Energy and poverty

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World energy consumption (toe/capita)

- North America: 8.1
- Latin America: 1.0
- North Africa: 1.0
- Middle East: 2.7
- South East Asia: 1.0
- South Africa: 0.1
- North Africa: 2.7
- Europ & F.S.U: 4.1
- R. South Africa: 0.1
Commercial energy consumption and income in 2006

Source: AIE – Energy balances of OECD & Non OECD countries

S 112*2 – December 2008
Energy consumption in Africa

Source: BP Statistical Review
The energy divides

- Divide between Africa and the rest of the world (15% of world population for 3% of world energy consumption)

- Divide between North Africa-South Africa and the rest of Africa

- Divide between urban and rural areas: Urban areas look like energy spots
Introduction to Africa oil industry

Even though Africa, China and India have a comparable population profile, they show different oil industry patterns.

Two situations in Africa: Oil producing regions (North Africa, Gulf of Guinea) and NOPAC*

*Non Oil Producing African Countries
Africa: a strategic oil producer

- Africa's share in world production: 12.7%
- Oil exports (proportional flow)
- Regional share of the total continent’s production

North Africa:
- 49% of the production in North Africa
- 20% of the production in Nigeria

Gulf of Guinea:
- 24.6% of the production

Angola:
- A giant producer with production amounting 18.5% of the continent production
- 24.6% of the production in Angola

Regional share of the total continent’s production:
- 48.9% of the production in North Africa

Asia - Pacific
- European Union
- North America
Refining and petroleum products trading in Africa

- **Upstream:**
  - Limited refining infrastructure
  - Existing refineries are very often obsolete
  - African refineries are crippled by costs due to their low capacities

- **Downstream:**
  - The low consumption forces a slow and costly distribution by road
  - Costs are high and the prices are subsidized.
Production and consumption of coal in South Africa have grown steadily over the past 25 years at an **average annual rate of 2.7 percent**.

**South Africa Coal Figures**

- Primary energy mix proportion: 82.6%
- Proved reserves: 54 Bt
- Production: 251 Mt
- R/P ratio: > 200 years
- ESKOM Number of coal-fired power stations: 13 out of 20
- SA coal-based electricity proportion: 90%
- Liquid from coal/ Total liquid: 1/3

**Consumption of the Coal produced in 2008***

- ESKOM (50%)
- Exports (30%)
- Sasol (17%)
- Others*** (2%)

*The production in 2008 was 251 Mt but the actual consumption in 2008 was 266 Mt as 15 Mt of dumps were used.

***Others include Households, Metallurgical, Transport,
- Africa is an important gas producer (7.9% of world reserves and 7% of world production)

- Nevertheless, all the regions don’t display the same gas profile:
  - West and North Africa are the main gas producing areas
  - South Africa is a net gas importer
Hydroelectricity in Africa

Potential

Comparaison: Afrique, Chine et Inde

<table>
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<th>Afrique</th>
<th>Chine</th>
<th>Inde</th>
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<tr>
<td>Production d'hydroélectricité</td>
<td>TWh/an</td>
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<td>431</td>
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<tr>
<td>Consommation électrique</td>
<td>TWh/an</td>
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<td>2 528</td>
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<tr>
<td>Consommation électrique par habitant</td>
<td>KWh/h</td>
<td>483</td>
<td>1 888</td>
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Large consumption of biomass (wood, residues ...)
- desertification
- health problems
- time lost by women and children

Lack of electricity
- in towns (outages, blackouts)
- in rural areas

Need for better availability of oil products
- storage tanks
- roads !!

Are renewables a solution?
Recommendations

- Improved cooking stoves
- Use of Natural Gas
- Construction of oil products storage
- Small electricity generators
- LPG
- Refineries adaptation
- Governance (EITI)
- Improvement of oil E/P contracts
- Construction of large power plants
- Facilities for electricity distribution to the poors
- Construction of large power plants
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- Construction of large power plants
✓ interconnections of grids will allow better use of power generation capacities

✓ cooperation for refining facilities can allow savings
Do not forget education

- lack of education before the independence
- lack of skilled manpower
- need for education/training
- The African Institute for Energy, Environment and Sustainable Development

THANK YOU FOR YOUR ATTENTION
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