Promotion of Mini-Grids in Northern Uganda

Financed by
European Union
German Federal Ministry for Economic Cooperation & Development
Summary

1. Project technical background
2. Implementation structure
3. Mini-grid subsidy
4. Subsidy disbursement
5. Risk mitigation
6. Principle selection criteria
7. Tender evaluation criteria
8. Demand Analysis

Annex: Mini-grid Flow chart
1. **Project Technical Background**

- Provide uninterrupted electricity supply hours between 7 am – 11 pm. (Demand-side management is encouraged to achieve longer supply hours).
- Solar battery systems. Hybrid systems with fossil fuel generators are not eligible.
- Smart metering for the household (e.g. pre-paid, mobile money, remote-monitoring system, load limitation)
- Maintenance reaction time in the event of failure max. 48 h
- Up to 25 villages typically between 30 and 300 connections per village for an estimated electricity demand range between 100 kWh and 300 kWh per day per village.
- The project shall be based on internationally proven technology and developed according to best international project development practices
- Concession for 10 years
2. Implementation structure

MEMD

Implementation Agreement

ERA

License exemption

REA

Leasing Agreement

GIZ

Financing Agreement

Developer/Operator
3. Mini-grid Facility

- Successful Bidders complying with all requirements under the RFP and condition precedent will be granted a license Exemption by ERA, sign a Leasing agreement with REA, an Implementation Agreement with Government of Uganda and a Financing Agreement with GIZ.

- GIZ, REA and the developer will enter in a financing agreement for the disbursement of the subsidy premium based on the combination of lower tariff [cUS/kWh] and technical parameters offered by the successful bidder.
4. Subsidy disbursement

a) Subsidy to be disbursed in tranches based on project progress and milestones.

b) The developer has to commit to supply the villages for the concession timeframe with an adequate level of electricity.

c) Maximum subsidy available 1.25 Millions Euros, aiming to cover up to 50% of CAPEX.
5. Risk mitigation

Revenue Risk

• Front loaded subsidy leads to higher and reliable IRR
• Better access to finance

Off taker Risk & Framework

• Grid infrastructure financed and built by REA
• Connection financed by REA
• Implementation agreement and lease agreement to secure investment against grid extension
6. Principle selection criteria

- Applicants (single companies or consortium) shall be private companies with minimum annual turnover of 5 mEUR, sufficient project experience and technical capacity, in good standing and not subject to sanctions of, UN, EU or African Union to be short listed
- Shortlisted bidders will be invited to submit a bid on a ctUS/kWh tariff including the subsidy for 10 years

Bidders will be selected on following terms:
- Full technical, commercial and economical compliance
- Full legal compliance
- Financial documentation supporting timely implementation
- Lowest weighted offered tariff
- Equity contribution from the Developer (no further capex subsidy)

Detailed evaluation criteria will be made available in the RFP
Decision on award conducted by REA (evaluation committee) on behalf of the GoU
7. Tender evaluation criteria

- Compliance with the technical specifications
- Technical quality of proposal and evidence of sound preparation.
- Availability of supply, ability to meet business demand over 10 years, daily hours of supply and plans for managing demand growth
- Metering and payment system and customer service approach (e.g. helpdesk, response time, etc.)
- Financial arrangements/ Financing concept for the project
- Project outcomes: Proposed number of customers to be connected to the mini-grids, as well as far away customers with DC systems.
- Sustainability of the business model through promotion of productive and efficient use of the electricity
- Community engagement and technical skills transfer approach
- Approach for serving DC customers
7. Tender evaluation criteria

Rejection Criteria (selection)

- Major missing documents/information/declarations
- Proposal is already supported/subsidised through other grant schemes by GoU and/or development partners (this does not apply for project preparation support)
- Developer banned from procurement process or is under a declaration of suspension for fraud / corruption etc. (e.g. KfW “Know Your Customer Check”)
- Projects is already in operation
8. Demand Analysis

Village location:

Northern Service Territory

District Lamwo
Irradiation and Solar Electricity Potential in Uganda

Solar irradiation between 1,800 and 2,400 KWh/m²

Source: European Commission – Joint Research Centre Institute for Energy and Transport
http://re.jrc.ec.europa.eu/pvgis/
## GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Date and time of visit</th>
<th>21.01.17; 4 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall result / recommendation</td>
<td>very promising</td>
</tr>
<tr>
<td>Village Name</td>
<td></td>
</tr>
<tr>
<td>Sub-county</td>
<td></td>
</tr>
<tr>
<td>District</td>
<td></td>
</tr>
<tr>
<td>GPS Coordinates (WGS84)</td>
<td></td>
</tr>
</tbody>
</table>

## DEMAND INFORMATION: HOUSEHOLDS

| Aprox number of houses / households within reach of mini-grid | 250 |

## DEMAND INFORMATION: INSTITUTIONS

| Primary schools: Day | 1 |
| Primary schools: Boarding | 0 |
| Secondary schools: Day | 1 |
| Other vocational institutes | 0 |
| Health Centre | III |
| Clinics | 8 |
| Churches | 2 |
| Mosques | 0 |
| No. of police barracks | 7 |

## DEMAND INFORMATION: SMEs

| Shops | 42 |
| Bars | 7 |
| Restaurants | 3 |
| Salons | 7 |
| Video Halls | 1 |
| Mechanics | 3 |
| Guest houses | 3 |
| Welding potential | 2 |
| Mills | 11 |
| Dairy plant | 0 |
| Carpenter | 1 |

### Potential Anchor Customers (Mines, Mobile towers, Banks/ATMs, Lodges, Petrol stations, etc.)

| MTN mobile tower, sub-county offices |

### Potential farming customers

| big irrigation cooperative |

### Any future (planned) commercial or industrial activities?

| every day market, street lighting, fuel station |

## OTHER: WATER

| Borehole / dam or river | 5 / fish dam |
| Pumped or purified water | not available |
Ability to pay survey per customer segment

Monthly budget for electricity substitutes (includes phone charging)

- Top 10%: 16000 UGX
- Average: 7600 UGX
- Bottom 10%: 2000 UGX

- Top 10%: 100000 UGX
- Average: 33000 UGX
- Bottom 10%: 4000 UGX
# Site assessment: results

<table>
<thead>
<tr>
<th>Village</th>
<th>Customer segments</th>
<th>Grid customers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HH</td>
<td>SME</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>250</td>
<td>79</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>80</td>
<td>44</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>59</td>
</tr>
<tr>
<td>11</td>
<td>50</td>
<td>23</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
<td>28</td>
</tr>
<tr>
<td>13</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>100</td>
<td>65</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>150</td>
<td>114</td>
</tr>
<tr>
<td>17</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>18</td>
<td>125</td>
<td>24</td>
</tr>
<tr>
<td>19</td>
<td>98</td>
<td>26</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>21</td>
<td>200</td>
<td>25</td>
</tr>
<tr>
<td>22</td>
<td>150</td>
<td>20</td>
</tr>
<tr>
<td>23</td>
<td>120</td>
<td>67</td>
</tr>
<tr>
<td>24</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>25</td>
<td>100</td>
<td>1</td>
</tr>
</tbody>
</table>

## PROJECT INFORMATION

- **PV capacity**: 605 kWp
- **Battery capacity**: 1145,88 kWh
- **Annual generation**: 632271 kWh/year
- **Concession period**: 10 years
- **No. of villages**: 25
- **No. of connections**: 2935
Thank you!

Aurélien Agut
(Tender Agent)
Frankfurt International Advisors GmbH
a.agut@frankfurt-advisors.com
Annex: Mini-grid flow chart

**Prequalification**
- Submission EOI (2 months)
- Check:
  - Financial capacities
  - Technical capacities
  - Site
  - References / track record

**Tendering**
- Technical financial concept
- Legal concept
- Initialled contracts
- All requirements fulfilled
- Performance guarantee & conditions commitment
- Declarations
- Bid bond

**Evaluation**
- Deficiency Assessment
- Request for missing information
- Project Due Diligence
- Recommendation on preferred bidders
**Decision Stage**
- Evaluation committee
- Comfort letter to preferred bidders including conditions precedent

**Preparation**
- Contract negotiations
- Financing preparation

**Contract Award**
- Lease Agreement
- Financing agreement
- Implementation Agreement

**Implementation**
- Financial close
- Release bid bond
- Provision COD bond
- Construction

**COD 2018**
- Release of COD bond
- Subsidy payment
- Start of monitoring project reporting