ELECTRICITY SECTOR REGULATION
ETHIOPIA

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Ethiopian Electricity Agency EEA
Presentation outline

I. Overview of the electricity sector

II. Power sector reform

III. Legal framework and institutions

IV. Economic regulation

V. Summary and concluding notes
I. Overview of the electricity sector

- Ethiopian Electric Power Corporation (EEPCO) main service provider,
- Many small scale private off-grid private providers throughout the country,
- Ethiopian Electric Power Corporation (EEPCO) operates two systems; Inter Connected System (ICS) & Self Contained System (SCS),
- EEPCO power capacity (NATIONAL) about 800 MW (EEPCO ICS & SCS),
- Excludes capacity by private providers,
- Import records for 1994 and 2002; rated capacity of generation sets imported about 1.2 Giga Watt (GW),
- During the year 2002 imported generator sets had a total capacity of 544 MW,
Overview of the electricity sub sector (cont...)

- Impact of electricity to the non-agricultural GDP more than five times the prevailing price of electricity,

- About one million two hundred thousand customers are currently served by both supply systems,

- The hydro power plants take the largest share in the total production of energy compared to the thermal plants,

- The share of the thermal plants has declined over the years due to increasing expansion of the hydropower systems to replace the diesel generators

- The Self-Contained System (SCS) which operates largely in remote areas mainly consists of Diesel generating units and small hydro power plants with a total dependable capacity of some 20 MW.
Overview of the electricity sub sector (cont....) old utility model

- Government
- Vertically integrated company
- Employees
- Connected population

- Subsidy
- Favour
- High prices
- Un-served population

- Low quality service
- Low tariff
- Low quality service
- Low tariff
II. Legal framework & Institutions

2.1 Sector reform, the approach

A/ Power sector objectives;

• Sufficient power supply at the place of demand,
• Efficient, economical and reliable service,
• Decentralized commercial operation are outlined,
• Private sector participation at generation

B/ Energy Policy

Objectives;
- dependable & economical energy supply
  - timely supply of energy at: place, demand, quality & quantity Strategy;
  - hydro power focused supply
  - promote private sector role
  - enhance energy efficiency at all levels of energy
Legal framework & Institutions (cont...)

C/ Electricity law (§ 86/1997):
- Established the regulatory Agency EEA
- EEA Mandates:
  * determine quality and standards of electricity services,
  * issue license; generation, transmission, distribution sales, import/export,
  * recommend tariff,
  * issue professional competency certificate,

D/ EEA budget:
* government allocation & license fees,
* EEA financial records subject to audit by General Audit or one designated by it:

E/ Commercial electricity operation; licensed activity:
* licensing procedure via regulation 49/1999
* regulatory discretion minimized,
Legal framework & Institutions (cont...)

F/ Rural electrification fund:
   To facilitate private sector led rural electrification
   a separate institution; RE Fund established
   (§317/2003),

G/ Industry model:
   • National grid defined Minimum 132 KV by Gov. notice
     (§ 86/1997 Art 17);
   • IPP for bulk sale for the public utility; Single buyer
     model (§ Investment law (§ 280/2002 Art 5 280/2002 Art 5);
     • Bulk purchase price negotiated in PPA between Utility
       & IPPS and approved by the Agency; (§ 49/1999
       Art.28:3);
   • Off grid supply (Power Generation, Transmission, Distribution) open for private or public investment;
   • IPP contract type is subject to negotiation (BOOT, BOO, BOT).
Legal framework & institutions (cont...)  
Designed industry model

- Government
  - Strategic guidance
- Regulator
  - Price & quality regulation
- Public utility company
  - Cost recovery tariff
- IPPs

- Employees
  - Efficient service
- Isolated system public/private
  - Good quality service
- Connected population
  - Un-connected population
  - Connections

Employees

- Strategic guidance
  - Efficient service
- Good quality service

Isolated system public/private

- Connected population
  - Un-connected population
  - Connections

- Employees
  - Efficient service
- Good quality service
Legal framework & Institutions (cont)

G/ Electricity Operation Regulation (§ 49/1999)
• General Licensing requirements:
  power generation, transmission, distribution and sales;
    - financial capacity and technical competence,
    - feasibility study,
    - PPA where appropriate,
    - land permits,
• License duration maximum;
  from 10 to 50 years & renewable
• Rights of licensees:
  • Access to land with in service territory;
  • Service disconnection to non compliant customer/s;
  • Inspect customers’ installation.
• Obligations of licensees:
  • Service operation in line with the law and regulations, standards;
  • Prompt response to new demands;
  • Regular supply;
Legal framework & Institutions (cont...)

- Prompt response to customers complaints;
- Report to the regulator;
- Avail books and records for inspection;
- Advance notice before service interruptions;
- Update employee skill & education necessary for the operation of licensed activity.

H/ Obligations of customers:
• Comply with instructions & notices on the use of electricity;
• Facilitate service installation, metering etc. with in their premises;
• Promptly notify licensee on irregularities of electricity.
IV. Economic regulation

4.1 Tariff regulation: the principle (§49/1999 Art 26)

• Cost recovery;

• Support sustainable service;

• Allocative and operational efficiency;

• Revenue capping; four years;

• Operational performance evaluation of licensees;
  • Licenses may submit request for rate revision

• Simple rate structure;

• IPP tariff pass through as per PPA (PPA needs approval)
4.2 Technical regulation;
   • Principles;
     • Satisfactory and safe service for all customers;
     • Service standards issued;
     • Licensee define complaint handling procedure;
       • Publish procedure,
       • Maintain complaint records & respond in 10 days,
       • Customers has the right to complain to the Agency.
Economic regulation

Regulation of quality of service

- Service targets
- Monitor licensee performance
- Complied?
- Punitive measure?
- Encourage further gains
Economic regulation (cont...)  

Service quality standards: distribution & sales  March 2006

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoring a supply following a distribution system failure</td>
<td>2 hours</td>
</tr>
<tr>
<td>Providing an estimate of charges</td>
<td>3 days</td>
</tr>
<tr>
<td>Giving notice of supply interruption</td>
<td>24 hours</td>
</tr>
<tr>
<td>Voltage problems:</td>
<td></td>
</tr>
<tr>
<td>• Investigate &amp; reply</td>
<td>15 days</td>
</tr>
<tr>
<td>• Solution</td>
<td></td>
</tr>
<tr>
<td>o Simple work</td>
<td>3 months</td>
</tr>
<tr>
<td>o Complex work</td>
<td>1 year</td>
</tr>
<tr>
<td>Responding to queries about meter accuracy</td>
<td>15 days</td>
</tr>
<tr>
<td>Responding to queries from customers</td>
<td>5 days</td>
</tr>
<tr>
<td>Providing a new supply, improving or relocating existing supply installation</td>
<td></td>
</tr>
<tr>
<td>• single phase</td>
<td>4 days</td>
</tr>
<tr>
<td>• three phase</td>
<td>13 days</td>
</tr>
<tr>
<td>Reconnecting meters following payment</td>
<td>24 hours</td>
</tr>
<tr>
<td>Meter reading</td>
<td>every month</td>
</tr>
<tr>
<td>Responding to customer complaints</td>
<td>10 days</td>
</tr>
</tbody>
</table>
Economic regulation (cont...)  

Major supply reliability standards March 2006

<table>
<thead>
<tr>
<th>parameter</th>
<th>Unite of measure</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of outage/planned</td>
<td>Freq/customer/year</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Duration of outage/planned</td>
<td>Dur./customer/year</td>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Duration of outage/forced</td>
<td>Per cust./year(times)</td>
<td>50</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>Duration of outage/forced</td>
<td>Per cust./year(hours)</td>
<td>22</td>
<td>21</td>
<td>20</td>
</tr>
</tbody>
</table>

NB: forced outage are non momentary
V. Summery & concluding notes

- Regulatory functions from operation functions separated,
- Promulgation of laws, regulations and directives effected,
- Re-establishment of the utility as a business Corporation,
- The reestablishment of the Utility refocused the objectives on the principles of commercialization and decentralization,
- Regulatory Agency/Electricity Agency/ established,
- Public ownership in power transmission and distribution services /national grid as defined by law 132 KV &above/,
- Power generation with in the national grid liberalized,
- Service standards & regulatory obligations are defined,
Some improvements have been scored in areas such as:
  - power generation reliability,
  - customer care, and
  - decentralization of operations?

Operational improvements have been noticed in some areas such as service connection,

Commercial services and supply reliability have shown improvements,

Annual increase in power generation is now in the order of 12%,

Universal Electricity Access Program /UEAP/ is being undertaken by the Corporation supported by government,
Summery & concluding notes (cont...)

• Rural Electrification Fund serves as a source of finance to any commercial-based off-grid rural electrification undertakings.

• The proclamation emphasized the promotion of the private, cooperative and local communal engagement in rural electrification activities,

• Loan based finance and technical services specifically for those projects operating on renewable energy sources,

International Connection
• Regional interconnection is gaining momentum along with the cumulating reform effort,
Summery & concluding notes (cont...)

Thus:

• **Ethio-Djibuity** interconnection is the most advanced of all where Power Purchase Agreement is already signed and is at implementation stage,

• **Ethio-Sudan and Ethio-Kenya** interconnection is under design/negotiation/ and feasibility study level respectively,

• Large scale transmission projects are being financed to facilitate national and international market expansion
Summary & concluding notes (cont...)

- Infrastructure poses special difficulties;
- Regulation necessary to attract private finance;
- In single buyer model investors prefer contract (air tight) regulation;
- Renewable energy IPP are generally expensive;
- PPP promising but need to be diligently pursued;
- Regulation can tame public utility in developing economies however;
  - A concerted political commitment needed in a wide range of reform;
  - Strong punitive regulatory measures to public utility oftentimes difficult to apply;
- Off-grid regulation
  - Light handed & decentralized,
  - Delegated regulation,
  - Self regulation,
  - Empowerment of the public
Thank you for your attention

Wish you happy Ethiopian Millennium

East African Power Industry Convention 2007, Addis Ababa, ETHIOPIA