Commercial Frameworks for Energy Investment in West Africa

September 8-9, 2008

Labadi Beach Hotel

Accra, Ghana

Objective and Target Audiences

- Capacity building & soliciting real ideas for implementable strategies and tasks

Targets:

- West African Elected Officials,
- Key News Media
- Long-term Professional Staff for National & Regional Bodies

Background to this Workshop

- Numerous workshops, seminars and publications in Ghana and Nigeria since 2004
- Greater focus on WAGP and WAPP since late 2006: *"what will make the Natural Gas Marketplace in the Sub-region work?"*
  - February 2007 Abuja & July 2007 Accra
  - Over 100 delegates from Nigeria, Togo, Benin, Ghana
  - From industry, financial institutions, ministries, government departments & agencies, legislature, academia, consumer associations, development partners & private sector
- *A communiqué was issued from Accra*

Accra 2007: Barriers to Sustained Investments

Three major barriers:

- Inadequate tariffs
- Weak sector institutions – utilities & regulators
- Insufficient government attention and investment

Recommendations – Short Term

- An objective and effective consumer communication strategy – economic tariffs and corresponding service
- Independent generation of electricity and resale into the market – for fast expansion of generation capacity & increase the size of the secondary gas market

Recommendations – Medium Term

- Roles & responsibilities of sector institutions needs clearer definition for efficiency & effectiveness
- Institutions must be resourced - human, material and authority
- Institutional performance – benchmarked for accountability
- Utilities must be corporatized & recapitalized if tariff increases are to result in quality of service
- Need for long-term strategies for service quality and resource mobilization

Recommendations – Long Term

- New laws - mandating agency performance reviews, periodic review and rationalization of roles and responsibilities
- Need for strategic plan (including monitoring mechanisms) by assigned sector agencies - ensure implementation, accountability & consumer and stakeholder “buy-in”
- Need for study of sub-regional tariff structure aimed at harmonization and cost optimization

Observations/Concerns

- Countries did not seem ready for WAGP gas
- Commercial negotiations with gas producers needed to take place for additional volumes
- Need to fast track approach to put in place above systems to bolster investor confidence
- Governments must take immediate steps to ensure completion of WAGP without further delays
- Energy crises can set back sub-regional efforts
- Irrespective of model basic economic principles must be followed to ensure viability and sustainability

Abuja, May 2008

- Do we "really" understand the issues at stake and its implications for us individually, nationally, sub-regionally?
- Do the different stakeholders and levels of leadership understand the issues and if not how can we communicate it better?
- We seem to know the technical answers but why is there no action?
- How can we in our different roles contribute to the solution?
- How can initiatives such as these support our individual and institutional efforts?

Additional Issues for Discussion

- Specific questions related to WAGP deliveries and timing – broader implications for national/regional strategies
  - Solutions going forward (encouragement/pressure from purchasing countries; east-west pipe connection in Nigeria built as soon as possible to allow other producers to compete)
    - ***How to achieve WAGPA's targets for solutions?***
  - How to best address in future workshop agendas "report card"
  - Level of preparedness for receiving markets

Additional Issues…

- Numerous energy challenges in sub-region, especially energy costs/prices
  - Best alternatives for discussion and shared solutions
- Role of news media – how to increase awareness and commitment for high integrity coverage of energy situation
  - How to build technical knowledge in news organizations, recruit young journalists with technical backgrounds
  - How to develop, expand professional integrity – provide "common forum" for informing all stakeholders
  - Long term development of capacity; example of specialized associations (financial journalism) to improve reporting; example of specialized reporting
  - Importance of engaging with news media

Additional Issues…

- Strengthening institutions
  - Authority, funding, enforcement for national/regional regulatory bodies
  - Staffing and turnover
  - Status of authorities in Togo, Benin; interactions with Nigeria, Ghana
- How to close "loopholes"
  - Regional regulation for gas
  - Role of ECOWAS proposed regional electricity authority

Additional Issues…

- Role of elected bodies
  - How to improve/expand communication, engagement between legislative, executive branches (eg., gaps in WAGP agreements for enforcement)
  - Importance for regulators of relationship with elected bodies – provision of technical information, advice to elected bodies
- Question of technical staff for elected bodies and regulators; capacity building, turnover/retention
  - UT/NARUC info on staff development
  - Specific challenge of retaining trained public sector professionals: commitment to public service, appropriate rewards and incentives
  - Focus on long term training, labor competition across countries, domestic higher education and degree choices
  - For elected bodies – specific staff for select committees

Additional Issues…

- WAPG, WAPP and level of regional preparedness
  - Funding for generation – investment promotion authorities?
  - Vision for WAPP to include regional standards for contracting, procurement, etc

WAGP Delays

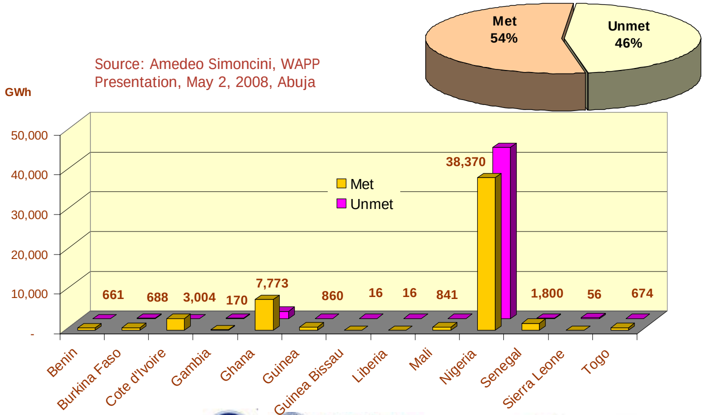
- Only up to 60 MMcfd can be shipped as free flow. This shortage is caused mainly by
  - the lack of investment (tiered pricing of the Gas Master Plan).
  - the disconnect between eastern and western pipeline networks in Nigeria.
  - the increased demand for gas in Nigeria (primarily for power generation).
  - the increased demand for gas in LNG exports.
- The gas that is available is wetter than the gas that can be shipped via the WAGP under contract terms.
- Even if there was sufficient gas to meet foundation volumes, the compressor station will not be ready until March 2009.
- Lack of security in Niger Delta.

WAGP Development Issues – Scorecard

Issue	Comment
Gas availability	Improving economic environment for investors (pricing in NG, security in Niger Delta)
Gas specifications	Shell to provide gas processing facilities
Volume of free flow gas	NGC to increase pressure in ELP
Limitation of the pipeline capacity	WAPCO to add one more compressor
Security of the pipeline	Offshore Damage Prevention Program
Deadline completion date	Agreement on a new completion deadline with provisions for compliance
Funding of the WAGP Authority	Review of WAGPA charge for full compression; Set WAGPA charge for free flow gas

ECOWAS Demand-Supply Balance

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja

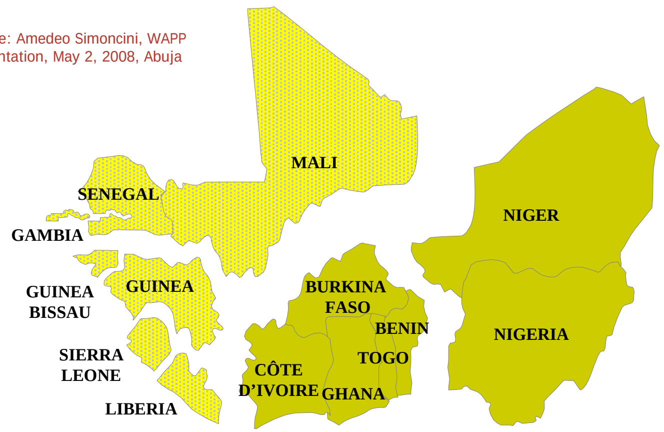


THE CHALLENGE:
Integrating Fragmented National Power Systems

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja

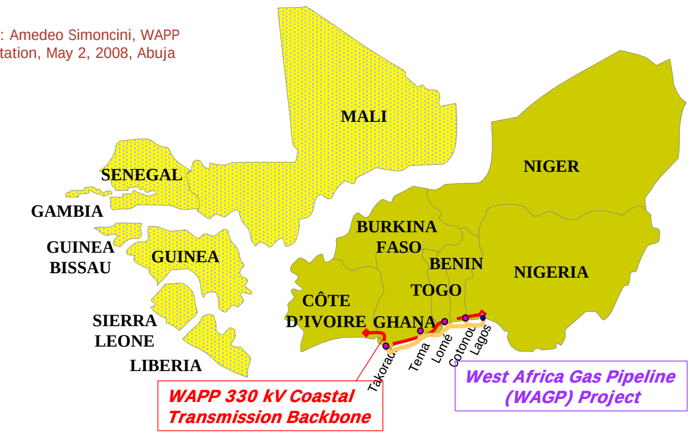
Interconnected Countries 2006

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



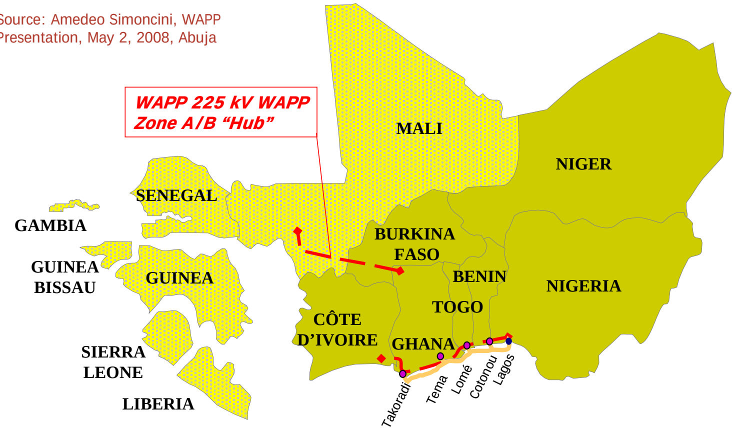
Interconnected Countries 2007

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



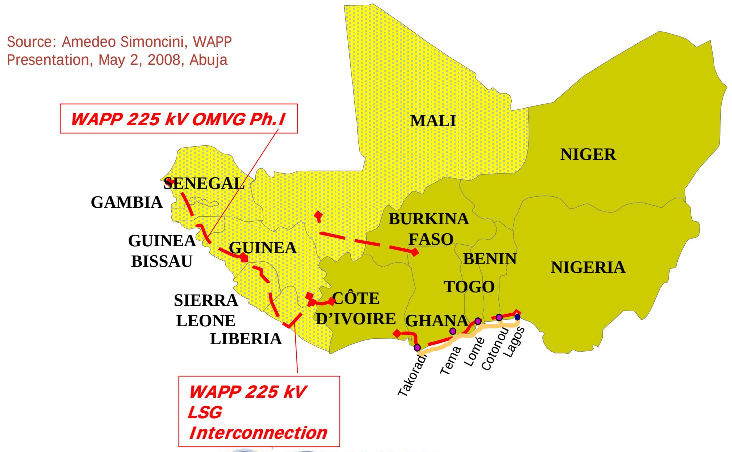
Interconnected Countries 2010

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



Interconnected Countries 2011-12

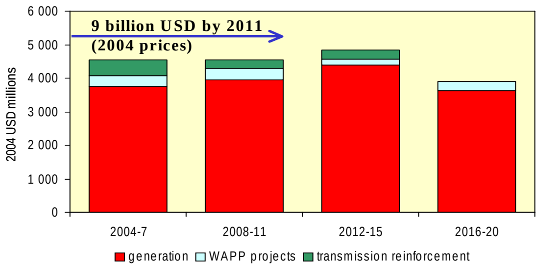
Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



Investment Requirements

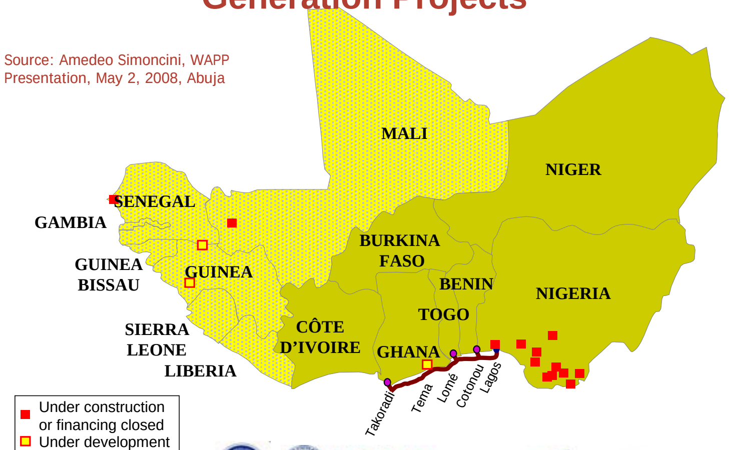
Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja

Overall Generation and Transmission Investment Requirements



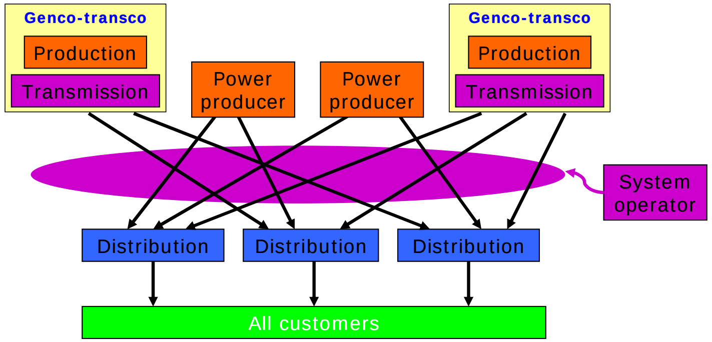
Regional Energy Development: Generation Projects

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



Creation of WAPP Electricity Market: Medium Term Objective (2011)

Source: Amedeo Simoncini, WAPP Presentation, May 2, 2008, Abuja



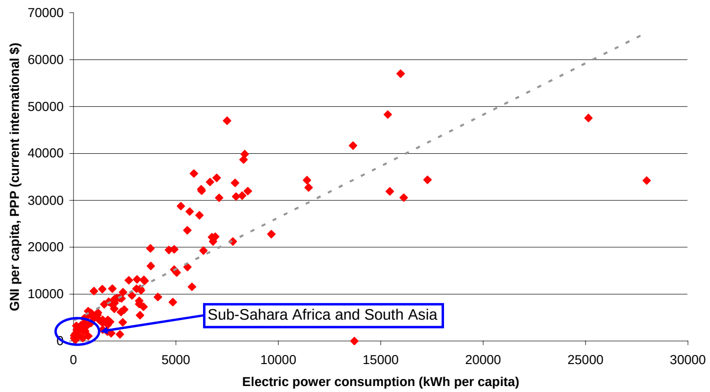
WAPP Development Issues - Scorecard

- WAPP Operations Manual is developed
- A draft methodology on WAPP transmission tariff has been developed
- ECOWAS Regional Electricity Sector Regulatory Authority is proposed
- Many feasibility studies underway
- Funds raised from various sources
  - KEPCO is working on Information and Coordination Center
- Yet, there are delays in financing some projects

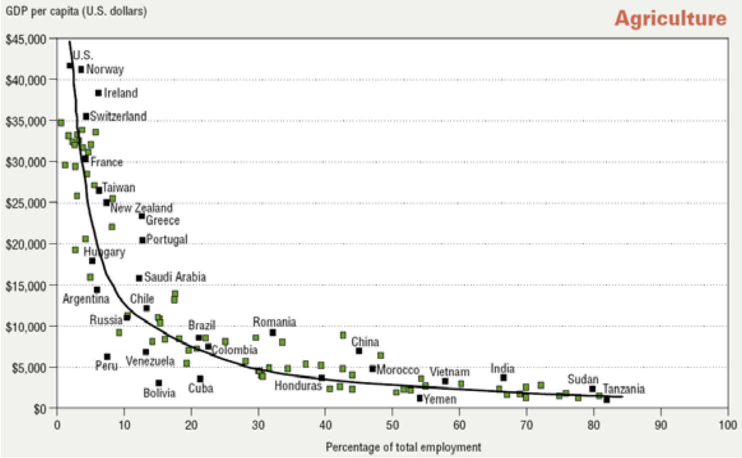
West African Energy Security Report

Energy and Development

Electric Power Consumption vs Gross National Income, per capita (2005, selected countries)



Energy and Development



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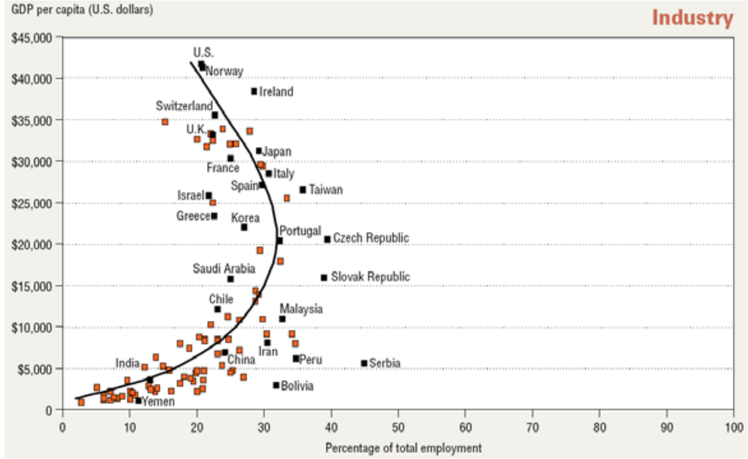
Energy and Development



Federal Reserve Bank of Dallas, 2008 Annual Report

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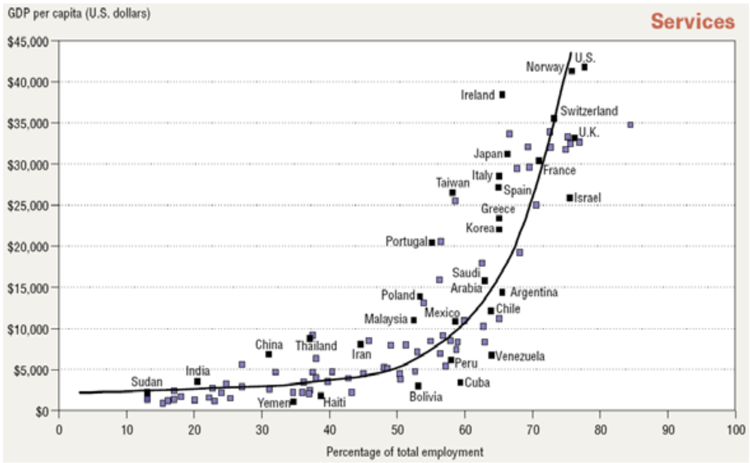

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Energy Security

- Energy is essential for economic growth and improving standard of living
- High prices add to the cost
- Availability of resources – domestic v imports
- Environmental impact of energy production and consumption

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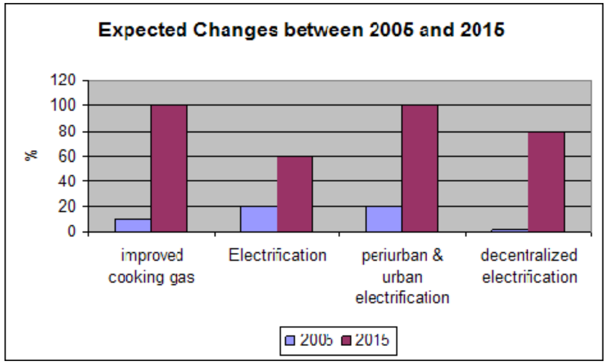
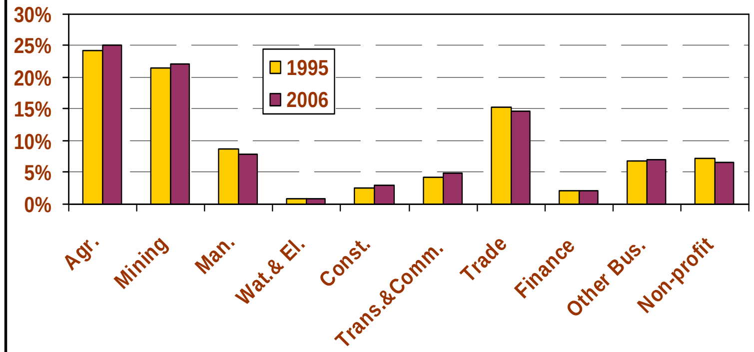
ECOWAS Vision

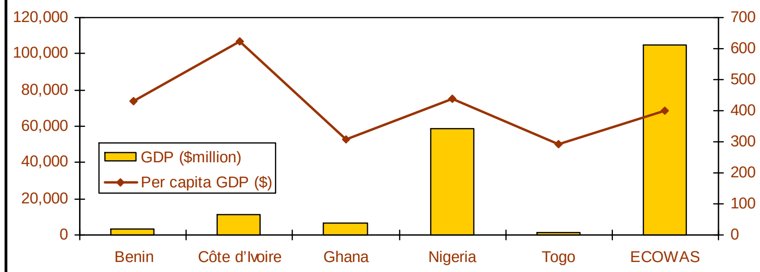


ECOWAS Economy



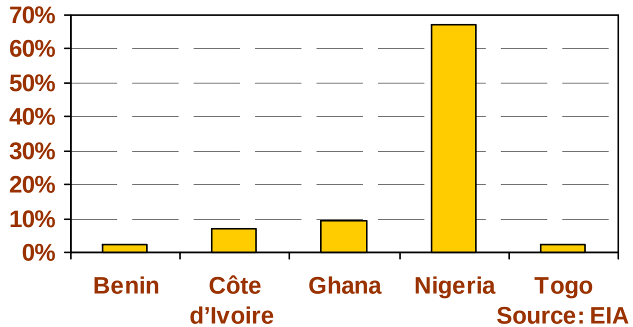
Source: Derived from http://www.ecostat.org/en/National-Accounts/ECOWAS_NAFinalReport.pdf

Economic Output



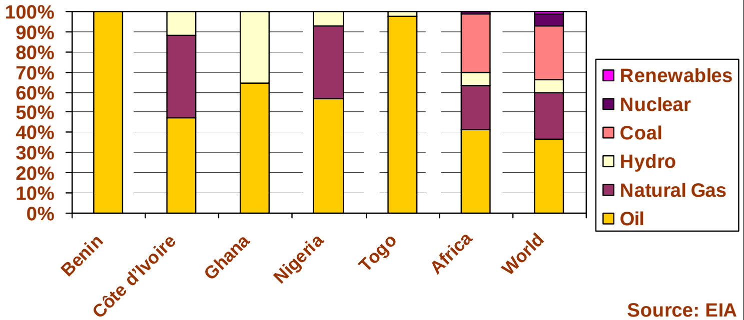
Source: Derived from http://www.ecostat.org/en/National-Accounts/ECOWAS_NAFinalReport.pdf

Share of ECOWAS Energy Consumption



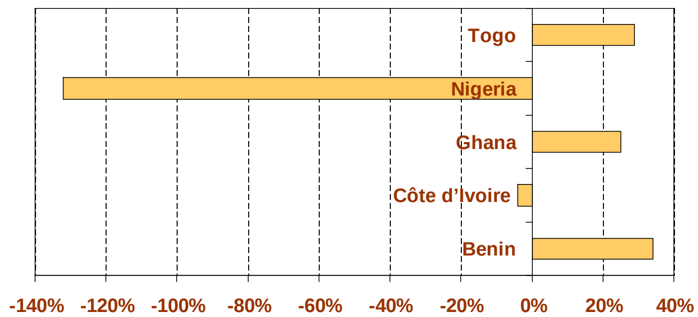
Source: EIA

Commercial Energy Consumption Mix, 2005



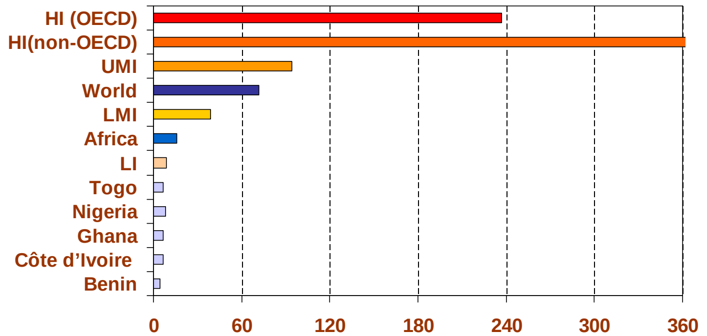
Source: EIA

Share of Net Imports, 2004



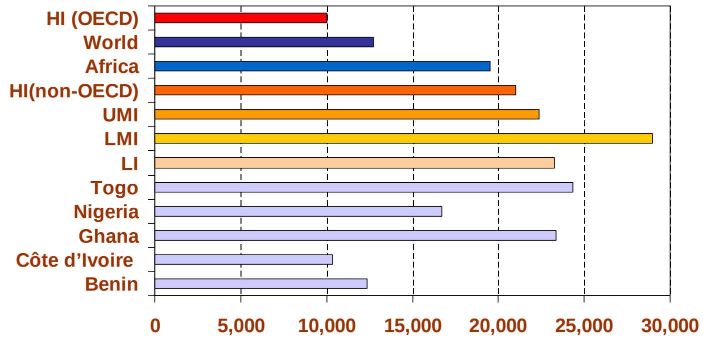
Source: World Development Indicators, 2007

Annual Consumption per Capita, 2005



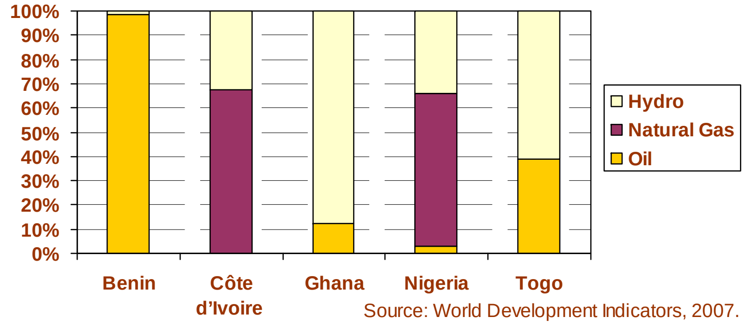
Source: EIA

Energy Intensity (Btu per $GDP), 2005



Source: EIA

Generation by Fuel, 2004



Source: World Development Indicators, 2007.

Issues

- Seasonal fluctuations and unexpected weather patterns increase the risk to the availability of electricity
- Risks are compounded because regional trade is limited (hence the importance of WAPP)
- But trade will not help unless
  - Additional capacity is built
  - System losses are reduced significantly

Investment Challenges

- $19 billion (mostly generation) between 2004 and 2020 v ECOWAS GDP of $100 billion
- The service quality has been poor ➔ self-generation, non-payment and theft of electricity
- Under these conditions, it is difficult to address a key concern for investors (and state utilities): inadequacy of electricity tariffs.
- As regulatory agencies, tasked and empowered to set tariffs, implement gradual increases to allow cost recovery, they need
  - the support of governments and
  - to work hand in hand with the utilities to improve service quality so that the customers will see the advantage of paying their bills regularly.

Alternatives

- Much focus has been on gas but alternatives such as imported LNG or coal can be considered for mid to long-term
- Regional resources of oil, gas, coal, biomass, hydro can be better identified and their development can be encouraged
- Given large rural populations, solar, wind and other small-scale renewables can be useful