, the most common reasons are: limited women's social position and the attitude of energy professionals to gender issues.

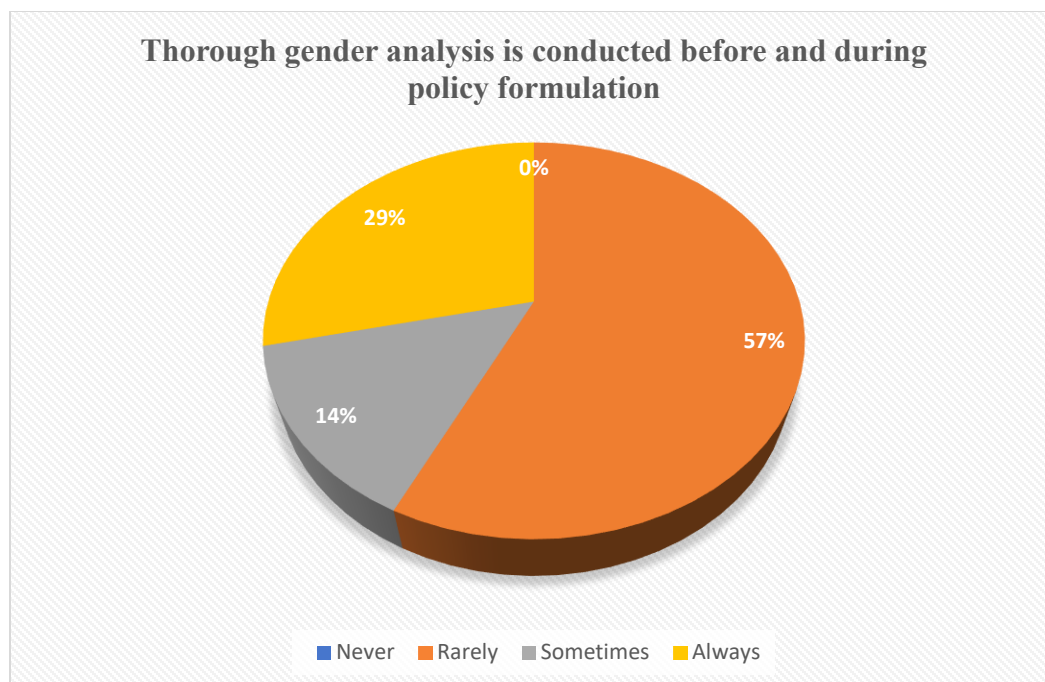


Figure 6.1: Thorough gender analysis is conducted before and during policy formulation

6.2 "Gender check"

Again, in our investigation, we tried to check whether 'gender check' is usually done once a policy document is completed to make sure that gender is sufficiently addressed. The result was that 71% of respondents said that was rarely done as shown in Figure 6.2. Part of the reasons for this is because women's control over their own lives is generally less than that of men. Men tend to dominate decision making within households, offices, etc.

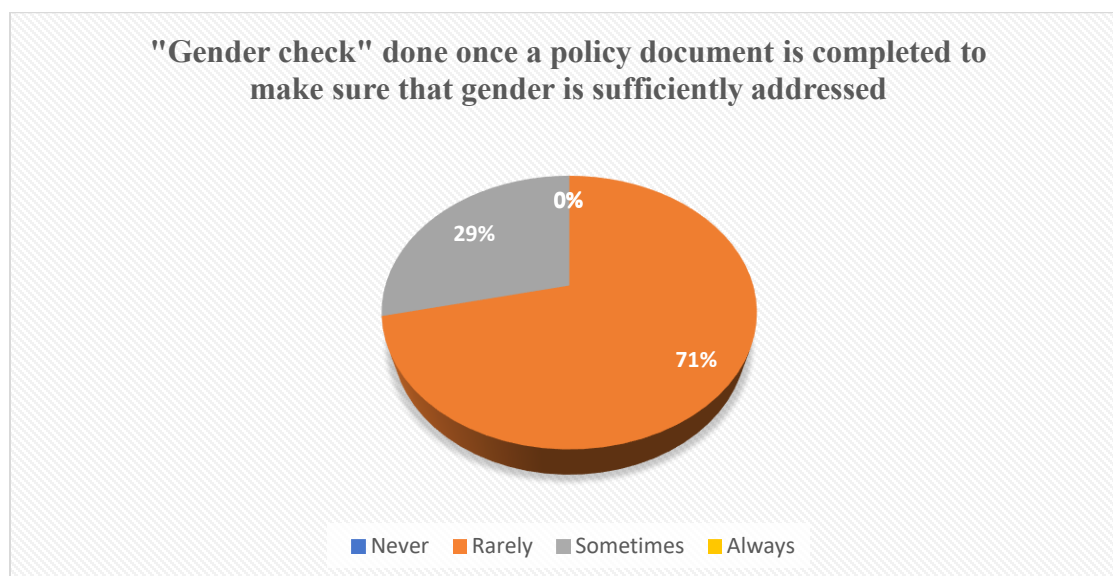


Figure 6.2: Rate of "Gender Checks" before and during Energy Policy Formulation

6.3: Regular monitoring and evaluation of on-going policy implementation from a gender perspective

During the survey, we asked whether there used to be regular monitoring and evaluation of on-going policy implementation from a gender perspective. Again, 72% the respondents said rarely (Figure...). This is because most often policy makers are men. Energy institutions and organizations tend to be male dominated, particularly in the professional posts. This is the same in both the public and private sector, as well as in civil society (such as NGOs dealing with energy).

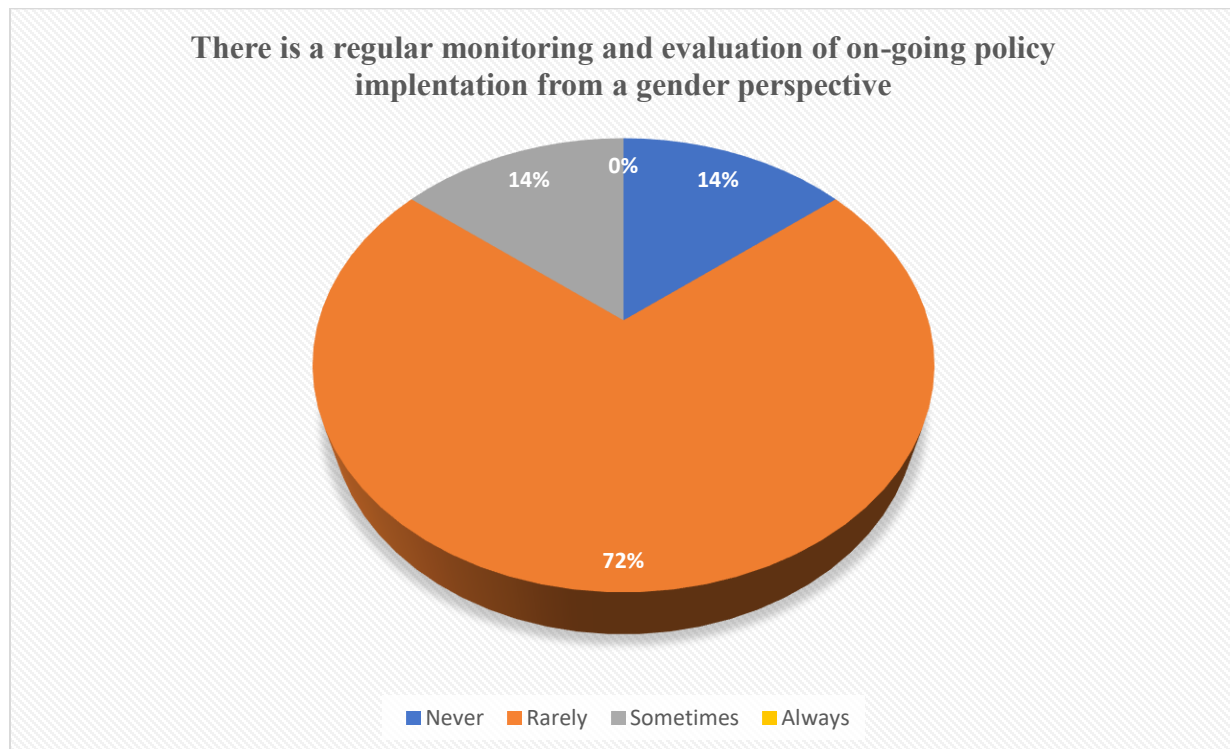


Figure 6.3: Regular monitoring and evaluation of on-going policy implementation from a gender perspective

Indeed there is a general lack of gender disaggregated energy data which is considered a barrier to the development of gender-sensitive energy policies and practice. The situation can be summed up as: No data – no visibility; no visibility – no interest; no interest – no action; no action – no responsibility

6.4 Project/Programme include resources dedicated to increase gender equality

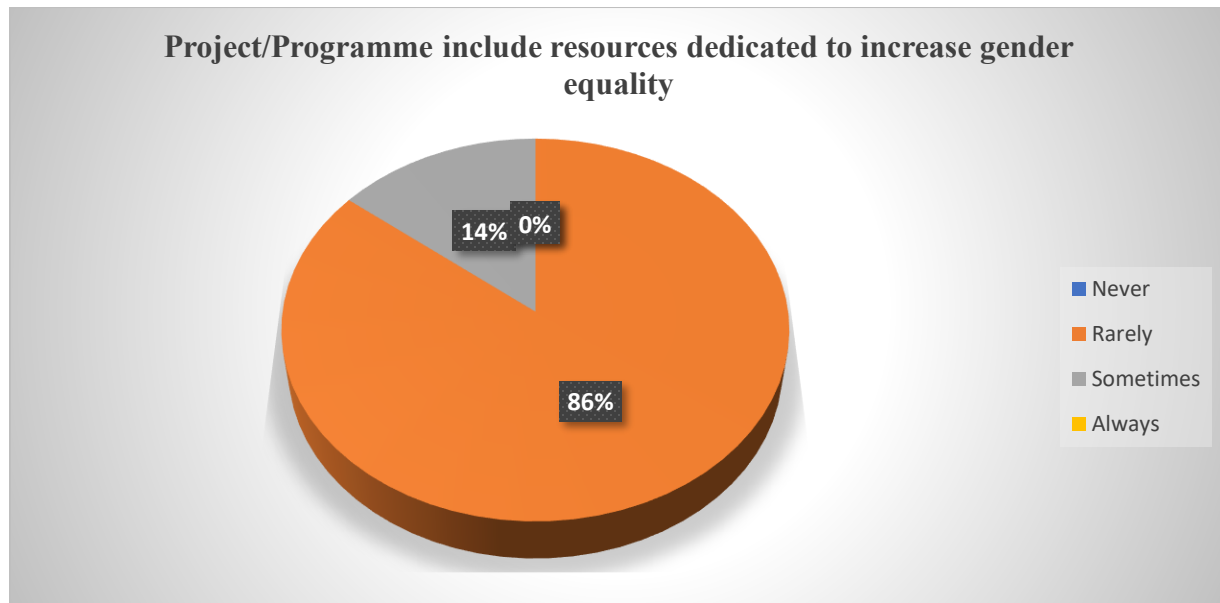


Figure 6.4: Project/Programme include resources dedicated to increase gender equality

Our study revealed that many energy professionals in Nigeria, who are also policy makers, do not fully understand that energy impacts differently on men and women, in other words, they are not gender-sensitive in their policy making. From Figure 6.4, we see that 86% of MDAs surveyed rarely have dedicated resources for increase of gender equality.

7.0 Findings and Recommendations

The assessment identified training needs geared primarily towards government officials at federal level in Nigeria. As energy efficiency is a cross-cutting issue, officers from the following government agencies will benefit from the training: Ministries of Economy, Energy, Industry, Infrastructure, Transport, Building and Construction. Representatives from civil society organizations, industry and academia are also encouraged to participate.

The assessment revealed the urgent need to develop trainings and training materials that will increase the knowledge and skills of policy makers to identify energy efficiency needs and opportunities, develop and implement appropriate energy efficiency policies and measure their impact in all sectors of the economy with focus on energy-intensive industries.

The following were deduced from the assessment:

- The survey began by reviewing the goals, responsibilities, mandates of the MDAs to determine its mandated role. This review provides valuable information for training. It sets the stage for a comparison of what policy makers in those agencies are currently doing and what will be expected of them as the Ministry mainstreams EnMS/ESO ISO 50001 into their policies.
- Many MDAs officials lack the skills, knowledge and experience to develop and implement energy-efficiency and conservation (EEC) policies and regulations. **Recommendation:** A comprehensive EEC training programmes for government officials should be developed to cover the whole concepts of EEC from definitions/basic concepts to policies and regulations through to implementation
- The training needs/requirements of policy makers in MDAs in terms of subject matter vary widely, depending on the type and experience of the MDA and their mandate/role.
- Most MDAs interviewed lack analytical skills to evaluate complex energy programs and issues like ESO and EnMS, which implies that knowledge and skills gap exist in most of the government agencies we expect to mainstream EnMS ISO 50001 into the nation's policy framework. **Recommendation:** Training should be organized to bridge the gaps.
- Most of the respondents were involved in the nation's energy sector and therefore would be interested in promoting energy efficiency policies and standards in Nigeria.
- Respondents were ignorant of other country's energy efficiency and conservation best practices (Energy Management Systems). **Recommendation:** As a result, they felt the need to be trained for them to have access to best practices in these areas.
- Some policy makers in sectors that consume energy were not involved in the formulation and/or implementation of sectoral energy and energy related policies, regulations, standards. **Recommendation:** This tells us that government officials need sensitization and training if EnMS/ESO is to be mainstreamed into the system.
- Most of the organizations were involved in the nation's energy sector and therefore would be interested in the training and in promoting energy efficiency policies and standards.

- Most MDAs are willing to promote and mainstream EnMS/ESO ISO 50001
- Some respondent MDAs already have energy efficiency policies in their organization's policy documents
- The level of awareness of energy efficiency/conservation (EEC) and energy management system (EnMS) among MDAs was very low;
- Mainstreaming EnMS/ESO ISO 50001 into national policies and regulations require a set of skills and visions that are not currently present in MDAs surveyed.
- The policy makers know where the project wants them to go but they do not know fully how to get there or what tools to apply to help them reach the goals.
- **Recommendation** - It is here that ECN's experienced training specialists should apply their knowledge of what skills and tools are required.
- The challenge here was to keep them focused on what they need rather than what they want as most government officials often are interested in foreign trips or training that is unrelated to their job functions. We noticed that in most cases, they don't know what they need since energy efficiency and conservation best practices (EnMS/ESO ISO 50001) is completely new to them.
- **Recommendation:** Systematic and comprehensive training is required
- Areas that MDAs need training are:

Areas in ENERGY EFFICIENCY AND CONSERVATION Policy makers need training
How to create awareness on Energy Efficiency/Energy Management
Energy Efficiency and Energy Management; Energy Audit
Energy Efficiency Optimization; Safety in Energy Efficiency; Principles in Building Energy Audit; Energy System Optimization; Energy Management Systems Standards
Policy Formulation and Implementation; Monitoring and Evaluation
Energy Management; Energy Audit
Energy Conservation Methods; Energy Audit; Smart Metering
Energy Efficiency and Energy Management; Energy Audit; Global best practices as it relates to Energy Efficiency and Energy Management System; Energy Management Standard, Energy System Optimization.

- Policy makers in MDAs/Government Officials have broadly similar views about the kind of training they want:
 - They prefer shorter, practical or field-based courses lasting a few weeks or months over courses lasting several years.
 - They prefer professional development and vocational training courses which address particular skills gaps over academic courses.
 - They find face-to-face training more effective than online or distant learning.
 - They prefer training courses and providers to be accredited by local authorities to ensure consistent high quality.

- They like training that is tailored for the local context and implemented by local training institutions.
- They would like to increase the opportunities for peer-to-peer learning.
- They would like training courses to be developed that are targeted at different types of officials depending on their level of knowledge/experiences.
- They want training providers to collaborate more closely with the industry in the development and delivery of training programmes.
- On the social aspects, energy policy has the ability to address inequalities including those between men and women, rich and poor and other population groups. When integrating gender into an energy policy, gender differences should be explicitly acknowledged.

Suggested Training Topics

- Energy Training: Basics: Defining Energy, sources (fossil and renewable) and forms, environmental impacts and importance of energy to the nation's economy.
- Introduction to Energy Efficiency: An overview of some of the key concepts for energy efficiency
- Key elements of National Energy Efficiency Policies
- Strengthen skills to ensure that energy efficiency (EE) policies and regulations are well designed & according to recommended specifications
- Develop capacity in management strategies of EE projects
- Know-how of identifying EE resources available in-country
- EE Resource Assessments (Energy Auditing) etc.
- Know how to appraise & monitor EE policy implementation
- Planning & designing EE policies
- Develop skills and knowledge on identifying appropriate EE policies

Trainings on formulation of EE policies targeting the industrial Sector in the following areas:

- Best practices in policy and planning in Nigerian
- Formulating EE Policies to overcome market failures and barriers
- Cross-sectoral policy recommendations
- Sectoral-level policies
- Criteria such as relevance, energy savings, ease of implementation, job creation and timeline for designing and implementing an effective policy
- Ranking EE policies recommendations and how to insure their effective implementation.
- Monitoring and evaluating of the implemented EE policies and measures.
- Overview of the EE policies targeting the Industrial sector in Nigeria
- Case Studies of the Benefits of the implemented EE policies in developed countries and lessons learned
- Opportunities and challenges for energy efficiency in the industry sector
- Identification of relevant energy efficiency data and indicators for the industry sector;
- The role of energy efficiency indicators for prioritizing policies in the industry sector;
- Identification of supplementary data for energy efficiency policies in the industry sector.

8.0 Conclusion

It was evident from the responses and the discussions that government officials do have a wide range of training needs in the energy efficiency and conservation sector, mainly due to a few energy efficiency specialists in the country. We have identified training needs towards strengthening institutional capacity and building technical capacity focusing on improving policy and regulatory frameworks on: (i) Energy Management Systems (EnMS), based on the ISO 50001 standard, and (ii) Energy Supply Optimization (ESO), as well as establishing demonstration pilot projects and mechanisms for scaling up investments in ESO measures in Nigeria.

The TNA report will guide the development of training materials and a long term training strategy that will address the current and future training needs of government officials who are expected to mainstream energy efficiency best practices into the day-to-day operation of the Nigerian manufacturing industries in Nigeria through the formulation of Energy Efficiency and conservation policy.