



The ECOWAS “Alliance for High Performance Distribution of Electricity”



**WAPP-ECREEE presentation to the ECOWAS
Standards and Labels Technical Committee**



Cotonou, 1 October 2013



ECOWAS policy context

- “ ECOWAS Energy Protocol (Article 43):
 - . foundation for regional cooperation on energy efficiency

- “ ECOWAS Energy Efficiency Policy
 - . Ministers adopt: Accra, October 2012
 - . Heads of State and Government: !! date
 - . Comprises 5 initiatives, including:
 - "Alliance for High Efficiency in Electricity Distribution"

- “ Complementary WAPP and ECREEE mandates

- “ ECREEE-WAPP *MOU*
 - . Includes energy efficiency and the Initiative on Distribution



ECOWAS

Energy Efficiency Policy

- “ Main objective
 - . Double annual improvement in energy efficiency by 2020, to levels comparable to world leaders
- “ Six specific targets have been defined
- “ Five initiatives on: *Lighting; Standards & Labels; Cooking; Electricity Distribution; Buildings*



Specific targets

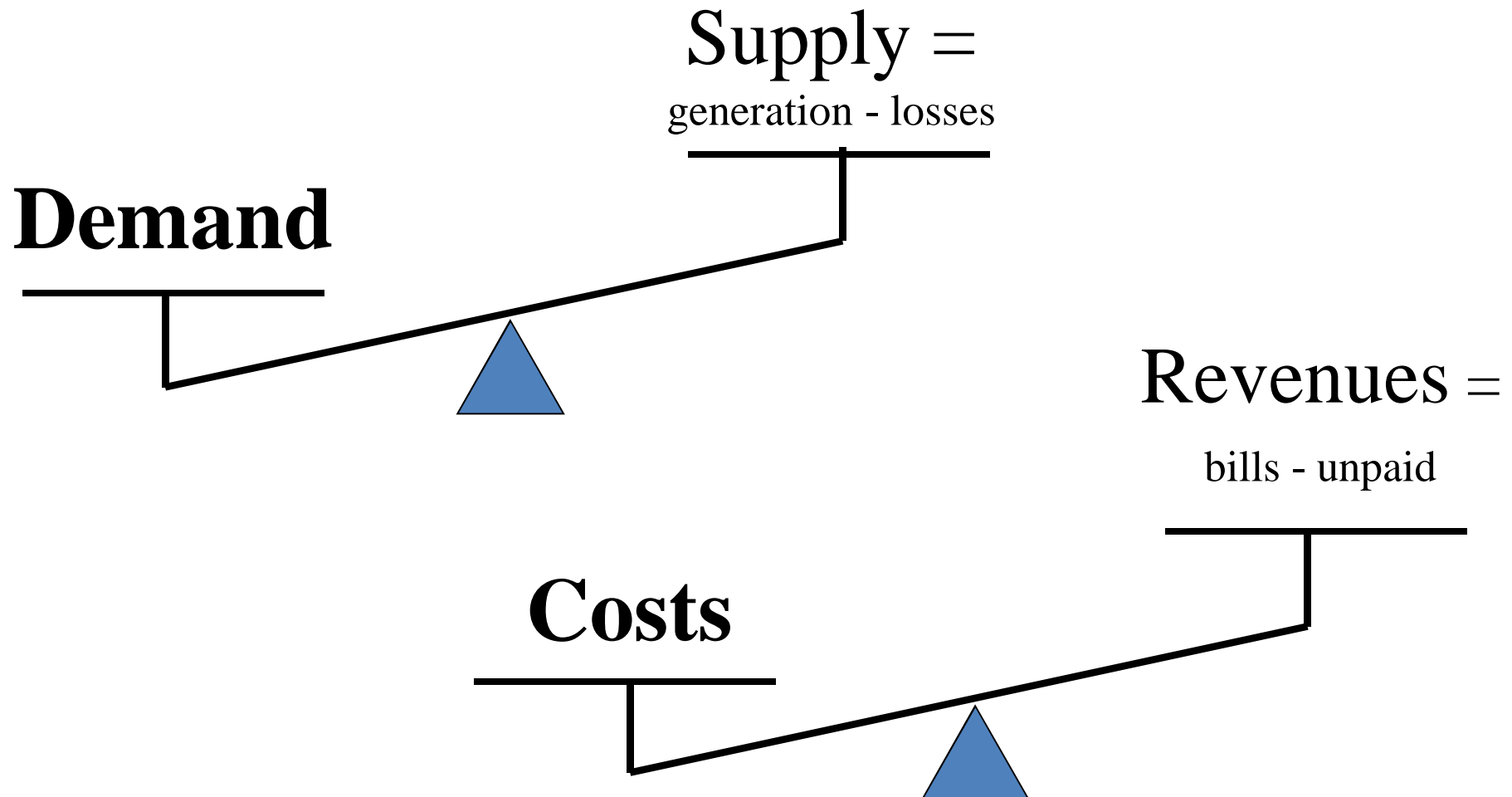
- “ Phase out inefficient incandescent lamps by 2020
- “ **Reduce average losses in electricity distribution from the current levels of 15 - 40% to below 10%**
- “ Achieve universal access to safe, clean , affordable , efficient and sustainable cooking for entire ECOWAS population by 2030
- “ Establish an ECOWAS technical committee for Energy Efficiency Standards and Labels; adopt initial region wide standards for lighting by 2014
- “ Improve energy efficiency in buildings

Alliance for High Performance Distribution of Electricity

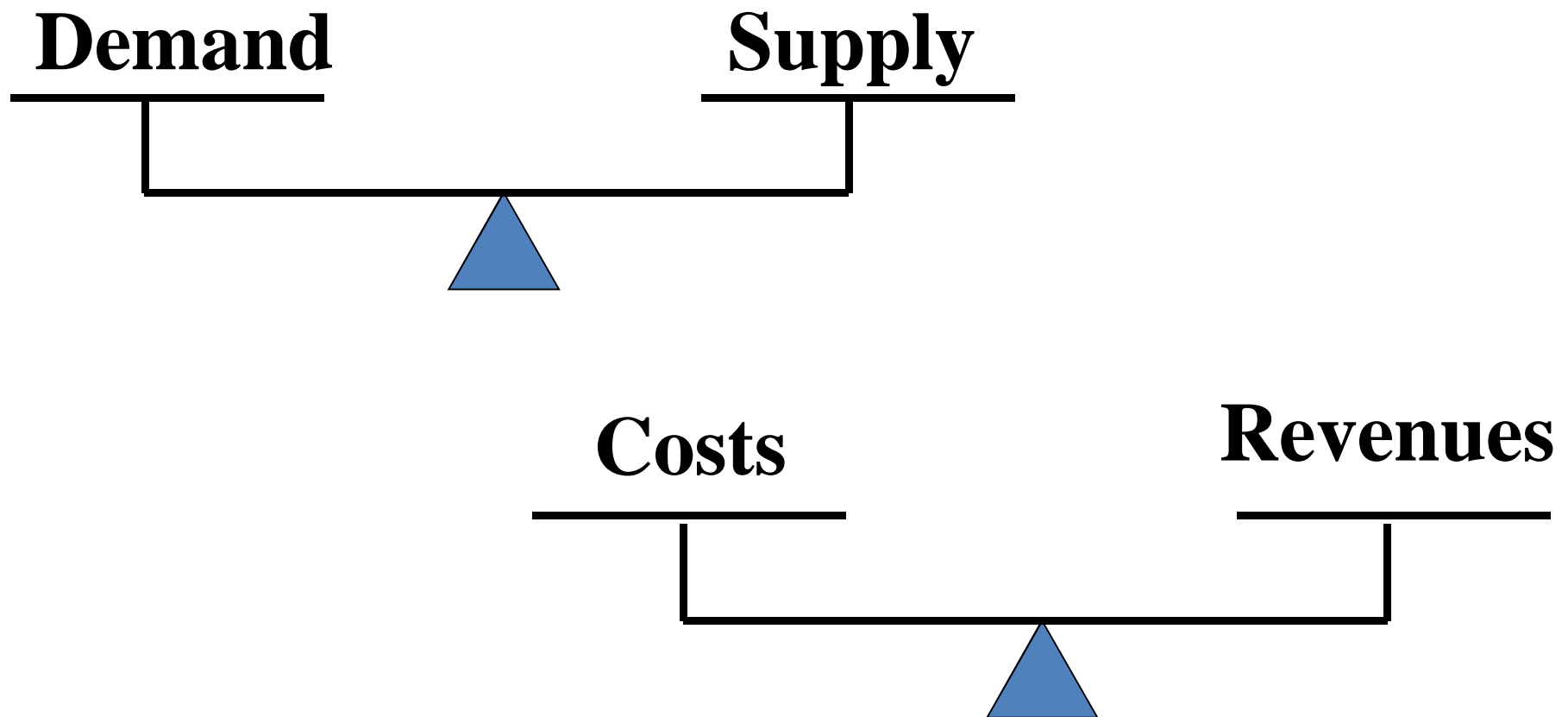


- “ Free 2000 MW of power generation capacity
- “ Reduce GHG emissions by about 3 MT eqCO₂

How can utilities go from the double crisis Å



Å to a double equilibrium?



Technical and commercial losses: 15% to 40%

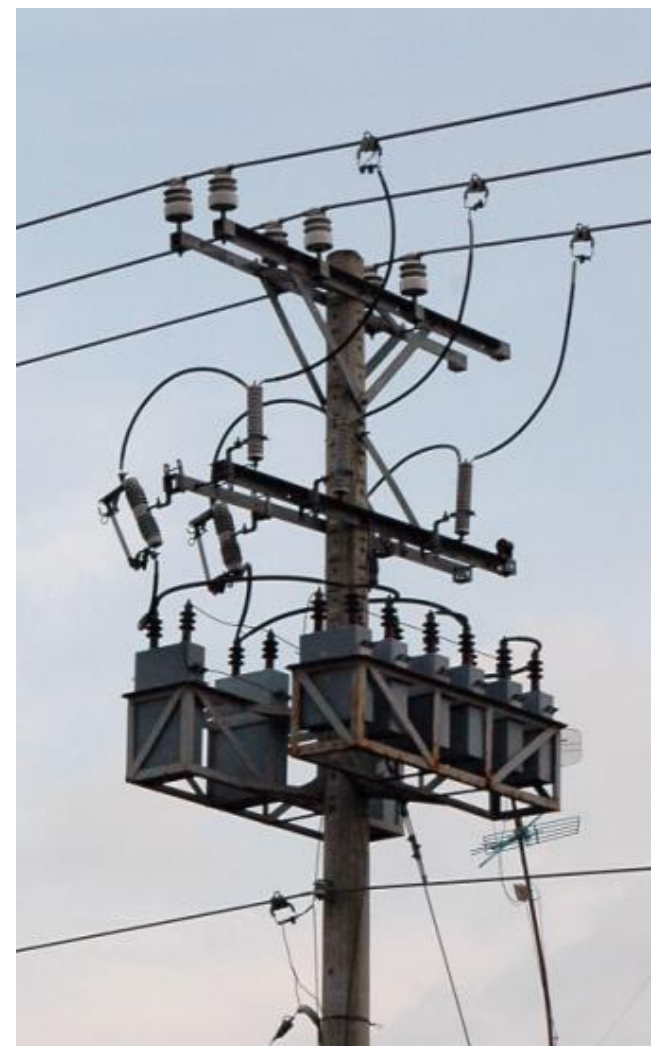


“ Physical losses:

- . Due to inefficient or undersized lines and transformers
- ***Wasted power is unavailable to serve customers***

“ Commercial losses

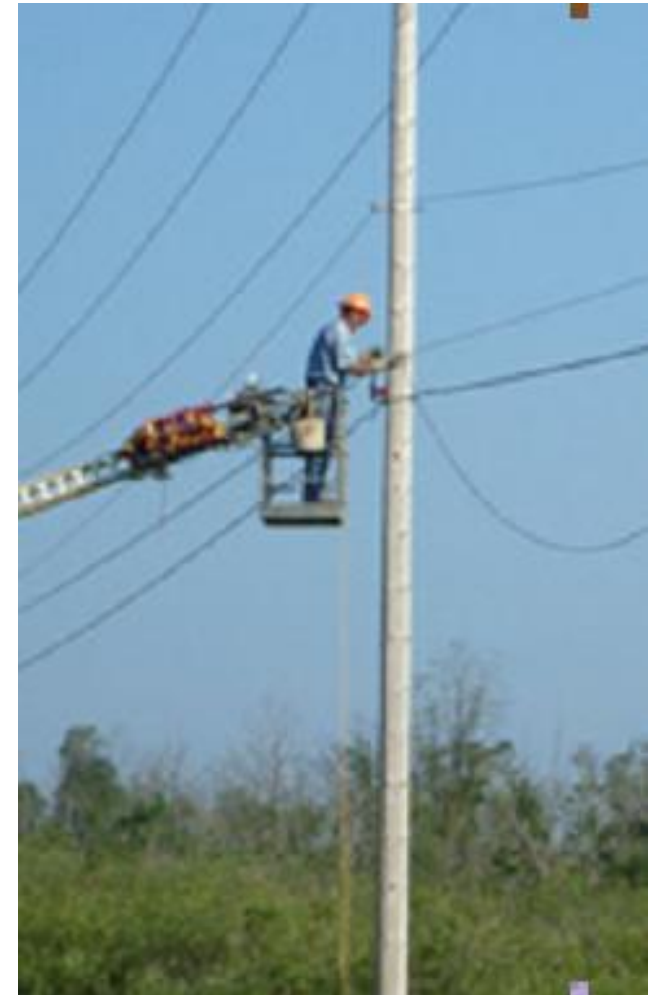
- . Theft from dangerous, illegal connections
- . Unpaid bills, often from public entities
- ***Lost revenues are unavailable to pay operating costs and investment for grid extension***





Reducing technical losses

- “ Correctly sizing infrastructure . lines, transformers . to meet growing demand
- “ Power factor correction
- “ Using high efficiency, modern equipment
- “ Preventive maintenance to improve reliability



Reducing commercial losses



Technical solutions:

- . High voltage distribution systems: make theft difficult
- . Pre-paid meters: help consumers control use



Organisational solutions

- . Regular reading of meters
- . Rapid billing
- . Better customer relations



Initiative partners

- “ WAPP-ECREEE leadership
- “ Copper industry
- “ Manufacturers of power system equipment
 - . contacts with ABB, Siemens, Schneider Electric, Legrand
- “ Development partners
 - . ADEME, Austrian Energy Agency
 - . Contacts with GIZ/KfW, EC/EIB, AFD, World Bank



Initiative first steps: Establish a baseline

- “ **Study** performed by KEMA on electricity tariffs in several African countries.
 - . organized by ECI jointly with ECREEE.
 - . covers 5 countries, including Ghana , Cape Verde and Senegal

- “ **Survey** organized by ECREEE to collect additional data: responses from 14 countries

- “ **Expand** Kema study to all ECOWAS countries



KEMA study: objectives

- “ Review the tariff structures
- “ Assess the financial situation of the power companies
- “ Recommendations to achieve financial viability.



KEMA: conclusions

- “ Strong growth in demand of electricity
 - . Current low level of electrification
 - . Strong economic growth

 - “ Level of technical and non technical losses is very high
 - . Can be reduced realistically down to 10%
- Loss reduction is key factor to achieve sustainability.**



KEMA: Sustainability

| | Cape Verde | Ghana | Senegal |
|--|--------------|--------------|--------------|
| Scenario 1 : current Network losses | | | |
| Network losses | 26,1% | 27% | 22,1% |
| ROC | -10,5% | 2,4% | -0,1% |
| Tariff Increase for 10% ROC | 21,6% | 13,2% | 8,5% |
| Scenario 2: Network losses at 12% | | | |
| Network losses | 12% | 12% | 12% |
| ROC | 2,9% | 11% | 11,9% |
| Tariff increase for 10% ROC | 7,5% | -1,8% | -1,6% |



KEMA: Recommendations on losses

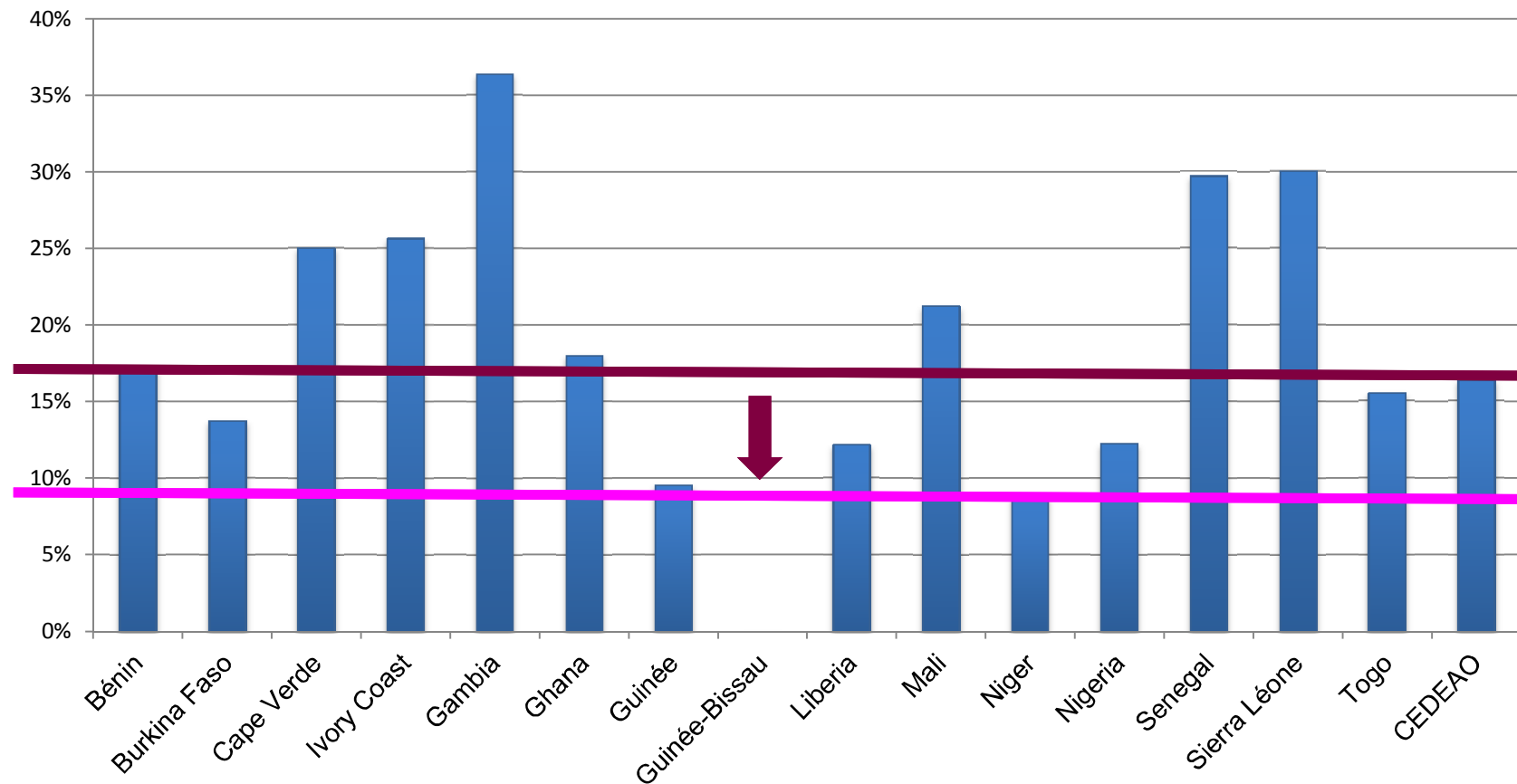
- “ Technical losses:
 - . sufficient capacity, high quality equipment,
 - . voltage level choice and control,
 - . network maintenance,
 - . monitoring of the network and constant improvements

- “ Non technical losses
 - . metering accuracy and coverage
 - . revenue collection
 - . regularise illegal connections
 - . customer education
 - . application of targeted tariff schemes

ECREEE data collection: Overview of total energy losses



Total losses in the Transmission and distribution



Standards and Labels for Distribution Equipment



- “ Increase performance of power systems
- “ Lower purchase cost of equipment
- “ Facilitate emergence of manufacturing for a large, integrated regional market.



Pole transformers

- “ Highest short term impact
- “ Potential savings amount to about 1TWh/year
- “ Savings to consumers of about 150 Meuros/year.
- “ Need to work with equipment manufacturers.



Next steps

- “ Establish Working Group within the SLTC, on Distribution equipment, focusing on transformers
- “ Invite experts
 - . ECOWAS distribution companies
 - . Equipment manufacturers