

ADB FINESSE Africa Program



Background Assessment for Review of ADB's Energy Policy

Major Challenges Facing The African Energy Sector

by

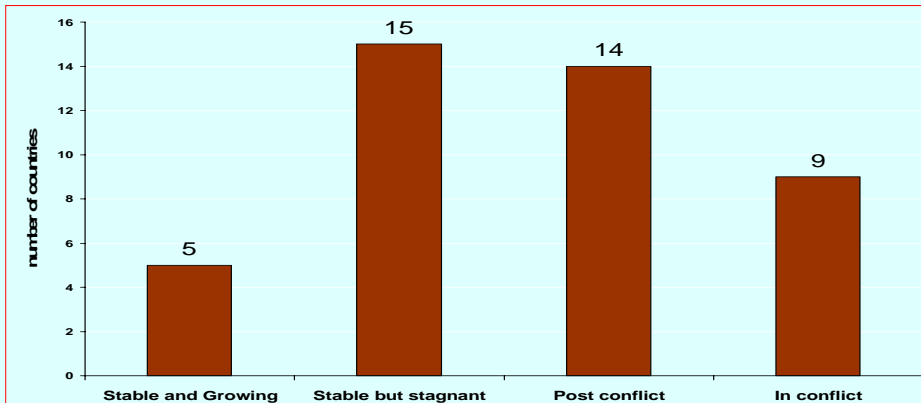
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Outline

- Brief Overview of African Energy Sector
- Key Challenges Facing the Energy Sector in Africa
- Emerging Developments in the Energy Sector
- Priorities of Regional Member Countries of the African Development Bank (ADB)
- Next Step with Development of Draft Energy Policy/Strategy for ADB

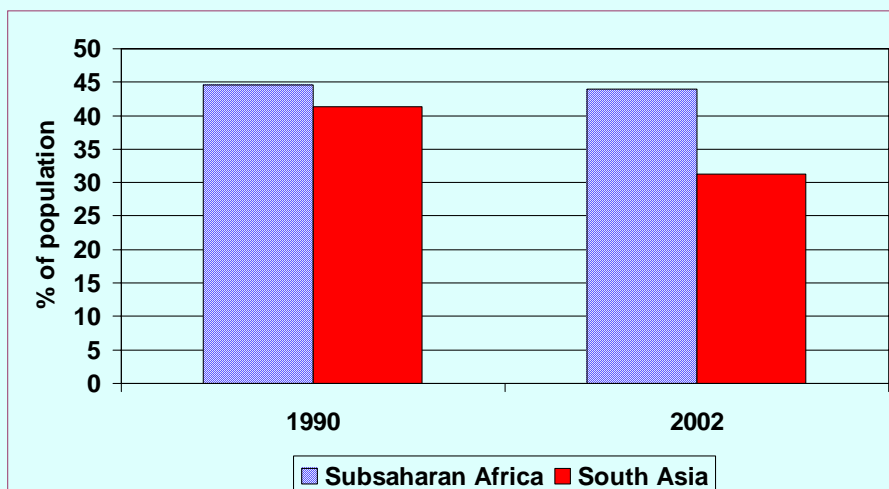
African Countries – Conflict/Risk Reducing

- Region has large number of post conflict & in-conflict countries – high risk rating and difficult to raise investment finance for energy projects
- According to S&P ratings, there is very limited power sector investment when country credit falls below “CCC” - private sector investment reduces to a trickle
- Stable & rapidly growing economies – Mauritius, Botswana, Namibia, S. Africa and Tunisia
- More than 12 democratic peaceful changes of Government –important indicator of increasing political stability



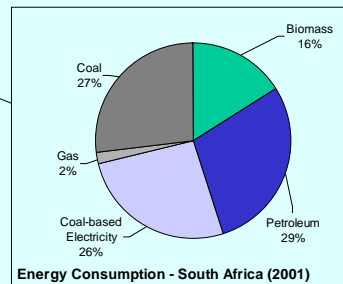
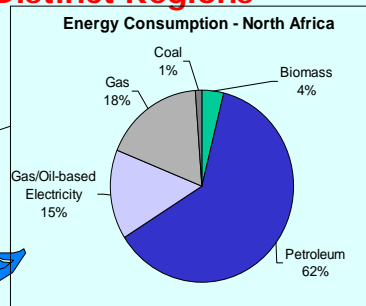
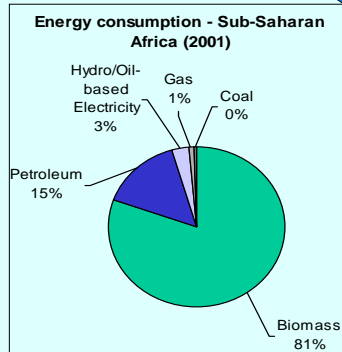
Poverty – Population Living Under \$1/Day Still High in sub-Saharan Africa

Over last 4 years – average GDP growth in SSA > population growth rate
(Higher world prices for commodities; Debt Relief; and Increased Aid Flows)



African Energy Sector – 3 Distinct Regions

- North Africa – oil and gas sub-region
- South Africa – coal sub-region
- Sub-Saharan Africa – biomass region

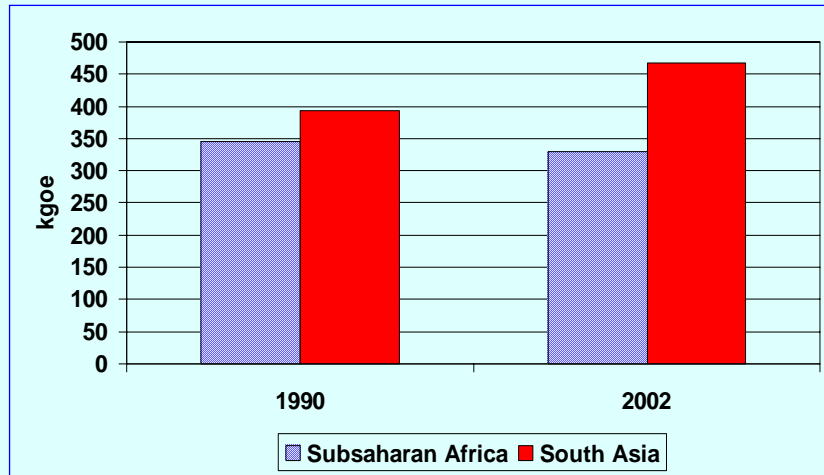


Key Energy Challenges Facing Africa

- ❏ Modern energy consumption on a per capita basis is declining
- ❏ Low electrification level & very slow increase in number of connections – lower than population growth in most sub-Saharan African countries
- ❏ Generation capacity shortfalls
- ❏ Limited success of power sector reforms
- ❏ For oil-importing African countries, high & volatile oil prices resulting in balance of payments problems
- ❏ Limited deployment of renewable and energy efficiency options

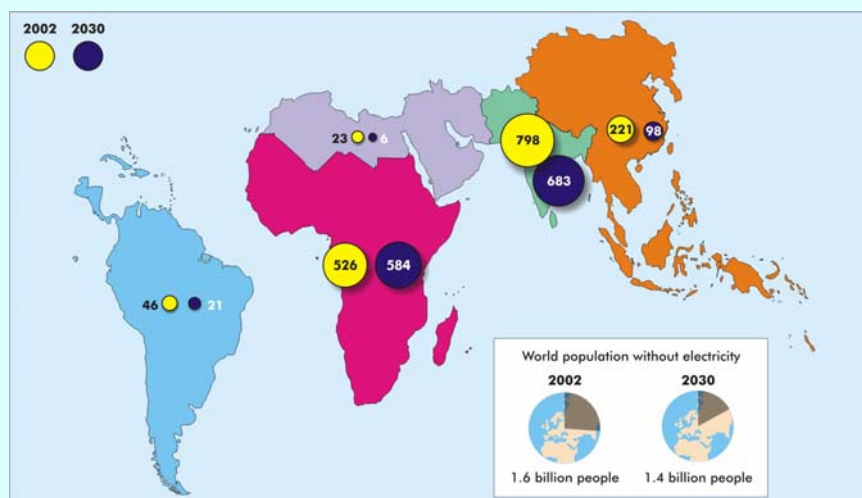
Modern Energy Consumption Per Capita Declining in sub-Saharan Africa

Some successes – Botswana, Senegal, Mauritius, Ghana, Tunisia, Libya, Algeria, Namibia & S. Africa



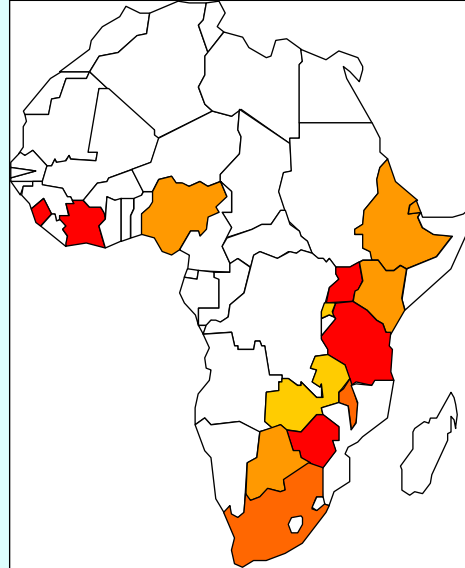
Population With No Electricity (Millions)

A few successes (Ghana, Seychelles, Mauritius, S. Africa, Tunisia, Libya, Algeria & Zimbabwe)

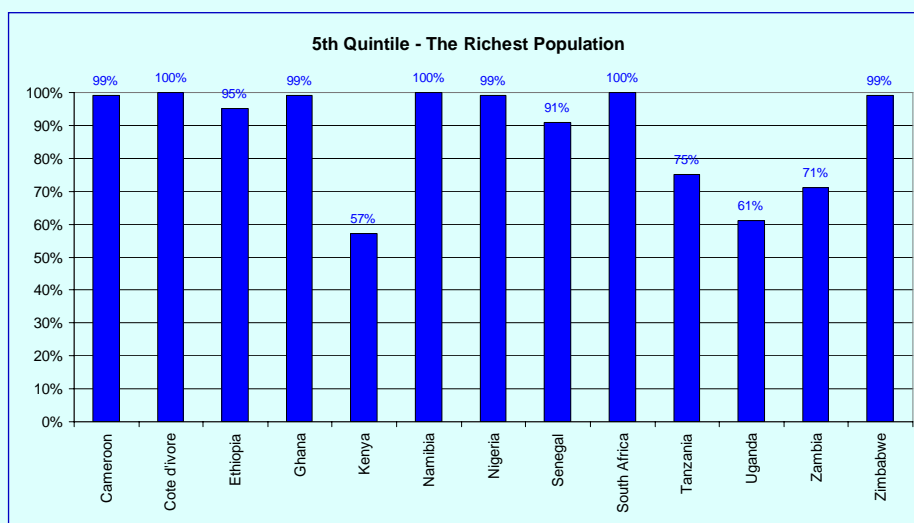


Generation Capacity Shortfall: Reported Power Crises in Africa

- **Ongoing:** Uganda, Tanzania, Rwanda, Ghana, Zimbabwe, Sierra Leone, and Liberia
- Close to 30 countries facing major power problems
- **Resent Past:** Kenya, Malawi, Ethiopia, Eritrea, Zambia, Nigeria and Tanzania
- **Looming power crises:** Kenya, South Africa, Botswana and Malawi.

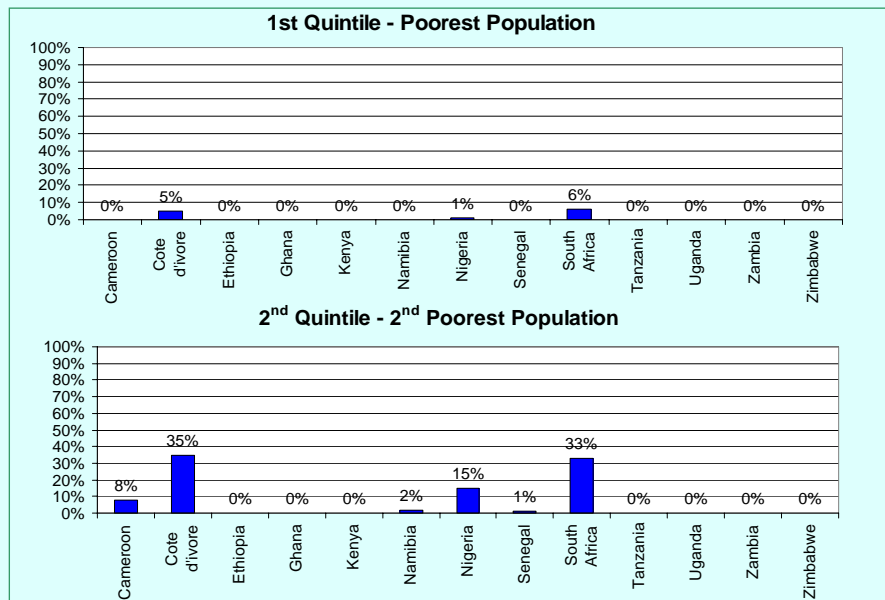


Limited Success of Power Sector Reforms: After 15 Years of Power Sector Reform: Access to Electricity – Top 20%



Source: Estache, 2005

After 15 Years of Power Sector Reform Access to Electricity – Bottom 40%

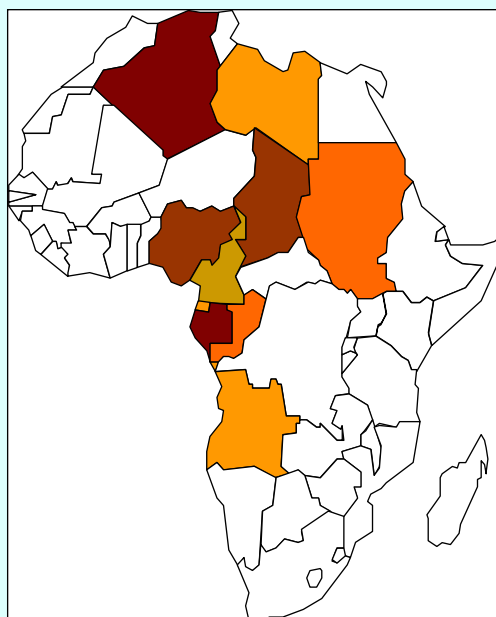


Source: Estache, 2005

Most African Countries Import Oil

- In 2005, there were 39 net oil-importers and 10 net oil-exporters
- Significant oil exporters rely on imported refined oil products
- Growing share of exports used to import oil

Country	%
Eritrea	52
Zimbabwe	31
Senegal	25
Tanzania	20
Uganda	17
Madagascar	17



Limited Deployment of Cleaner Energy Options

Need for Better Mix Between Conventional & Cleaner Energy Options

- Higher proportion of funding allocated to large-scale conventional energy investments
- Smaller scale and medium scale cleaner energy options given limited attention
- Results – contributes to low levels of access to modern energy which, in turn, contribute to increased poverty



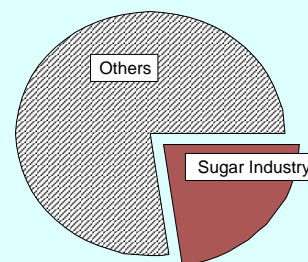
A few Successes of Cleaner Energy Initiatives in Africa

- Improved cookstoves in Kenya: Over 80% in use in urban households and 30% institutional stoves
- LPG
 - ☐ Senegal: Over 90% of households in Dakar use LPG
 - ☐ Sudan: 100% increase in consumption
- Effective management of power utility – CEB: Turnaround of state-owned utility to profitability + 100% electrification coverage

Co-generation in Mauritius

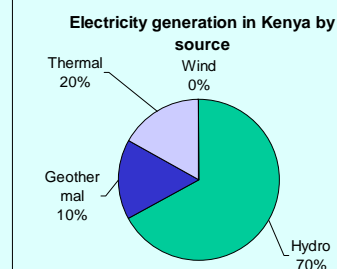
- Successful in Mauritius (40% of power supply of which 25% bagasse)
- Equitable sharing of revenue from cogeneration ensures even smallest low-income farmer gets a portion of revenue
- Substantial potential in agro-based industries, e.g. sugar, paper and pulp, wood and rice industries
- Promising developments in Uganda, Kenya and Tanzania
- UNEP/GEF Regional co-generation initiative
- Could be replicated across all agro-industries
 - ☐ Wood/timber, pulp and paper
 - ☐ Coffee, tea, cocoa, tobacco, etc
- Important option as agriculture and agro-industries account for close to 50% of sub-Saharan Africa's GDP and over 70% of employment

Power Generation – Mauritius 2002



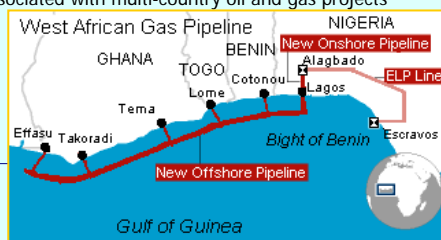
Geothermal in Kenya

- Significant potential – 3000MW – equivalent to twice current installed capacity
- Incremental development , from 45MW to 75MW to 121MW – 10% of current installed capacity
- Security of supply - 100% availability - not affected by climatic changes
- Cost competitive - least cost power development option for Kenya
- Technology development - Kenya offering technical support to neighboring countries
- Attractive heat applications & high job and enterprise creation potential
 - ☐ 10jobs/MW - Kenya's 3,000MW potential equals 30,000jobs



Emerging Developments in the African Energy Sector

- **Growing number of oil and gas discoveries**
 - ☐ Countries with new discoveries/undertaking exploration: Uganda, South Africa, Namibia, and Ethiopia
 - ☐ Key challenge – negotiation with multinationals & equitable sharing of revenue
- **Regional Oil and Gas Interconnections**
 - ☐ Substantial gas pipeline network in North Africa
 - ☐ Kenya-Uganda Oil Pipeline linking the two countries and possibly extend to other countries in Eastern Africa and Great Lakes region
 - ☐ West African Gas Pipeline linking Nigeria, Benin, Togo and Ghana
 - ☐ Kudu Gas Project mooted to supply electricity and gas to Namibia and South Africa
 - ☐ Tanzania-Zambia Pipeline
 - ☐ Mozambique – Zimbabwe Pipeline
 - ☐ Long-lead times associated with multi-country oil and gas projects



Regional Power Interconnections

- Interconnection in North Africa
- South African Power Pool (SAPP)
- Lesotho Highlands Water Project (LHWP): provide electricity and water to Lesotho and South Africa
- Bujagali Hydropower Dam in Uganda expected to supply electricity to East African countries
- East African Power Pool (EAPP)
- West African Power Pool (WAPP)
- Inga Hydro Dam Initiative



- Long-lead times associated with multi-country power projects & role of privatized entities in regional initiatives (as an Africa-wide agency, ADB well placed to promote multi-country power projects)

Background Assessment for Review of ADB's Energy Policy Interim Findings

Key Energy Priorities of Regional Member Countries of African Development Bank (ADB)

- ☐ Managing environmental impacts and promoting Renewable Energy and Energy Efficiency
- ☐ Improving energy access
- ☐ Enhancing security of supply
- ☐ Increasing investment in energy
- ☐ Capacity building
- ☐ Reforms
- ☐ Enhancing energy services to support rural development and agriculture

Most Common Energy Priorities of Regional institutions

- ☐ Managing the environment and promotion of REEES
- ☐ Increasing energy investments
- ☐ Enhancing security of supply
- ☐ Capacity building
- ☐ Regional interconnection & sub-regional cooperation,
- ☐ Enhanced research

No. of Countries, Regional and International Institutions Highlighting Similar Priority Areas			
Identified Priority	Number of Countries with the priority	No. of regional organizations with the priority	No. of international institutions with the priority
Enhance security of Supply	23	9	7
Managing Environmental Impacts and Promotion of Renewable Energy & Energy Efficiency Systems (REEES)	23	13	22
Improving Energy Access	23	8	5
Increasing investment in Energy	19	11	10
Enhancing Energy to support rural development and Agriculture	17	6	5
Capacity Building	17	15	9
Reforms	16	8	8
Enhanced research	16	11	7
Employment Creation	6	8	14
Oil/Petroleum Exploration	4	1	4
Gender and Energy	3	6	2
Regional Interconnection and Sub-regional cooperation	-	13	6

Next Steps

Consultation with Key Stakeholders in the African Energy Sector

Thank you for your attention