Institutional & Framework Assessment for ECOWAS Appliance S&L Program

Results of the Institutional Assessment

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Outline of Presentation

- Presentation of Econoler and Project Background
- Methodology
- Project Deliverables
- Social, Economic and Energy Situation in ECOWAS
- Findings at the Regional Level
- Findings at the National Level

Who Are We?

Econoler is a world-renowned Canadian consulting firm specialized in:

- Energy Efficiency (EE)
- Renewable Energy (RE)
- Energy Performance Contracting (through ESCOs)
- Clean Energy Financing
- Program Evaluation
- Carbon Finance
- Climate Change Mitigation and Adaptation

More than 30 years of experience with 3,000 projects in more than 120 countries!

Project Background

- ECOWAS faces important challenges to meet increasing energy demand in Western Africa (300 million inhabitants in 15 countries)
- Lack of installed capacity and close to 25% of installations not functioning result in frequent power outages (days/year: Benin 56, Niger 31, Senegal 26)
- As electricity rates increase, demand must be controlled to avoid burden on ratepayers

Project Background

- ECOWAS Ministers of Energy adopted the ECOWAS Energy Efficiency Policy (EEEP) during the High Level Energy Forum of Accra, Ghana (October 2012)
- EE standards and labels (S&L) for appliances and energy equipment are effective policies to help achieve EEEP's targets
- The Standards and Labels Technical Committee (SLTC) was formed, as recommended at the regional meeting in Accra

Data Collection Methodology

1. Econoler assembled a team of local experts to research information and produce national reports for each country
2. In-person interviews were conducted (whenever possible) with:
   - Ministry of Energy
   - National standardization body
   - Energy efficiency agency
   - Testing laboratories
   - Ministry of Trade and Industry
   - Regional organizations (WAEMU, ECOWAS/ECREEE)
3. Results of interviews were combined with documentation analysis:
   - To validate information
   - To further analyze policies and regulations

Project Deliverables

- **April 22: Workshop in Burkina Faso** to present the methodology and preliminary information collected
- **June 30: Interim Report** summarizing S&L policies and energy regulatory frameworks analysis
- **August 29: Draft Final Report** including an assessment of institutional capacity and relationships between stakeholders in the promotion of appliance energy efficiency
- **End of October: Final Report** incorporating CLASP, ECREEE and SLTC members' comments

Context

- Social & Economic
- Energy Sector
- Key Findings

Context: Social & Economic

- 317 M people in a territory of 5,115 km²
- Average GDP per capita (PPP) of USD 1,767
  - Highest per capita GDPs: Cape Verde (4,303) Ghana (3,256)
  - 5 countries with per capita GDPs below USD 1,200: Liberia, Niger, Mali, Togo and Guinea
- Average annual GDP growth 4.7%

ECOWAS member countries

Context: Social & Economic

- 13 countries are in Heavily Indebted Poor Countries group
- Annual population growth: 2.65%
- About 44% of the population living below the poverty line
- Fast population and economy growth in poor countries: increasing pressure on energy infrastructure

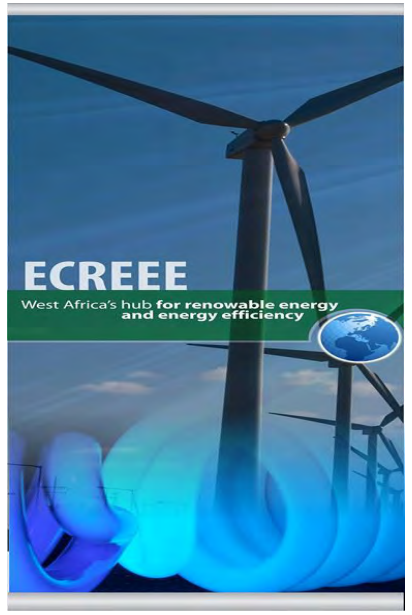
Context: Energy Sector

- Low access to electricity: average rate of access to electricity of 45%, with only five countries with more than 50% of population connected: Cape Verde, Côte d'Ivoire, Ghana, Nigeria and Senegal
- High disparity in access to electricity between urban (70%) and rural (19%) populations
- Several large scale electrification projects underway to increase access, mostly in rural areas
- High electricity cost: average of USD 0.18/kWh

Context: Energy Sector

Power Generation

- Very large proportion of electricity generated from thermal plants operating on fossil fuels (exceptions: Côte d'Ivoire, Ghana and Mali)
- Every kWh saved therefore has an impact on GHG emissions and countries commercial balance
- Businesses often depend on costly self-generation as a result of low reliability of the electricity grid



Context: Key Findings

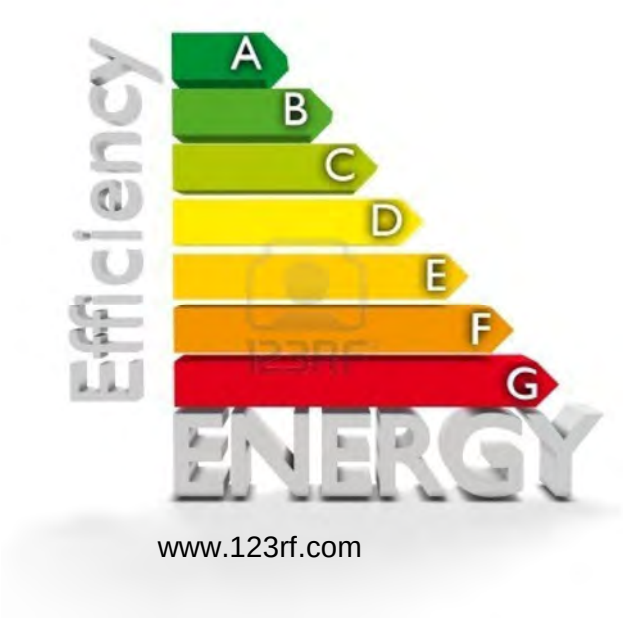
- Three major issues in the electricity sector:
  - Production and distribution capacity of the electricity grids in the ECOWAS region is insufficient
  - Low investment capacity of government to upgrade and maintain electricity grids
  - Heavy dependence on fossil fuels to produce electricity

Context: Key Findings

- S&L will contribute to overcome these challenges by:
  - Reducing electricity peak demand: eliminate/delay the need for new power plants at a fraction of the price
  - Reducing overall electricity consumption: smaller fraction of household incomes spent on energy, improvement of business competitiveness, reducing consumption of fossil fuels

Context: Key Findings

- S&L is an especially attractive solution in the West African context
  - High cost of electricity makes payback periods shorter and fosters the purchase of higher efficiency equipment
  - Low investment capacity of governments will require an initial focus on effective solutions with low-investment
  - Ever-increasing population and standards for living require adopting sustainable long-term measures



Quality Management Framework

Å Key Findings

Quality Management Framework

- Quality management includes
  - Standardization
  - Accreditation
  - Certification
  - Metrology
- Quality policies and programs developed at the regional and national level

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Quality Management Framework

West African Economic and Monetary Union (WAEMU):

UEMOA

- Beneficiary of the first phase of the West African Quality Program (WAQP, 2001–2005)
- Adopted an Harmonization scheme for accreditation, certification, standardization and metrology in 2005
- Created four regional quality structures as a result:
  - CRECQ, NORMCERQ, SOAMET, SOAC

Quality Management Framework

ECOWAS

- Non-WAEMU countries benefited from the second phase of WAQP (2007–2013)
  - Capacity building for national standard bodies
  - ISO membership for all ECOWAS Member States except Guinea-Bissau and Cape Verde.
  - Training of metrology experts
- Harmonization scheme still pending adoption

Quality Management Framework

National Quality Policies

- Developed in 7 ECOWAS countries: Burkina Faso, Cape Verde, Gambia, Mali, Niger, Sierra Leone and Togo
- Vary in scope:
  - Burkina Faso: Action plan for quality management
  - Sierra Leone: Legal and institutional frameworks and roles of all the stakeholders defined
- Create stronger framework for S&L where adopted

Energy Policies and Programs

- ECOWAS
- WAEMU
- National Level

Energy Policies and Programs

ECOWAS – White Paper on Access to Energy

- Adopted in January 2006 with the objective to provide over half of the rural and peri-urban population with access to modern energy services by 2015 (4x compared to 2005 level)
  - **Access to modern fuels for cooking:** 100% of the population
  - **Access to a motive power service:** 60% of the rural population
  - **Access to electricity services:** 100% in urban and peri-urban areas and 36% in rural areas

Energy Policies and Programs

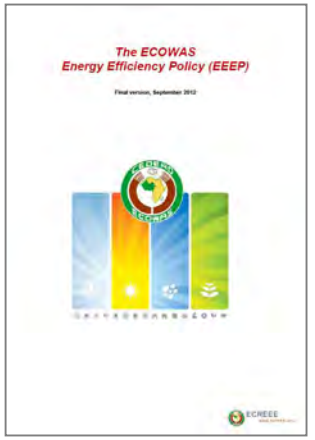
ECOWAS – White Paper on Access to Energy

Å Progress:

- ï Inclusion of access to modern energy services into most countries' national policy documents
- ï Creation of a regional energy access coordination mechanism
- ï Creation of ECREEE in 2010
- ï Formation of a number of partnerships between the ECOWAS and international financing institution for access to energy projects

Energy Policies and Programs

ECOWAS Energy Efficiency Policy (2012)



- By 2013:
  - Create an institutional basis for six EEEP initiatives
  - Create instruments for financing sustainable energies, including carbon finance
- By 2014: Establish an ECOWAS Technical Committee for Energy Efficiency Standards and Labeling and **adopt the first series of standards and labels for major types of electrical appliances across this region**

Energy Policies and Programs

ECOWAS Energy Efficiency Policy (2012)

- By 2020:
  - Eliminate inefficient incandescent lights
  - Reduce electricity distribution losses, which currently vary from 15% to 40%, to under 10%
  - Develop and adopt region-wide efficiency standards for buildings (e.g. EE building codes)
- By 2030: Provide the entire ECOWAS population with universal access to safe, clean, affordable, efficient and sustainable cooking energy

Energy Policies and Programs

ECOWAS Energy Efficiency Policy (2012)

The ECOWAS S&L Initiative requires providing support to:

- Harmonize policies, legal frameworks and tools for the implementation of the S&L program
- Strengthen national and regional actors' and institutions' capacities by coordinating regional actions
- Build awareness among energy users, as well as actors involved in all the stages of implementing the S&L program
- Give incentives and build awareness among regional appliance manufacturers, importers, distributors and retailers
- Create tailored financial instruments

Energy Policies and Programs

ECOWAS Renewable Energy Policy (2013)

- Objective: “to ensure increased use of renewable energy sources for grid electricity supply and for the provision of access to energy services in rural areas”
- Complimentary to EEEP:
  - Aims to address the same issues and has similar objectives
  - Diminish the impact of the current energy production while EEEP aims to avoid further increase of demand

Energy Policies and Programs

ECOWAS Regional Efficient Lighting Strategy

- Launched in 2012 as a flagship initiative of the EEEP, and implemented by UNEP as part of the en.lighten initiative
- Phasing out incandescent lamps in the region would save USD 220 million/year in energy costs (equivalent power for over 1.2 million households)
- Will include MEPS, supporting policies, monitoring, verification and enforcement and environmentally sound management
- Design to be completed by December 2013

Energy Policies and Programs

ECOWAS S&L Program

Advantages to regional harmonization:

- Program management cost reduction, better quality of appliances offered on the market (more attention from manufacturers and importers), more rapid and ambitious national S&L regulations
- Better quality of tests and verification, leading to cost reduction for manufacturers in terms of compliance
- Reduced number of second-hand or inefficient appliances imported and, where applicable, a more cost-effective and environmentally friendly disposal strategy for used appliances and lights
- Know-how sharing among national and regional institutions involved in the program

Energy Policies and Programs

ECOWAS S&L Program

Progress status

- Last meeting in April 22, 2013 (Ouagadougou, Burkina Faso)
- Recommendation to involve the SLTC in the Efficient Lighting Strategy
- Tentative discussion on a possible threshold of 40 lumens/watt for non-directional household lighting

Source: UNEP

Energy Policies and Programs

WAEMU – IRED (*Initiative Régionale pour l'Energie Durable*, 2011)

- Objective: to provide all the WAEMU citizens, by 2030, with access to low-priced, clean energy.
  - 80% electrification rate target in 2020, 100% in 2030
  - Reduce average price to USD 0.06/kWh (XOF 30/kWh) by 2020
  - Develop clean energy through hydroelectricity, solar and biomass

Energy Policies and Programs

WAEMU – IRED (2011)

Å Regional Energy Savings Program (PREE) is part of the first phase of IRED:

- ï Institutional support to the implementation of Energy Efficiency Agencies in member states
- ï Distribution of energy efficient lamps in member states
- ï Energy efficiency labeling of household appliances across the WAEMU region
- ï Integration of energy efficiency requirements in the member states' building codes

Energy Policies and Programs

WAEMU – IRED (2011)

Å Actions relevant to S&L to be undertaken for component 2 (Distribution of EE lamps) of PREE

- ï Evaluate the potential for reducing the peak electricity demand by introducing EE light bulbs
- ï Use low energy consumption lights and solar kits for public lighting
- ï Purchase and distribute EE lights to households
- ï Look for partners to build a factory that manufactures EE light bulbs in the WAEMU

Energy Policies and Programs

WAEMU S&L Program

Immediate objectives:

- Provide appropriate technical tools to guide the countries in their EE efforts
- Build awareness among national standardization bodies and the ministries of energy about introducing energy efficiency labels
- Encourage importers and distributors to offer appliances that are more energy-efficient in the national markets
- Lay the foundations for the governments to apply standards and labels

Energy Policies and Programs

WAEMU S&L Program

Progress status

- An international and regional review of existing S&L programs and best practices on lighting and appliance S&L completed, including identifying the key lessons learned relevant to the WAEMU S&L program
- A report on the evaluation of the national and regional policy, regulatory and institutional frameworks already put in place to promote EE labeling in the WAEMU countries, including the regional testing laboratory capacity
- Two market studies conducted in Benin and Burkina Faso

Energy Policies and Programs

WAEMU S&L Program

Progress status (cont'd)

- A draft of a regional label design to be applied to appliances
- A draft of a regional directive on electrical appliance standards and labels

Energy Policies and Program

National Energy Policies

- Most countries have adopted an energy policy over the past 5 years approximately
- Level of commitment to EE is variable
- General lack of accountability: little information available on the progress status of policy implementation (few dedicated agencies/units for EE that would be accountable)

Energy Policies and Program

S&L Program – Senegal

- Decree in 2011 made importation or manufacturing of incandescent lamps illegal
- 6 standards developed by the ASN, based on existing EU or IEC standards
- System in place to control importations and manufacturing (conformity certificates, independent testing)

Energy Policies and Program

S&L Program – Nigeria

- Part of the project “Promote Energy Efficiency in Nigeria’s Residential and Public Sectors” (Managed by UNDP, 2011–2015)
- Progress:
  - Design of MEPs based on detailed study of the potential of EE policies and legislation and a baseline study
  - Implementation of MEPs for self-ballasted lamps and CFLs
  - Design of training manual
  - Operationalization of lighting test lab

Energy Policies and Program

S&L Program – Ghana

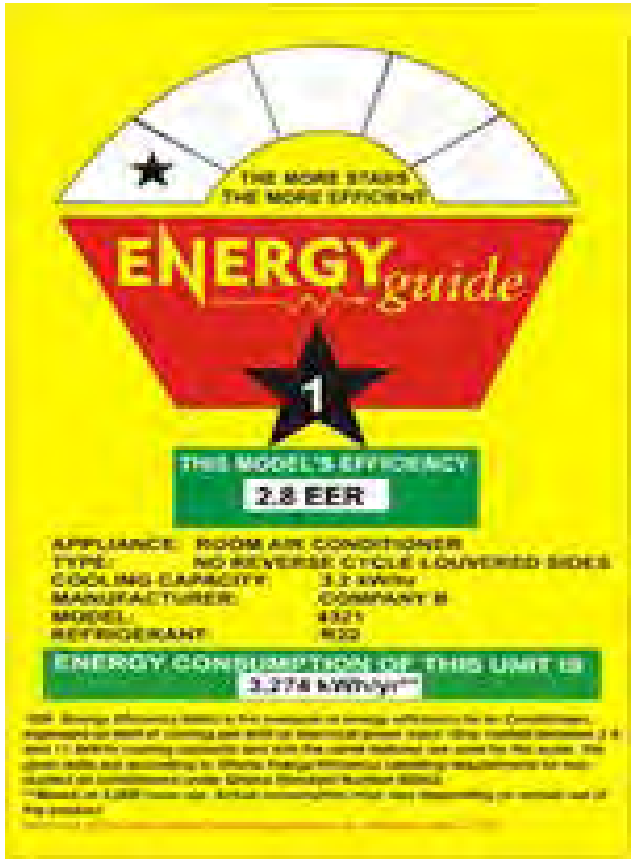
Regulation	Description
LI815 (2005)	Sets out the MEPs for both non-ducted air conditioners and self-ballasted fluorescent lamps, and requires that each of these be identified with a standard EE label
LI958 (2009)	Sets out the MEPs for household refrigerating appliances, and requires that they be identified with a standard EE label
LI932 (2008)	Prohibits the manufacture, sale or importation of incandescent lamps and importation of used refrigerators/freezers and air conditioners

Enforcement responsibilities shared by Customs, Excise and Preventive Services, inspectors of the Energy Commission and officers of the Ghana Standards Authority

Energy Policies and Program

S&L Program – Ghana

LI932 has succeeded in eliminating incandescent lamps from the Ghanaian market and expected to eliminate dumping of used AC and refrigerators when it comes into full force in 2013.



Institutional Capacity

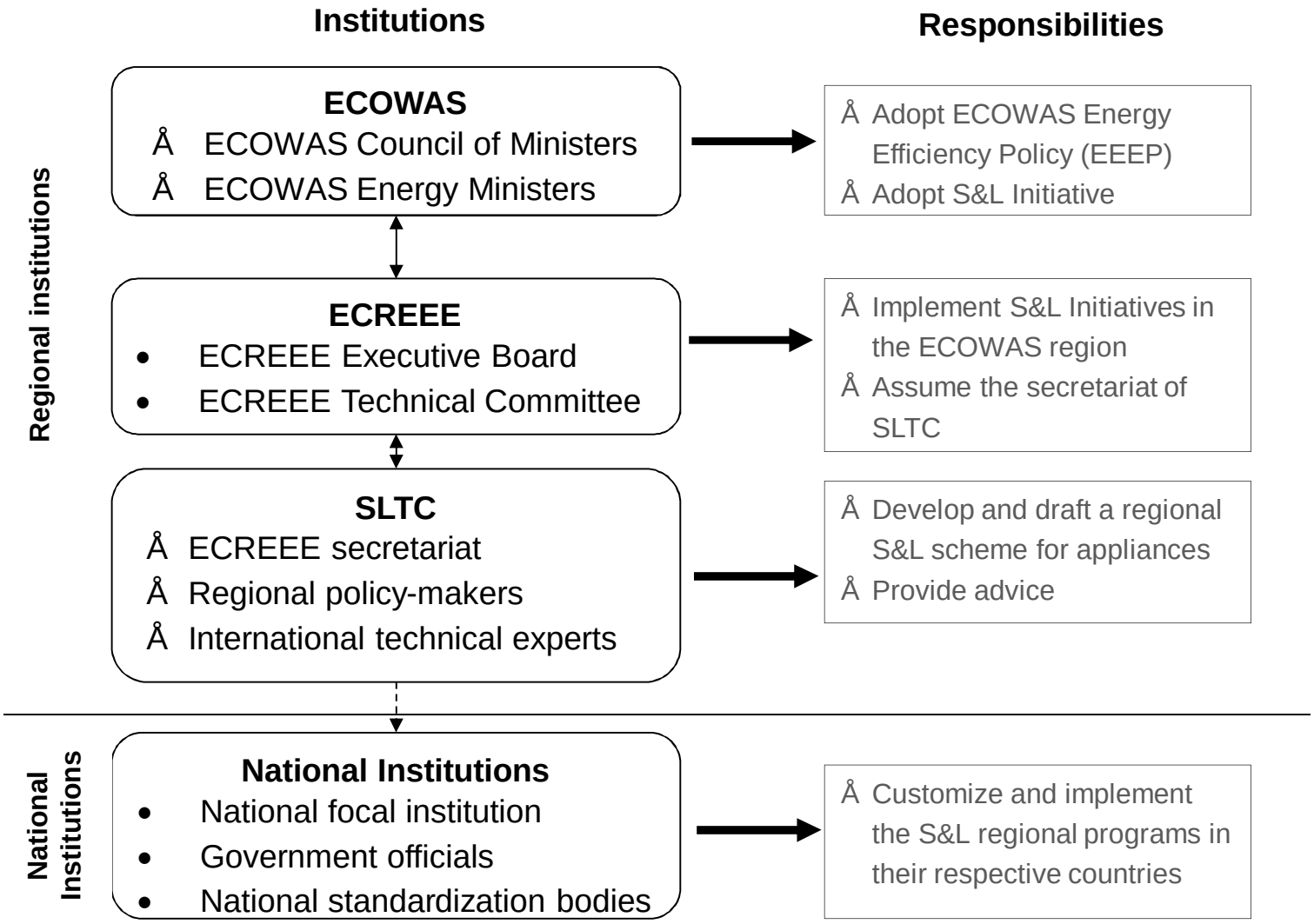
- ECOWAS
- WAEMU
- National Level

Institutional Capacity – ECOWAS

Bodies in charge of S&L:

- ECREEE: Specialized agency responsible for the implementation of ECOWAS Energy policies. Assumes the secretariat of SLTC.
- S&L Technical Committee (SLTC): comprised of representative and policy-makers from member states. In charge of establishing an harmonized regional system for S&L and identifying appropriate institutional arrangements.

Institutional Capacity – ECOWAS



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Institutional Capacity – ECOWAS

ECREEE:

- Designated as the executing agent: day-to-day operations and support to countries in implementing the program
- Knowledgeable staff, but limited in number (5)
- Young organization, need to develop experience in conducting regional programs
- Financial capacity deemed sufficient

Institutional Capacity – ECOWAS

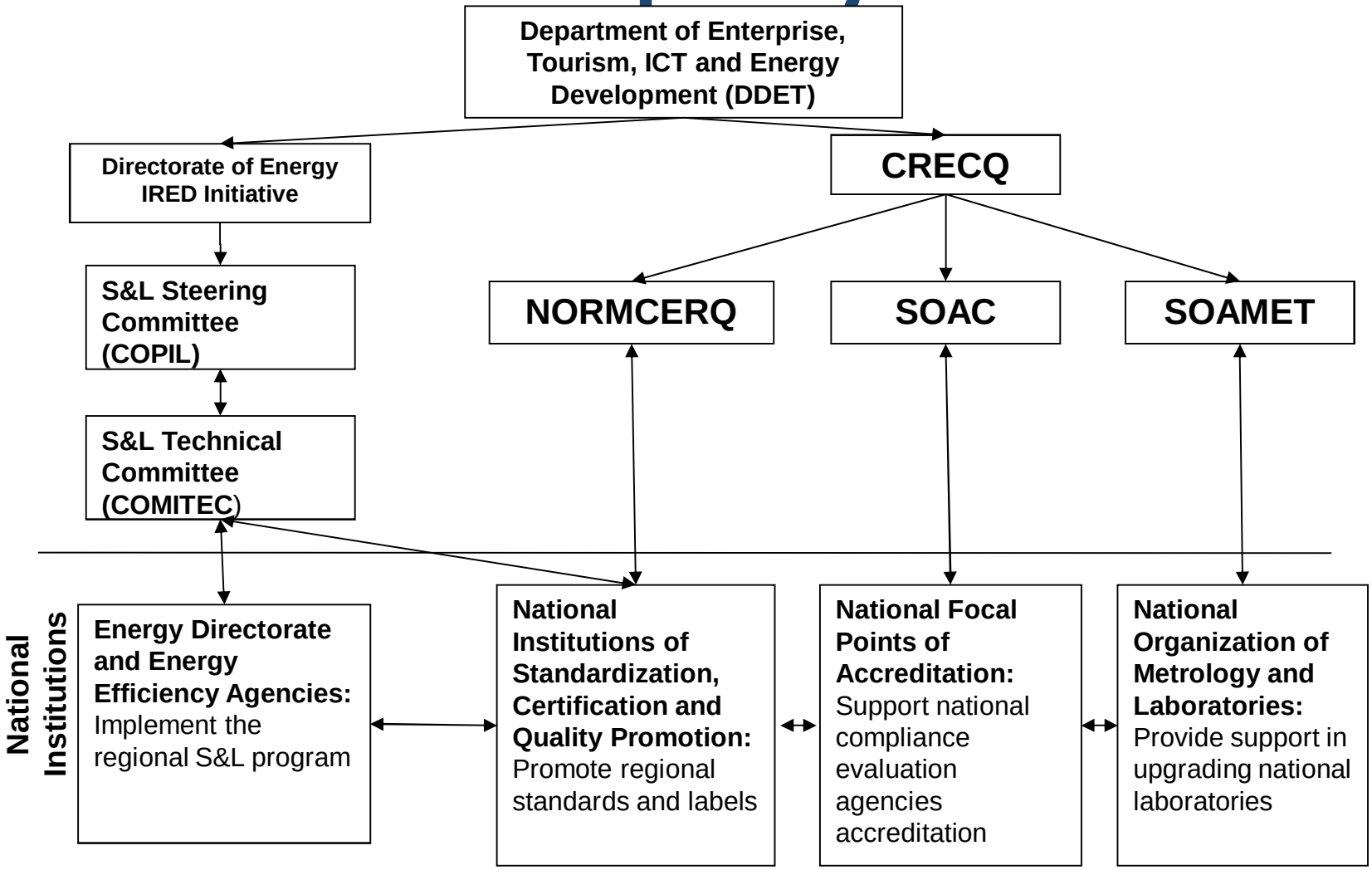
SLTC:

- Makes decisions based on national context, concerns and interests
- Relies on external expertise (consultants) to prepare and analyze scenarios
- Does not have specific expenses or material resource needs

Institutional Capacity – WAEMU

- S&L program is run by two committees:
  - COPIL: Steering committee comprised of program's financing and implementing bodies, as well as COMITEC chairman. Manages program budget and timeframe.
  - COMITEC: Technical committee formed by representatives of member states and of the IFDD, as well as a consulting firm. Has a representative from ECREEE to foster collaboration. Reviews all technical aspects of the program.

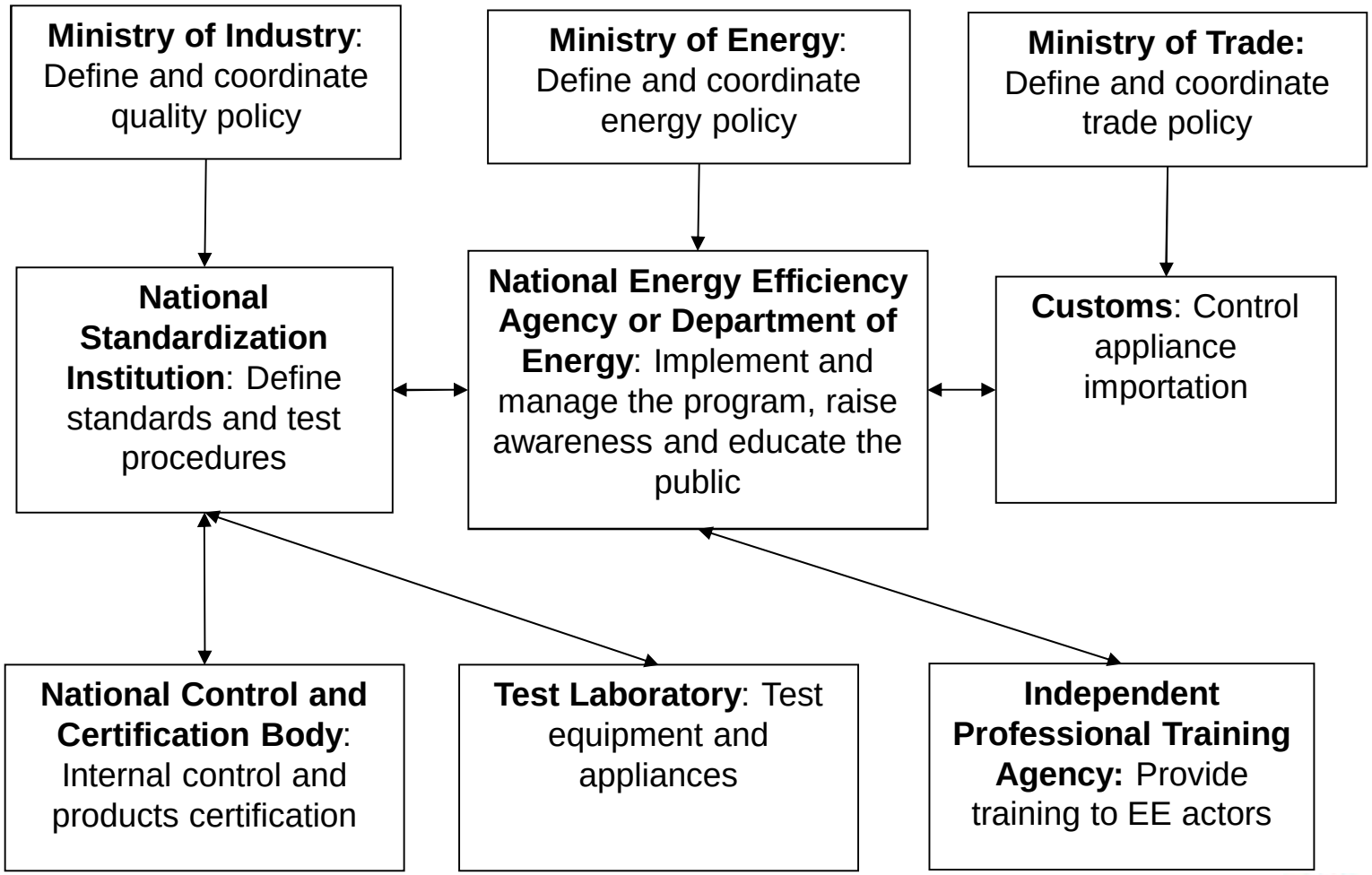
Institutional Capacity – WAEMU



Institutional Capacity – WAEMU

- Regional Quality Structures
  - NORMCERQ: Became operational with WAQP phase II
  - SOAC: Its technical committees deliver accreditation to assessing bodies
  - SOAMET: correspondent member of OIML
- Difficult to obtain precise information on resources and capacity. Mostly depend on participation of members.

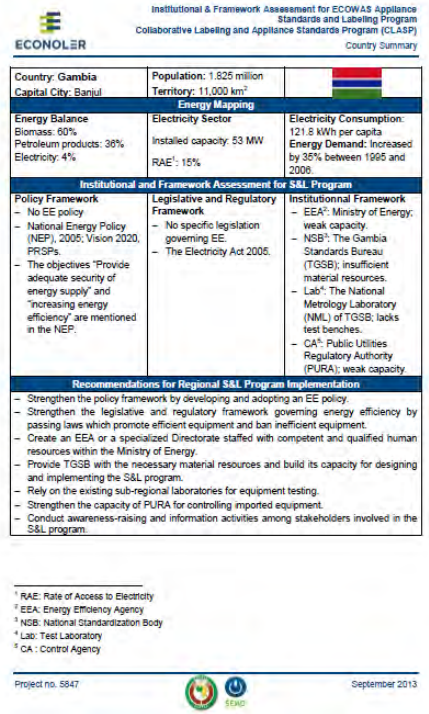
National Institutional Capacity



National Institutional Capacity

Energy Efficiency Agencies

- Only Benin, Ghana and Senegal have a fully-operational agency dedicated to EE. Elsewhere, it is often one of the many missions of the Directorate of Energy.
- Capacity varies significantly, but in general budget and human resources are insufficient.
- Countries where S&L is already in place have mobilized a significant volume of financial resources.



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Institutional & Framework Assessement for ECOWAS Appliance Standards and Labeling Program
Collaborative Labeling and Appliance Standards Program (CLASP)
Country Summary

Country: Gambia **Capital City:** Banjul	**Population:** 1.825 million **Territory:** 11,000 km²	
Energy Mapping		
Energy Balance Biomass: 60% Petroleum products: 36% Electricity: 4%	**Electricity Sector** Installed capacity: 53 MW RAE[1]: 15%	**Electricity Consumption:** 121.8 kWh per capita **Energy Demand:** Increased by 35% between 1995 and 2006
Institutional and Framework Assessment for S&L Program		
Policy Framework – No EE policy – National Energy Policy (NEP), 2005; Vision 2020, PRSPs. – The objectives "Provide adequate security of energy supply" and "increasing energy efficiency" are mentioned in the NEP.	**Legislative and Regulatory Framework** – No specific legislation governing EE. – The Electricity Act 2005.	**Institutionnal Framework** – EEA[2]: Ministry of Energy; weak capacity. – NSB[3]: The Gambia Standards Bureau (TGSB); insufficient material resources. – Lab[4]: The National Metrology Laboratory (NML) of TGSB; lacks test benches. – CA[5]: Public Utilities Regulatory Authority (PURA); weak capacity
Recommendations for Regional S&L Program Implementation		
– Strengthen the policy framework by developing and adopting an EE policy. – Strengthen the legislative and regulatory framework governing energy efficiency by passing laws which promote efficient equipment and ban inefficient equipment. – Create an EEA or a specialized Directorate staffed with competent and qualified human resources within the Ministry of Energy. – Provide TGSB with the necessary material resources and build its capacity for designing and implementing the S&L program. – Rely on the existing sub-regional laboratories for equipment testing. – Strengthen the capacity of PURA for controlling imported equipment. – Conduct awareness-raising and information activities among stakeholders involved in the S&L program.		

[1] RAE: Rate of Access to Electricity
[2] EEA: Energy Efficiency Agency
[3] NSB: National Standardization Body
[4] Lab: Test Laboratory
[5] CA : Control Agency

Project no. 5847 — September 2013

National Institutional Capacity

National Standardization Bodies

- All but Cape Verde and Guinea-Bissau are members of ISO
- Countries where significant standards activities have taken place: Benin, Côte d'Ivoire, Ghana, Mali, Nigeria, Senegal
- General lack of experience with electric appliances EE standards

National Institutional Capacity

Test Laboratories

- At the moment, facilities exist only for lighting within ECOWAS (Senegal, Ghana, Nigeria, Burkina Faso) and some need new equipment.
- Lab for refrigerators and air conditioning should be installed in Ghana in the near future.

National Institutional Capacity

Customs and Trade Inspectorates:

- Customs are generally functional, despite having no experience in control of EE standards.
- Some countries already inspect products at point of retail (e.g. Benin, Côte d'Ivoire and Ghana). Requires investment to hire new teams of inspectors for most countries.

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Questions?

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