

---

# 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/km<sup>2</sup>**
  - **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:

Stakeholders	Role 1	Role 2	Role 3
<b>Government</b>	Facilitation/Permits		
<b>Community</b>	Contribute fund	Labor	
<b>Local govt.</b>	Major contributors of fund	Manage/own systems	Subsidize operation costs
<b>Private:</b>			
a) Power suppliers	Finance	Manag't	
b) Technicians	Installation	Repair/Maintenance	
<b>NGOs</b>	Mobilization	Finance	

---

# 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
-

---

# PACE Survey findings

- 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

<b>Management type</b>	<b>System capacity</b>	<b>Sustainability</b>	<b>Customer satisfaction</b>	<b>Tariff</b>
Municipality /Bonosha	75 kVA and 115 kVA gensets	Low to Medium	Poor	- On the ground of being 'equitable'
Community /Yaye	170 kW /MHPP	Medium to High	Very good	- No true cost reflection
Private /Bonna	Usually smaller capacity gensets (12kVA)	High	Very poor	- Close to true tariff

---

# 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
-