PACE
Public Private Partnerships for Access to Community Electricity

Ethiopian Case Studies

February 17, 2003
Ethiopian Profile

- 65 million people
  - Rural – 85
  - Urban – 25
- Population density – 56 persons/km²
- Agricultural based economy
- Per capita income – US $ 120 per capita
Access to Electricity

- **Before 1956 decentralized power generation**
- **Former EELPA established in 1956**
  - sole actor until 1997 – generation, transmission, distribution and sales.
- **EEPCO established in 1997**
  - generation, transmission, distribution and sales
  - Generation capacity – 493.39 MW
  - Total consumers – 625,496
  - Per capital consumption – 27.9 kWh
  - Access to electricity – 13% of total pop.
- **Now, on liberalization process**
  - Permits Private sector involvement in power generation
  - Target to raise access to 20% by 2010
Rural Electrification Strategy

- **Twin track strategy**
  - EEPCO
    - ICS extension
    - Isolated diesel systems
  - REF
    - Institutions and financing mechanism are being set up
    - Technology neutral approach
    - Private sector led
    - Based on cost reflective tariff
    - Light-hand regulation
    - Emphasis given to electricity for productive use as opposed to a ‘bulb in every house’
Non-EEPCO power producers

- Other power producers/ suppliers
  - Communities,
  - Municipalities (‘Kebele’),
  - Privately owned systems, and
  - NGOs/Church Groups
**PACE Survey findings**

### Stakeholder Roles:

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role 1</th>
<th>Role 2</th>
<th>Role 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Facilitation/Permits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>Contribute fund</td>
<td>Labor</td>
<td></td>
</tr>
<tr>
<td>Local govt.</td>
<td>Major contributors of fund</td>
<td>Manage/own systems</td>
<td>Subsidize operation costs</td>
</tr>
<tr>
<td>Private:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Power suppliers</td>
<td>Finance</td>
<td>Manag’t</td>
<td></td>
</tr>
<tr>
<td>b) Technicians</td>
<td>Installation</td>
<td>Repair/Maintenance</td>
<td></td>
</tr>
<tr>
<td>NGOs</td>
<td>Mobilization</td>
<td>Finance</td>
<td></td>
</tr>
</tbody>
</table>
PACE Survey findings

- PACE survey areas
  - SNNPR (Southern Ethiopia)
    - Why?
      - Relatively more community, municipality or private power suppliers
      - higher income levels than other parts of the country
      - more potential renewable energy resources (i.e., micro hydro resources) are available
  - Overview
    - Energy Profile
      - 94% biomass and
      - 6% petroleum and electricity
PACE Survey findings

- Overview contd...
  - 18.6% (85 MW) of EEPCO’s total production
  - 25.5 MW – consumed by 5 factories
  - 59.5 MW – others
  - Per capita electricity consumption (1995/95) – 45.2 kWh
  - 4.43% of pop. has access to EEPCO supplied electricity
  - Community and municipality suppliers:
    - Electrified 17 towns
    - 15,050 connected customers
    - Total aggregate installed capacity- 1,706 kW
  - 5.9% electricity demand growth per year
  - 2.6% population growth rate
PACE Survey findings

- Technology & Technical Issues
  - Technology
    - Diesel gensets and,
    - Micro-hydro power generators
  - Technical Issues
    - Lack of information
      - Equipment suppliers
      - Technicians for system installation
  - Design Issues
    - System capacity estimation
    - Poor distribution lines
    - Voltage drops
    - Power stealing
    - Customer complaints (blackouts, tariff, …)
PACE Survey findings

- Technical Issues contd..
  - Arbitrarily set tariff
  - Lack of responsible institution to support suppliers and protect customers (until EEA was established)
  - Lack of private sector trust
PACE Survey findings

- Financial Issues
  - Bonosha town
    - Community
    - Local government (‘Kebele’)
    - Health Center
  - Yaye town
    - Donor (Irish Aid through SDP/SDC)
  - Bonna town
    - Self financed private system
    - Because of limited finance standards for technical equipment and safety measures are overlooked
  - REF is in the process of establishment
  - Financial support for private producers in a form of loan
Ownership and Management

- Bonosha - Municipality owned and operated
- Yaye – Community owned (on the process of management responsibility transfer currently)
- Bonna – Private management
- Weaknesses and strength
## PACE Survey findings

### Weaknesses and strength

<table>
<thead>
<tr>
<th>Management type</th>
<th>System capacity</th>
<th>Sustainability</th>
<th>Customer satisfaction</th>
<th>Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality /Bonosha</td>
<td>75 kVA and 115 kVA gensets</td>
<td>Low to Medium</td>
<td>Poor</td>
<td>- On the ground of being ‘equitable’</td>
</tr>
<tr>
<td>Community /Yaye</td>
<td>170 kW /MHPP</td>
<td>Medium to High</td>
<td>Very good</td>
<td>- No true cost reflection</td>
</tr>
<tr>
<td>Private /Bonna</td>
<td>Usually smaller capacity gensets (12kVA)</td>
<td>High</td>
<td>Very poor</td>
<td>- Close to true tariff</td>
</tr>
</tbody>
</table>
PACE Survey findings

- Livelihood Benefits
  - Health
  - Education
  - Local services
  - Entertainment
  - Access to information
  - Convenience
PACE Survey findings

Conclusion

- Institutional support/ regulation
- Access to information
- Source of finance
- True cost reflective tariff
- Power for productive use
- Implementation of workable Management models