Energy Access Financing Platform
In partnership with UNDP Uganda
LACK OF ENERGY ACCESS

1.1 BILLION PEOPLE
600 million are in Sub-Saharan Africa

92% OF RURAL UGANDA
lack(s) modern access to electricity

MODERN ACCESS TO ELECTRICITY
Rural: 50 kWh/year/person
USA: 4200 kWh/year/person
CURRENT OFF-GRID TECH

- Basic lighting
- Phone charging
- Lighting
- Basic appliances
- Productive use power
- Heavy appliances
- Small commercial

Increasing in size (kW)

Pico lamps
Smaller solar-home systems (Multi-light point)
Larger solar-home systems (component based)
Mini-grids
Develop a scalable platform that will generate the engagement, funding, development, and rural markets to establish a low-carbon pathway in the development of underdeveloped rural areas of Northern Uganda.

1. Attract significant investment across sectors
2. Drive low-carbon energy pathways
3. Meet Uganda’s NDCs
THE CHALLENGE

ACHIEVING SDG 7

74% without access today; 4.8M additional by 2030

Households, by access type

- Universal access, 2030
- New households
- 74% without access (5.7M households)
- National access rate, 2016
- 26% with access (2.1M households)
- On-grid (Urban & Rural)
- Off-grid access (Rural)
- No-access (Urban)
- No-access (Rural)

2016 Baseline 2030 Target

10.3M new household connections

Millions

UOMA
VISION STATEMENT

A future where every Ugandan has access to clean, affordable, and reliable energy and can benefit from the modern services it provides.
BARRIERS TO ENERGY EXPANSION

Manual Planning
BARRIERS TO ENERGY EXPANSION

Manual Planning

Fragmented Coordination
BARRIERS TO ENERGY EXPANSION

- Manual Planning
- Fragmented Coordination
- Slow Approval Process
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- Slow Approval Process
- Inconsistent Data & Reporting
- Disorganized Data
- Resulting In Limited Funding
- Restricting Economic Development
- Creating Opaque Impact
Theory of Change

Transparency
Collaboration
Information
Investment
Development
Stakeholder POVs

LOCAL ENTREPRENEUR
"I dream of opening my own business"
Since Afiya was a child, she has wanted to follow in her uncle’s footsteps and open her own business, but her village doesn’t have power and she doesn’t have start-up capital.

OFF-GRID DEVELOPER
"My business is exploding but I don’t have enough capital to meet customers’ demand"
PAYG financing structures have made single home solar systems affordable to many Ugandans, but for developers like Sempala growth is limited by a lack of financing.

FUNDER
"I struggle to demonstrate the impact of the projects that my organization funds"
Dembe struggles to review the seemingly endless requests for new project funding while also demonstrating the impact of prior project funding to stakeholders.
**Core Pillars**

**ENGAGEMENT & MAPPING**
Establish working relationships to align intention and action

**COORDINATE & MARKETPLACE**
Streamline and scale stakeholder efforts to catalyze funding

**PROJECT MONITORING & ANALYSIS**
Standardize benchmark information such as performance, end-use, and payment data

**FINANCIAL INCLUSION & ECONOMIC EMPOWERMENT**
Spur economic development and energy demand

**ECOSYSTEM IMPACT & EVALUATION**
Track human impact to demonstrate social good
ENGAGEMENT & MAPPING

COORDINATE & MARKETPLACE

IMPACT & EVALUATION

INCLUSION & EMPOWERMENT

MONITORING & ANALYSIS

The Tech Platform
Web-Based Information Map

- Interactive Planning Reporting Map
- Driven by Ugandan gov’t
- Transparency stakeholders
- Complement current process - satellite imagery and machine learning
- Drives next project planning
Priority for Energy Development

Country - Uganda

- Mbale (Bubingwa)
- Nakaseke Central
- Jinja North
- Buhweju East
- Mbarara North
- Kamuli North
- Kapelebyong
- Mukono West
- Bukomansimbi South
- Bududa Central
- Matheniko
- Manafwa East
- Mukono (Nakifuma)
- Kalungu East
- Kibale East
- Kabarole South
- Kaseme South
- Bududa East
- Rukungiri East
- Bulambuli East
- Kisiira
- Ntungamo West
- Jinja East
- Buliisa
- Mbarara Central
- Kasese West
- Mbale South
- Bulambuli North (Low Density...)
- Rakai South
- Buliisa Central
- Mukono South
- Jinja West
- Nakaseke (Nakasongoia)
- Iganga South
- Ntungamo East
- Kamuli Central
- Moroto Municipality
## Priority for Energy Development

<table>
<thead>
<tr>
<th>Metric</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Score</td>
<td>90</td>
</tr>
<tr>
<td>Population</td>
<td>100,900</td>
</tr>
<tr>
<td>Area</td>
<td>1,127 km²</td>
</tr>
<tr>
<td>Population Density</td>
<td>82.91/km²</td>
</tr>
<tr>
<td>Energy Access Rate</td>
<td>15%</td>
</tr>
</tbody>
</table>

### Community Readiness
- Access to O&M training: 98
- Electricity usage ability: 87
- EE& community involvement: 87

### Economic Capability
- Ability to pay: 76
- Potential for productive uses: 69
- Financial stability: 91
- Average KIVA credit score: 72

### Governance Structure
- Strength of local government: 65
- Receptiveness of local leaders: 84
- Ability to enforce regulation: 91
ENGAGEMENT & MAPPING

COORDINATE & MARKETPLACE

- Project Planning & Approval
  - Bidding
  - Licensing
  - Financing
  - Procuring components
- Potential Partners
  - Odyssey (mini-grid)
  - Angaza (SHS)
  - Large scale data aggregator
NAME OF PROJECT: Kapele Mini-Grid

DEVELOPMENT COMPANY
Mini-Grids Inc.

REGION OF DEVELOPMENT
Kapelebyong

NUMBER OF COMMUNITY MEMBERS TO BE SERVED
1050

NUMBER OF BUSINESSES TO BE CONNECTED
11

Capacity of System
120 kW
<table>
<thead>
<tr>
<th>PROJECT #</th>
<th>PROJECT NAME</th>
<th>DEV. COMPANY</th>
<th>REGION</th>
<th>SYSTEM CAPACITY</th>
<th>NUMBER OF HOMES SERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>#294</td>
<td>Kapele Mini-Gird</td>
<td>Mini-Grids Inc.</td>
<td>Kapelebyong</td>
<td>120 kW</td>
<td>1015</td>
</tr>
<tr>
<td>#147</td>
<td>Pader Expanded</td>
<td>Pajoma Energy Ltd.</td>
<td>Pader</td>
<td>64 kW</td>
<td>630</td>
</tr>
<tr>
<td>#246</td>
<td>Mini-Grid Moyo</td>
<td>Kangala Infrastructure</td>
<td>East Moyo</td>
<td>1.1 MW</td>
<td>8900</td>
</tr>
<tr>
<td>#289</td>
<td>Aringa Electrify</td>
<td>Sempergy Company</td>
<td>Aringa</td>
<td>640 kW</td>
<td>5300</td>
</tr>
<tr>
<td>#577</td>
<td>Masindi Power</td>
<td>Energy Unlimited</td>
<td>Masindi</td>
<td>350</td>
<td>3100</td>
</tr>
</tbody>
</table>
**Project Results**

- Project-level metrics
- Customer usage and payment
- Historical performance
- Decrease uncertainty/risk
- Potential Partners:
  - Odyssey (mini-grid)
  - Angaza (SHS)
  - Large scale data aggregator
NAME OF PROJECT: Kapele Mini-Grid

<table>
<thead>
<tr>
<th>CUSTOMER CATEGORY</th>
<th># CONNECTIONS</th>
<th>AVERAGE DAILY Wh/CUSTOMER</th>
<th>AVERAGE $/kWh Tariff</th>
<th>A/RPU/MONTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1039</td>
<td>150</td>
<td>$1.10</td>
<td>$5.10</td>
</tr>
<tr>
<td>Commercial</td>
<td>10</td>
<td>2500</td>
<td>$0.74</td>
<td>$56.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1049</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Financial Inclusion
- Payment data to catalyze economic development and lending
- Incorporate training/education to build and maintain a steady energy ramp
- Potential Partners:
  - KIVA
  - Energy 4 Impact
NAME OF PROJECT: Mukono Fishery Ice

COMPANY NAME
Mukono Fishery

BUSINESS REGION
Mukono

USE OF FUNDING:
Ice Making Machinery

DESIRED SIZE OF LOAN
500 USD

EXPECTED PAYBACK PERIOD
6 months
**Ecosystem Impact**
- Assess on the ground impact
- Demonstrate social good, especially to funders
- Potential Partners:
  - Ground level stakeholders
  - Certification organization
  - Impact oriented funders
### Percent of Homes Electrified

<table>
<thead>
<tr>
<th>Location</th>
<th>Electrification Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nakaseke South</td>
<td>71%</td>
</tr>
<tr>
<td>Kyenjojo North</td>
<td>66%</td>
</tr>
<tr>
<td>Jinja North</td>
<td>64%</td>
</tr>
<tr>
<td>Nakaseke Central</td>
<td>61%</td>
</tr>
<tr>
<td>Jinja West</td>
<td>57%</td>
</tr>
<tr>
<td>Masindi</td>
<td>55%</td>
</tr>
<tr>
<td>Mbale South</td>
<td>53%</td>
</tr>
<tr>
<td>Kamuli North</td>
<td>52%</td>
</tr>
<tr>
<td>Toroma</td>
<td>52%</td>
</tr>
<tr>
<td>Kapelebyong</td>
<td>52%</td>
</tr>
<tr>
<td>Kamuli Central</td>
<td>58%</td>
</tr>
<tr>
<td>Mbale (Bubyangu)</td>
<td>58%</td>
</tr>
<tr>
<td>Mbale (Bukende)</td>
<td>58%</td>
</tr>
<tr>
<td>Mbarara North</td>
<td>48%</td>
</tr>
<tr>
<td>Bulambuli South</td>
<td>47%</td>
</tr>
<tr>
<td>Jinja East</td>
<td>47%</td>
</tr>
<tr>
<td>Mbale (Namanyonyi)</td>
<td>45%</td>
</tr>
<tr>
<td>Usuk</td>
<td>44%</td>
</tr>
<tr>
<td>Buhweju West</td>
<td>44%</td>
</tr>
<tr>
<td>Kibale West</td>
<td>44%</td>
</tr>
<tr>
<td>Nakaseke West</td>
<td>43%</td>
</tr>
<tr>
<td>Nakaseke North</td>
<td>43%</td>
</tr>
<tr>
<td>Nakaseke (Nakasongola)</td>
<td>43%</td>
</tr>
<tr>
<td>Kyenjojo South</td>
<td>43%</td>
</tr>
<tr>
<td>East Moyo</td>
<td>42%</td>
</tr>
<tr>
<td>Amuria</td>
<td>42%</td>
</tr>
<tr>
<td>Mbale Municipality</td>
<td>42%</td>
</tr>
<tr>
<td>Moroto Municipality</td>
<td>42%</td>
</tr>
<tr>
<td>Buhweju East</td>
<td>41%</td>
</tr>
<tr>
<td>Mukono West</td>
<td>41%</td>
</tr>
<tr>
<td>Mukono South</td>
<td>41%</td>
</tr>
<tr>
<td>Butiliso</td>
<td>41%</td>
</tr>
<tr>
<td>Kikoni</td>
<td>38%</td>
</tr>
<tr>
<td>Mpigi</td>
<td>38%</td>
</tr>
<tr>
<td>Soroti</td>
<td>38%</td>
</tr>
<tr>
<td>Budaka</td>
<td>37%</td>
</tr>
</tbody>
</table>

**Northern Districts (Low Density Areas)**

- Percent of homes electrified: 30%
- Number of homes electrified: 10,050
- Number of businesses supported: 100
Feasibility Map

Priority # 1
Angaza Odyssey Large Tech Co

Priority # 2
KIVA

Priority # 3
Mapping tech company

IMPACT & EVALUATION

COORDINATE & MARKETPLACE

ENGAGEMENT & MAPPING

INCLUSION & EMPOWERMENT

MONITORING & ANALYSIS

The Tech Platform
POTENTIAL LEVERAGE

RESEARCH INSTITUTION + LARGE MANUFACTURER

SHARP COST REDUCTION
Reduce price of mini-grid components

ABILITY TO SCALE
Global manufacturing capacity
NEXT STEPS
LEVERAGED STAKEHOLDER CONVENINGS

ENGAGEMENT 1
International foundations
Tech partners
UNDP

ENGAGEMENT 2
International development bank
UNDP

ENGAGEMENT 3
Uganda Government
International development bank
UNDP
## Project Summary

### Barriers
- Bespoke coordination
- Time intensive planning & licensing process
- Inconsistent reporting standards & metrics
- Prevalence of risk for private sector investment
- Difficult to demonstrate impact

### Pillars
- Engagement & Mapping
- Coordinate & Marketplace
- Project Monitoring & Analysis
- Financial Inclusion & Economic Empowerment
- Ecosystem Impact & Evaluation

### Platform
- A web-based technology platform
- Functionality:
  - Country Roadmap
  - Project Planning & Marketplace
  - Project & Customer Results
  - Economic Development
  - Ecosystem Impact

### Impact
- Use, track, standardize and report data to demonstrate ecosystem impact and social good
- Establish a virtuous cycle of transparent information flows to de-risk private sector investment and spur economic development
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