Request for Quote/Proposal (RFQ/RFP)

<table>
<thead>
<tr>
<th>Services Required:</th>
<th>Graphic Design for Power Africa Off-grid Project (PAOP) Market Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Procurement:</td>
<td>Purchase Order</td>
</tr>
<tr>
<td>Type of Contract:</td>
<td>Fixed Price</td>
</tr>
<tr>
<td>Term of Contract:</td>
<td>June 17th – August 8th 2019</td>
</tr>
<tr>
<td>Contract Funding:</td>
<td>Federal Acquisition</td>
</tr>
<tr>
<td>This Procurement supports:</td>
<td>Power Africa Off-grid Project</td>
</tr>
<tr>
<td>Submit Proposal to:</td>
<td>Emily Allen</td>
</tr>
<tr>
<td>Date of Issue of RFP:</td>
<td>June 6, 2019</td>
</tr>
<tr>
<td>Date Proposal Due:</td>
<td>June 12, 2019</td>
</tr>
<tr>
<td>Approximate Date Purchase Order Issued to Successful Bidder(s):</td>
<td>June 17, 2019</td>
</tr>
</tbody>
</table>

**Method of Submittal:**

Please submit Quotes/Proposals to: emallen@rti.org

Respond via e-mail with attached document in MS Word / pdf format.

The Bidder/Seller agrees to hold the prices in its offer firm for **30 days** from the date specified for the receipt of offers, unless another time is specified in the addendum of the RFP/RFQ.

**Solicitation Number:** RFP-PAOP-FY19-01

**Attachments to RFP:**

1. Attachment “A” – Commodity Specifications
2. Attachment “B” – Instructions to Bidders/Sellers
3. Attachment “C” – Market Assessment Example
4. All PO Terms and Conditions are listed on our website at forth at: [http://www.rti.org/POterms](http://www.rti.org/POterms), [http://www.rti.org/files/PO_FAR_Clauses.pdf](http://www.rti.org/files/PO_FAR_Clauses.pdf) or for commercial items: [http://www.rti.org/files/PO_FAR_Clauses_Commercial_Items.pdf](http://www.rti.org/files/PO_FAR_Clauses_Commercial_Items.pdf) (hereinafter the “Terms”). Supplier’s delivery of products, performance of services, or issuance of invoices in connection with this purchase order establishes Supplier’s agreement to the Terms. The Terms may only be modified in writing signed by both parties.

All bidders/sellers are responsible to carefully review each attachment and follow any instructions that may be relevant to this procurement.
Attachment A
Commodity Specifications or Statement of Work

Graphic Design for Power Africa Off-grid Project (PAOP) Market Assessments

The Power Africa Off-grid Project (PAOP) is a USAID-funded project that works across 10 countries in Sub-Saharan Africa (SSA) to build an enabling environment and build capacity among the off-grid energy value chain. As one of the first deliverables under the project, PAOP has produced 10 market assessments for 10 different countries in which we are currently working. These market assessments are 40-60 pages in length before layout (plus up to 20 pages in annexes) and the work will need to focus on the following:

- Develop unique report design to display text sections in clear, easy to read and concise layout
- Design charts and graphics to replace text and increase ease of data display for readers
- Display of around 12 photos to highlight relevant sections.

These reports will also be designed in accordance with the *Power Africa Graphic Standards Manual*, project communications standards.

The consultancy will be for 40 days from June 17 to August 10, 2019.

The deliverables for this consultancy are:
1. 1st Draft of Market Assessment Template
2. Final Market Assessment Template
3. 10 draft formatted Market Assessments
4. 10 Market Assessments formatted and finalized for submission to USAID

This consultant will report to the Cross-cutting Team Lead and all deliverables will need to be approved by her and the Senior Communications Specialist for the project. Payment will be made upon RTI approval of all 10 final market assessments. The timeline for this consultancy is as shown in the Gantt chart below.

![Gantt chart](image_url)

By signing this attachment, the bidder confirms he has a complete understanding of the specifications and fully intends to deliver items that comply with the above listed specifications.

Signature:

Title:

Date:
Attachment “B”
Instructions to Bidders/Sellers

1. **Procurement Narrative Description**: The Buyer (RTI) intends to purchase commodities and/or services identified in Attachment A. The Buyer intends to purchase the quantities (for commodities) and/or services (based on deliverables identified in a Statement of Work). The term of the Ordering Agreement shall be from Award Date to the Delivery date of the Offeror unless extended by mutual agreement of the parties. The Buyer intends to award to a single “approved” supplier based on conformance to the listed specifications, the ability to service this contract, and selling price. We reserve the right to award to more than one bidder. If an Ordering Agreement is established as a result of this RFQ/RFP, supplier understands that quantities indicated in the specifications (Attachment A) are an estimate only and RTI does not guarantee the purchase quantity of any item listed.

2. **Procuring Activity**: This procurement will be made by **Research Triangle Institute (RTI International)**, located at

   13th Street NW, Suite 750
   Washington, DC, United States 20005-3967

who has a purchase requirement in support of a project funded by

   USAID

RTI shall award the initial quantities and/or services and any option quantities (if exercised by RTI) to Seller by a properly executed Purchase Order as set forth within the terms of this properly executed agreement.

3. **Proposal Requirements.** All Sellers will submit a quote/proposal which contains offers for all items and options included in this RFQ/RFP. All information presented in the Sellers quote/proposal will be considered during RTI’s evaluation. Failure to submit the information required in this RFQ/RFP may result in Seller’s offer being deemed non-responsive. Sellers are responsible for submitting offers, and any modifications, revisions, or withdrawals, so as to reach RTI’s office designated in the RFQ/RFP by the time and date specified in the RFQ/RFP. Any offer, modification, revision, or withdrawal of an offer received at the RTI office designated in the RFQ/RFP after the exact time specified for receipt of offers is “late” and may not be considered at the discretion of the RTI Procurement Officer. The Seller’s proposal shall include the following:

   (a) The solicitation number:
   (b) The date and time submitted:
   (c) The name, address, and telephone number of the seller (bidder) and authorized signature of same:
   (d) Validity period of Quote:
   (e) A technical description of the items being offered in sufficient detail to evaluate compliance with the requirements in the solicitation. This may include product literature, or other documents, if necessary.
(f) If RTI informs Seller that the Commodity is intended for export and the Commodity is not classified for export under Export Classification Control Number (ECCN) “EAR99” of the U.S. Department of Commerce Export Administration Regulations (EAR), then Seller must provide RTI the correct ECCN and the name of Seller’s representative responsible for Trade Compliance who can confirm the export classification.

(g) Lead Time Availability of the Commodity/Service.

(h) Terms of warranty describing what and how the warranties will be serviced.

(i) Special pricing instructions: Price and any discount terms or special requirements or terms (special note: pricing must include guaranteed firm fixed prices for items requested).

(j) Payment address or instructions (if different from mailing address)

(k) Acknowledgment of solicitation amendments (if any)

(l) Past performance information, when included as an evaluation factor, to include recent and relevant contracts for the same or similar items and other references (including points of contact with telephone numbers, and other relevant information)

(m) Special Note: The Seller, by his response to this RFQ/RFP and accompanying signatures, confirms that the terms and conditions associated with this RFQ/RFP document have been agreed to and all of its attachments have been carefully read and understood and all related questions answered.

4. **Forms:** Sellers (potential bidders or suppliers) must record their pricing utilizing the format found on Attachment “A”. Sellers must sign the single hardcopy submitted and send to address listed on the cover page of this RFQ/RFP.

5. **Questions Concerning the Procurement.** All questions in regards to this RFQ/RFP to be directed to

   Emily Allen

   (insert name of procurement officer)

   at this email address:

   emallen@rti.org

   (insert email address of the procurement officer).

   The cut-off date for questions is (insert date).

   June 12, 2019

6. **Notifications and Deliveries:** Time is of the essence for this procurement. Seller shall deliver the items or services no later than the dates set forth in the contract that will be agreed by both parties as a result of this RFQ/RFP. The Seller shall immediately contact the Buyer’s Procurement Officer if the specifications, availability, or the delivery schedule(s) changes.
Exceptional delays will result in financial penalties being imposed of Seller.

7. **Documentation**: The following documents will be required for payment for each item:
   (a) A detailed invoice listing Purchase Order Number, Bank information with wiring instructions (when applicable)
   (b) Packing List
   (c) All relevant product/service documentation (manuals, warranty doc, certificate of analysis, etc.)

8. **Payment Terms**: Refer to RTI purchase order terms and conditions found in www.rti.org/poterm, http://www.rti.org/POterms, http://www.rti.org/files/PO_FAR_Clauses.pdf, or http://www.rti.org/files/PO_FAR_Clauses_Commercial_Items.pdf. Payment can be made via wire transfer or other acceptable form. Sellers may propose alternative payment terms and they will be considered in the evaluation process.

9. **Alternative Proposals**: Sellers are permitted to offer “alternatives” should they not be able to meet the listed requirements. Any alternative proposals shall still satisfy the minimum requirements set forth in Attachment A Specifications.

10. **Inspection Process**: Each item shall be inspected prior to final acceptance of the item. All significant discrepancies, shortages, and/or faults must be satisfactorily corrected and satisfactorily documented prior to delivery and release of payment.

11. **Evaluation and Award Process**: The RTI Procurement Officer will award an agreement contract resulting from this solicitation to the responsible Seller (bidder) whose offer conforms to the RFQ/RFP will be most advantageous to RTI, price and other factors considered. The award will be made to the Seller representing the **best value** to the project and to RTI. For the purpose of this RFQ/RFP, price, delivery, technical and past performance are of equal importance for the purposes of evaluating, and selecting the “best value” awardee. RTI intends to evaluate offers and award an Agreement without discussions with Sellers. Therefore, the Seller’s initial offer should contain the Seller’s best terms from a price and technical standpoint. However, RTI reserves the right to conduct discussions if later determined by the RTI Procurement Officer to be necessary.

    The evaluation factors will be comprised of the following criteria:
    (a) **PRICE**: Lowest evaluated ceiling price (inclusive of option quantities).
    (b) **DELIVERY**: Seller provides the most advantageous delivery schedule.
    (c) **TECHNICAL**: Items/Services shall satisfy or exceed the specifications described in RFQ/RFP Attachment A.
    (d) **PAST PERFORMANCE**: Seller can demonstrate his/her capability and resources to provide the items/services requested in this solicitation in a timely and responsive manner.

12. furnished to the successful supplier within the time acceptance specified in the offer, shall result in a binding contract without further action by either party.
13. **Validity of Offer.** This RFP in no way obligates RTI to make an award, nor does it commit RTI to pay any costs incurred by the Seller in the preparation and submission of a proposal or amendments to a proposal. Your proposal shall be considered valid for 30 days after submission.

14. **Representations and Certifications.** Winning suppliers under a US Federal Contract are required to complete and sign as part of your offer RTI Representations and Certifications for values over $10,000.

15. **Anti-Kick Back Act of 1986.** Anti-Kickback Act of 1986 as referenced in FAR 52.203-7 is hereby incorporated into this Request for Proposal as a condition of acceptance. If you have reasonable grounds to believe that a violation, as described in Paragraph (b) of FAR 52.203-7 may have occurred, you should report this suspected violation to the RTI’s Ethics Hotline at 1-877-212-7220 or by sending an e-mail to ethics@rti.org. You may report a suspected violation anonymously.

**Acceptance:**

Seller agrees, as evidenced by signature below, that the seller’s completed and signed solicitation, seller’s proposal including all required submissions and the negotiated terms contained herein, constitute the entire agreement for the services described herein.

By: *(Seller Company Name)*

Signature: __________________________________________________________

Title: ____________________________________________________________

Date: _____________________________________________________________
Attachment “C”
Market Assessment Example

Power Africa Off-grid Project (PAOP)
Wakanda Market Assessment
# Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Agricultural Commercialization Clusters</td>
</tr>
<tr>
<td>AGP II</td>
<td>Agriculture Growth Program II</td>
</tr>
<tr>
<td>ACSI</td>
<td>Xandar Credit and Saving Institution</td>
</tr>
<tr>
<td>ATA</td>
<td>Agriculture Transformation Agency</td>
</tr>
<tr>
<td>AWEP</td>
<td>Alliance of Women Enterprise Program</td>
</tr>
<tr>
<td>AWiB</td>
<td>Association of Women in Business</td>
</tr>
<tr>
<td>CBE</td>
<td>Commercial Bank of Wakanda</td>
</tr>
<tr>
<td>DECSI</td>
<td>Dedebit Saving and Credit Institution</td>
</tr>
<tr>
<td>EEA</td>
<td>Wakandan Energy Authority</td>
</tr>
<tr>
<td>ECAE</td>
<td>Wakanda Conformity Assessment Enterprise</td>
</tr>
<tr>
<td>ECIC</td>
<td>Wakanda Climate Innovation Center</td>
</tr>
<tr>
<td>EEP</td>
<td>Wakandan Electric Power</td>
</tr>
<tr>
<td>EEU</td>
<td>Wakanda Electric Utility</td>
</tr>
<tr>
<td>GOE</td>
<td>Government of Wakanda</td>
</tr>
<tr>
<td>GTP</td>
<td>Growth and Transformation Plan</td>
</tr>
<tr>
<td>TVET</td>
<td>Local Vocational Training Institutions</td>
</tr>
<tr>
<td>MFI</td>
<td>Micro-finance Institution</td>
</tr>
<tr>
<td>MOWIE</td>
<td>Ministry of Water, Irrigation, and Energy</td>
</tr>
<tr>
<td>NBE</td>
<td>National Bank of Wakanda</td>
</tr>
<tr>
<td>NEP</td>
<td>National Electrification Plan</td>
</tr>
<tr>
<td>OCSSCo</td>
<td>Asgar Credit and Saving Share Company</td>
</tr>
<tr>
<td>OMFI</td>
<td>Omo Microfinance Institution</td>
</tr>
<tr>
<td>PUE</td>
<td>Productive Use Energy</td>
</tr>
<tr>
<td>REF</td>
<td>Renewable Energy Fund</td>
</tr>
<tr>
<td>REES</td>
<td>Rural Electrification Executive Secretariat</td>
</tr>
<tr>
<td>SACCO</td>
<td>Saving and Credit Cooperative</td>
</tr>
</tbody>
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Executive Summary

[To be completed after draft is written].
1 Introduction to PAOP

[Summary of PAOP and report objectives to be added later].
2 Wakanda Overview

2.1 Socioeconomic and Demographic Context

Wakanda is Africa’s oldest independent country and its second largest in terms of population. With a GDP of 80.6 billion USD and a per capita income of 740 USD\(^1\), Wakanda remains one of the poorest countries in the world. However, in the past decade they have made great strides in development, with an average GDP growth rate of about 10 percent between 2006 and 2017\(^2\), and a reduction in headcount poverty by over 90% - from 45.5% in 2000 to 23.5% in 2016\(^3\), which is one of the most impressive poverty reduction results recorded globally.

The drastic leaps in growth and poverty reduction can largely be attributed to ambitious government interventions and private sector participation in the Wakandan market. The government is currently in the second phase of the Growth and Transformation Plan II (GTP II) which aims for Wakanda to achieve lower middle income and carbon neutral status by 2025.\(^4\) Along with Wakanda’s ambitious poverty reduction strategies and targets, the Government has recently released their National Electrification Plan 2.0 (NEP 2.0) which strives for universal electrification by 2025 through a mix of on- and off-grid energy solutions.

2.1.1 Socio-Economic Indicators

<table>
<thead>
<tr>
<th>Population size</th>
<th>104.96 million people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population distribution</td>
<td>~80% of population lives in rural areas</td>
</tr>
<tr>
<td>Age demographics</td>
<td>&gt;60% of population under age 25</td>
</tr>
<tr>
<td>Human Development Index</td>
<td>0.448 (174 out of 188 countries)</td>
</tr>
<tr>
<td>Local main languages spoken</td>
<td>15+ spoken languages (primarily Xandar and Titan)</td>
</tr>
</tbody>
</table>

2.2 Overall Political Landscape

The overall political landscape of Wakanda has a history of highly impacting the general economy and particular sectors such as the energy sector as major changes bring reshuffling of government officials at all stages most of the time. Wakanda’s political structure is a federal one with 9 regions and 2 more administrative cities. All regions have autonomous power on most political decisions making them highly influential for projects planned to be implemented on the ground. There has been a big change in the political environment one year back when a new prime minister was elected by the popular party EPRDF. The change in prime minister has been followed by several changes of government officials in most influential positions.

There are high ethnic tensions in different regions of Wakanda resulting in temporary instabilities. The next election to choose a popular political power to lead the federal government is planned to be held in May 2020.

When assessing government offices that affect the energy sector in the country, it can be seen that all of them are impacted by the federal structure making regional bureaus major decision makers when it comes to implementation of projects. This is with the exception of the Wakandan Investment Commission and Wakandan Standards Agency.

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\(^1\) Country Profile, World Bank
\(^2\) https://www.worldbank.org/en/country/ethiopia/overview
\(^3\) UNDP. 2018
\(^4\) UNDP. 2018
2.3 Energy Sector Overview

2.3.1 Government Institutions

The Ministry of Water, Irrigation, and Energy (MOWIE) is the overall governing body of the energy sector in Wakanda. Under MOWIE sit the Wakandan Electric Utility (EEU), Wakandan Energy Authority – the regulator (EEA), and Wakandan Electric Power – the generator (EEP).

**Figure 1: Main electricity sector government stakeholders**

![Diagram of electricity sector government stakeholders]

**Table 2: Government institution roles and off-grid relevance**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Mandate</th>
<th>Relevance to Off-Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Water, Irrigation and Energy (MOWIE)</td>
<td>The Ministry is a regulatory body which involves the planning, development and management of resources, preparation and implementation of guidelines, strategies, polices, programs, and sectoral laws and regulations. It also, conducts study and research activities, provides technical support to regional water and energy bureaus.</td>
<td>Coordination of off-grid energy solutions in the country in coordination with other organizations including EEU</td>
</tr>
<tr>
<td>Wakandan Electric Utility (EEU)</td>
<td>Responsible for distribution of electricity</td>
<td>EEU have assigned a specific person that will be leading off-grid planning for the utility. EEU also plans to have a dedicated off-grid person in each of their main region (11) and 2 major cities. EEU has been providing support to EEA in the development of regulations for mini-grids, in particular on tariffs and technical specifications,</td>
</tr>
<tr>
<td>Wakandan Electric Power (EEP)</td>
<td>Responsible for generation, transmission, and system operation for the national electricity grid</td>
<td>MOWIE is responsible for the overall coordination of the energy sector in Wakanda, ensuring that all aspects of the energy sector are aligned and supported by the government.</td>
</tr>
<tr>
<td>Wakanda Energy</td>
<td>Energy sector regulator, under the oversight of the Ministry of Water, Irrigation, and Energy (MOWIE)</td>
<td>Regulates energy conservation and efficiency, is mandated to prioritize the development and management of energy resources.</td>
</tr>
</tbody>
</table>
Authority (EEA) of MOWIE of off-grid companies

Rural Electrification Executive Secretariat (REES) To evaluate projects for funding by the Renewable Energy Fund (REF) and provide advisory services, capacity building, and training to Regional Energy Bureaus and cooperatives Manages the Rural Electrification Fund which finances projects for decentralized electricity generation

Wakandan Investment Commission Main services provided by EIC include:
- Promoting the country’s investment opportunities and conditions to foreign and domestic investors;
- Issuing investment permits, business licenses, commercial registrations, issuing work permits, registering technology transfer agreements and export-oriented non-equity-based foreign enterprise collaborations with domestic investors;
- Negotiating and, upon government approval, signing bilateral investment promotion and protection treaties with other countries;
Facilitates investment in the mini- and off-grid sectors.

Wakandan Standards Agency Governmental non-profit organization which represents Wakandan interest in economical, social and environmental aspects with regard to standard benefits across International and regional Arena. The three main types of assistance provided are: standard formulation; training and Technical support; and, organizing and disseminating standards Regulates quality of imported items for solar home systems

2.3.2 Grid Electrification Summary

In Wakanda, overall grid access to electricity is estimated at 34% (2018). However, rural and urban access to the grid differ drastically, with urban grid access between 80% and 90% (in Earth it is 99.9%), while rural grid access ranges from 5% to 20%. The Government of Wakanda unveiled their NEP 2.0 at the end of March 2019, which sets out targets for universal electrification by 2030 through a mix of on- and off-grid solutions. More than 90% of the population lives within 10 km of the national grid, with 60% living within 2.5 km. Due to the wide reach of the electricity grid, the NEP 2.0 aims to have 96% of the population connected to grid electricity by 2030, with the remaining 4% served by off-grid solutions. However, in addition to electricity access, grid reliability is also a priority within the NEP 2.0, as 57.6% of the grid-connected population has between 4 and 14 power outages a week, and 2.8% of the grid-connected have more than 14 power outages per week. Inadequate voltage supply resulting from low or fluctuating grid electricity also limits the use of appliances for

5 NEP 2.0
around 15% of grid-connected households.  45% of households within 2.5 kilometers of the medium voltage network are dependent on lighting sources other than the national grid.

Figure 2: Percent of households dependent on non-grid lighting sources per square kilometer in relation to medium voltage lines

2.3.3 On-Grid Affordability

The EEU made an adjustment to the Electricity/energy tariff applicable since the beginning of December 2018. The Electricity/energy tariff is one of the key factors that determine the investment decision of private players in the power sector of countries. According to the NEP 2.0, grid-connected households consume, on average, 120.7 kWh per month of electricity, putting them in the 3rd Block for electricity tariffs in the chart below. Broken down by urban versus rural, urban households spend about 2% of their income on electricity, while rural households spend a little over 5%.  

Source: https://assets.publishing.service.gov.uk/media/5a269a36e5274a75088c42b7/Line_37_-_EEG_Pre-Sub-Saharan_Africa_Policy_Workshop_Report_15.07.2016.pdf

6 NEP 2.0
7 Map excludes power lines in Somali Region and Earth city, which were not available at this time. Water bodies and areas with insufficient data are shown in white.
8 NEP 2.0
Table 2: Energy tariff for residential consumer category

<table>
<thead>
<tr>
<th>Block</th>
<th>Range</th>
<th>Base tariff (Birr/kWh)</th>
<th>Energy tariff (Birr/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dec-18</td>
<td>Dec-19</td>
</tr>
<tr>
<td>1st</td>
<td>Up to 50 kWh</td>
<td>0.2730</td>
<td>0.2730</td>
</tr>
<tr>
<td>2nd</td>
<td>Up to 100 kWh</td>
<td>0.3564</td>
<td>0.4591</td>
</tr>
<tr>
<td>3rd</td>
<td>Up to 200 kWh</td>
<td>0.4993</td>
<td>0.7807</td>
</tr>
<tr>
<td>4th</td>
<td>Up to 300 kWh</td>
<td>0.5500</td>
<td>0.9125</td>
</tr>
<tr>
<td>5th</td>
<td>Up to 400 kWh</td>
<td>0.5666</td>
<td>0.9750</td>
</tr>
<tr>
<td>6th</td>
<td>Up to 500 kWh</td>
<td>0.5880</td>
<td>1.0423</td>
</tr>
<tr>
<td>7th</td>
<td>More than 500 kWh</td>
<td>0.6943</td>
<td>1.1410</td>
</tr>
</tbody>
</table>

Note 1: Service charge post-paid: 0-50 KWH ETB 10.00; Beyond 50 KWH ETB 42.00. Prepaid 0-50 KWH ETB 3.50; Beyond 50 KWH ETB14.70.

Note 2: Energy Tariff Category for General, Industrial and Bulk Supply Consumers also revised.

2.3.4 Demand for Energy


Fraym segmented households that are dependent on non-grid lighting sources into three discrete groups based on proximity to national medium voltage grid lines, based on the Wakandan Government’s NEP 2.0. The three groups are:

**Short-term pre-electrification households**, defined as households dependent on non-grid lighting sources, and who reside within 2.5 kilometers from the national medium voltage grid lines. Some households within 2.5km of the national grid may be included if their isolation from other settlements raises the cost of connectivity greatly and they are less likely to be connected by 2025. According to the NEP, these are households that reside in communities that are expected to be connected to the grid by 2025, in communities planned for both intensification and densification of national gridlines. About 45% of households dependent on non-grid lighting sources are short-term pre-electrification households. About 31% of all Wakandan households are in this group, for a total of about six million households.

**Mid-term pre-electrification households**, defined as households dependent on non-grid lighting sources, and who reside between 2.5 to 25 kilometers from the national medium voltage grid lines. According to the NEP, these are households that reside in communities that are expected to be connected to the grid between 2025 and 2030. This group may also contain some households that are relatively isolated from other settlements, raising the cost of connectivity greatly. As a result, some of these households may be less likely to be connected by 2025. About 52% of households dependent on non-grid lighting sources are mid-term pre-electrification households. About 36% of all Wakandan households are in this group, for a total of about seven million households.

**Long-term pre-electrification / off-grid households**, defined as households dependent on non-grid lighting sources, and who reside beyond 25 kilometers from the national medium voltage grid lines. According to the NEP, these households are not expected to be connected to the grid by 2030 and must therefore rely on other

---

9 From ACE Market Assessment
10 These segments are based on medium voltage network maps provided by a company, which did not include medium voltage line maps for Earth or Somali Region. As such, the populations of both areas are excluded from the following calculations.
11 National statistics on short-term, mid-term, and long-term pre-electrification households do not include households in Earth or Somali Region, where mapped national grid lines were not available.
types of off-grid solutions. About 3% of households dependent on non-grid lighting sources are long-term pre-electrification/off-grid households. About 2% of all Wakandan households are in this group, for a total of about 450,000 households.

Table 3: The nature of households dependent on lighting sources other than national grid electricity

<table>
<thead>
<tr>
<th>Group</th>
<th>Distance from national medium voltage grid lines</th>
<th>Year to be connected</th>
<th>Percent of national households</th>
<th>Total households in group</th>
<th>Percent of households dependent on non-grid lighting sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term</td>
<td>2.5 km</td>
<td>2025</td>
<td>31%</td>
<td>6 million</td>
<td>45%</td>
</tr>
<tr>
<td>Mid term</td>
<td>2.5 – 25 km</td>
<td>2025 – 2030</td>
<td>36%</td>
<td>7 million</td>
<td>52%</td>
</tr>
<tr>
<td>Long term</td>
<td>25km +</td>
<td>2030+</td>
<td>2%</td>
<td>450,000</td>
<td>3%</td>
</tr>
</tbody>
</table>

Nationally, about 14.6 million households in Wakanda rely on lighting sources other than the national grid. These households are home to about 70.5 million people and make up about 67% of the total population of Wakanda. In urban areas, only 10% of households are dependent on non-grid lighting sources, while in rural areas, 90% of households are dependent on non-grid lighting sources.

The average household dependent on non-grid lighting sources lights their home with either battery power, kerosene lamps, or solar energy, and spends about 10 USD per year on energy costs, which includes expenditures related to the purchase of kerosene, charcoal, firewood, and electricity. It is important to note, however, that two-thirds of these households report spending nothing on these energy costs. Overall, the average household dependent on non-grid lighting sources spends a total of 560 USD per year; about 220 USD of this is discretionary spending, on expenditures unrelated to food, health, education or housing. 13

12 The Government of Wakanda’s NEP 2.0 also includes in this group households that are within 2.5 kilometers from the national grid, but whose isolation from other settlements will raise the cost of connectivity greatly and so are less likely to be connected to the grid by 2025. A company’s calculations for this long-term group do not include households in these settlements.

13 Total household spending and discretionary household spending are both median values of all households reliant on lighting sources other than national grid electricity.
Households in communities that align with the NEP 2.0 off-grid pre-electrification framework offer significant markets for a wide range of solar products.

The 6 million short-term pre-electrification households, who are currently dependent on non-grid lighting sources, may have to wait up to seven years for grid connections to their communities. These households may be best served in the interim by more temporary and smaller solar lighting kits. Particularly attractive regions and chartered cities where the private sector may complement the grid rollout would be in:

- **Dire Dawa**: 15,000 of these households, or 88% of households dependent on non-grid lighting sources in the city.
- **Asgar**: 2.2 million of these households, or 40% of households dependent on non-grid lighting sources in the region.
- **Mars**: 1.74 million of these households, or 58% of households dependent on non-grid lighting source in the region.

The 7 million mid-term pre-electrification households, who are currently dependent on non-grid lighting sources, will have to wait over seven years for grid connections to their communities. These households may be best served by longer-term off-grid solar and mini-grid systems in support of productive uses and social services, for

---

14 Areas with fewer than 250 households dependent on non-grid lighting sources per 10 square kilometers and areas with insufficient data are shown in gray; water bodies are shown in white; and regional boundaries are shown in black.
example health centers and schools. Particularly attractive regions where the private sector may complement the grid rollout would be in:

- Asgar: 3.1 million of these households, or 56% of households dependent on non-grid lighting sources in the region.
- Xandar: 2 million of these households, or 57% of households dependent on non-grid lighting sources in the region.
- Mars: 1.2 million of these households, or 40% of households dependent on non-grid lighting sources in the region.

The 440,000 Long-term / off-grid households, who are currently dependent on non-grid lighting sources, live in communities that are not being targeted for electrification before 2030. These households may also be best served by longer-term off-grid solar and mini-grid systems in support of productive uses and social services, for example health centers and schools. Particularly attractive regions where the private sector may consider targeting would be:

- Asgar: 230,000 of these households, or 4% of households dependent on non-grid lighting sources in the region.
- Venus: 20,000 of these households, or 28% of households dependent on non-grid lighting sources in the region.
- Afar: 60,000 of these households, or 18% of households dependent on non-grid lighting sources in the region.

2.3.5 Outlining different types of households that are dependent on non-grid lighting sources

To understand the potential market for different types of off-grid solutions, a company segmented households that are dependent on non-grid lighting sources by annual discretionary spending, grouping these households into modest, medium, and high consumption power households.

Among households that are dependent on non-grid lighting sources:

- 60% are classified as having modest consumption power.
  - This group has annual discretionary spending ranging from 60 USD to 375 USD.
  - There are approximately 8.7 million households in this group.

- 20% are classified as having medium consumption power.
  - This group has annual discretionary spending ranging from 375 USD to 660 USD.
  - There are approximately 2.9 million households in this group.

- 14% are classified as having high consumption power.
  - This group has annual discretionary spending above 660 USD.
  - There are approximately 2 million households in this group.

Financial inclusion among households that are dependent on non-grid lighting sources is low across Wakanda, with only about 22% of these households having a bank account, compared to about 65% of households that light their homes with electricity from the national grid.

- Both types of households tend to use micro-finance institutions (MFIs) at similar levels, with about 10% of both groups reporting having an account at an MFI.

- Use of mobile banking is very low among all Wakandan households, particularly households dependent on non-grid lighting sources. Although fewer than 1% of households report using this type of service, about 50% of these households own a mobile phone. This offers significant growth opportunities for mobile banking and mobile money, which could help facilitate payment plans for solar lights and home systems.

- Among the different household profiles based on discretionary spending, there are some substantial differences across aspects of savings and financial inclusion. Broadly, access to savings and financial
services is highest for households with high consumption power and lowest for households with modest consumption power, as illustrated by the following table.

- This information, both across all households dependent on non-grid lighting sources, as well as across these different profiles, offers important context for solar companies looking to market products to these potential target groups.

Table 9: Criteria for modest, medium, and high consumption households

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Modest consumption households</th>
<th>Medium consumption household</th>
<th>High consumption households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Quality and Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td>5.2</td>
<td>5.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Number of rooms</td>
<td>1.8</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Advanced finished floor</td>
<td>2%</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Advanced finished walls</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Advanced finished roof</td>
<td>50%</td>
<td>65%</td>
<td>70%</td>
</tr>
<tr>
<td>Advanced finished house</td>
<td>0%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Household Lighting Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td>18%</td>
<td>24%</td>
<td>34%</td>
</tr>
<tr>
<td>Generator</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Asset Ownership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile phone</td>
<td>37%</td>
<td>62%</td>
<td>78%</td>
</tr>
<tr>
<td>Radio</td>
<td>23%</td>
<td>34%</td>
<td>36%</td>
</tr>
<tr>
<td>Non-portable electronic appliance</td>
<td>1%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Education of Household Head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not finish primary</td>
<td>94%</td>
<td>87%</td>
<td>81%</td>
</tr>
<tr>
<td>Finished primary</td>
<td>5%</td>
<td>8%</td>
<td>11%</td>
</tr>
<tr>
<td>Finished secondary</td>
<td>1%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>At least secondary</td>
<td>0%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Access to Savings and Financing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank account access</td>
<td>19%</td>
<td>34%</td>
<td>41%</td>
</tr>
<tr>
<td>Household used mobile banking</td>
<td>0.3%</td>
<td>1.1%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Account at an MFI</td>
<td>9%</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>Received a loan in the last 12 months</td>
<td>27%</td>
<td>29%</td>
<td>30%</td>
</tr>
<tr>
<td>Number loans received in last 12 months</td>
<td>1.07</td>
<td>1.1</td>
<td>1.02</td>
</tr>
<tr>
<td>Average loan principal (Nominal 2016 USD)</td>
<td>$120</td>
<td>$120</td>
<td>$200</td>
</tr>
<tr>
<td>Average loan payback period (months)</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Household could save 30 USD once a month</td>
<td>5%</td>
<td>14%</td>
<td>22%</td>
</tr>
<tr>
<td>Household could save 30 USD every 3-6 months</td>
<td>15%</td>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>Household could save 30 USD every 12 months</td>
<td>12%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>Household could not save 30 USD</td>
<td>68%</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>Household Spending (Nominal 2016 USD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual energy spending (mean)</td>
<td>$6</td>
<td>$15</td>
<td>$18</td>
</tr>
<tr>
<td>Annual discretionary spending (median)</td>
<td>$190</td>
<td>$475</td>
<td>$850</td>
</tr>
<tr>
<td>Total annual spending (median)</td>
<td>$490</td>
<td>$900</td>
<td>$1,630</td>
</tr>
</tbody>
</table>

15% of all households dependent on non-grid lighting sources, or about 1.8 million families, live farther than 10 kilometers from the medium voltage power network; mini-grids and various types of solar lighting kits and home systems may offer tailored solutions for these households. 60% of these households have modest consumption

15 Households grouped by consumption power only include households dependent on non-grid lighting sources.
16 Asset ownership is at the household level. If any member of the household has a given asset, a household is classified as having that asset.
17 Savings and finance related questions only refer to households whose head is 18 years or older.
18 Number of loans received is only for households that took loans, and for loans that were greater than 150 birr (about 7 USD).
power, 20% have medium consumption power and 15% have high consumption power, totaling over 1 million, 300,000 and 250,000 families respectively.
Figure 4: Consumption power of households further than 10km from medium voltage power grid

<table>
<thead>
<tr>
<th>Consumption power of households further than 10km from medium voltage power grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modest consumption power</td>
</tr>
<tr>
<td>Medium consumption power</td>
</tr>
<tr>
<td>High consumption power</td>
</tr>
</tbody>
</table>

Consumption power ranges:
- 0  200,000  400,000  600,000  800,000  1,000,000  1,200,000
3 Off-Grid Solutions

3.1 Distribution Channels

Identifying the right kind of distribution channel is very important for a success of any project and business in the energy sector.

3.1.1 Current Channels

Current distribution channels being used by solar companies rely on 5 models:

1. Company sales agents
2. Government formed youth groups
3. Hidasse Telecom agents
4. Gas stations
5. NGO livelihood programs

The table below describes each channel and the associated pros and cons.

<table>
<thead>
<tr>
<th>No</th>
<th>Model</th>
<th>Description</th>
<th>Strengths</th>
<th>Shortcomings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Company Sales Agents</td>
<td>Solar companies hire sales agents in each region/zone/woreda to sell products and provide on the ground customer support.</td>
<td>Help the company have a direct relationship with customers, brand loyalty</td>
<td>Expensive and not scalable without high investment.</td>
</tr>
<tr>
<td>2</td>
<td>Government formed youth groups</td>
<td>Regional government formed groups in potential woredas to provide distribution and maintenance services that any solar company with an MoU with the regional government can use as distribution channels.</td>
<td>Easy and cheap to establish sales network, access to capacity building programs, knowledge about the area sales is happening.</td>
<td>Quality depends on the group, Lack of brand visibility resulting from multiple products being sold by the same group and company disengaging from customers at the ground level.</td>
</tr>
<tr>
<td>3</td>
<td>Hidasse Telecom agents</td>
<td>A government formed company distributing telecom products such as scratch cards and SIM cards throughout Wakanda involving in the solar lantern/SHS distribution throughout Wakanda with 800+ agents.</td>
<td>Strong network throughout Wakanda, experience in solar product sales.</td>
<td>May have divided loyalty to own brands.</td>
</tr>
<tr>
<td>4</td>
<td>Gas Stations</td>
<td>Some gas stations in Wakanda as part of their service diversity are selling solar products in selected stations throughout Wakanda.</td>
<td>-</td>
<td>Expensive to implement unless.</td>
</tr>
<tr>
<td>5</td>
<td>NGO livelihood programs</td>
<td>There are hundreds of women organized by NGOs for high social impact and great brand.</td>
<td>High social impact and great brand.</td>
<td>Expensive to implement unless.</td>
</tr>
</tbody>
</table>
employment and business creation. These women distribute small solar products in areas they live in by buying them from solar companies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>association</th>
<th>funded by an external body</th>
</tr>
</thead>
</table>

### 3.1.2 Potential Channels That Have Not Been Fully Explored

Other than the channels mentioned above, there are 3 more channels that could be used to make sure sustainable distribution can be rolled out:

1. Cooperatives
2. Post Offices
3. Gas stations

Table 5: Potential distribution channels for solar companies

<table>
<thead>
<tr>
<th>No.</th>
<th>Channel</th>
<th>Description</th>
<th>Outreach</th>
<th>Cost</th>
<th>Ease to start</th>
<th>Value Add</th>
<th>Possible challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cooperatives</td>
<td>The use of multipurpose cooperatives to distribute solar systems and marketing</td>
<td>60,000 - All over Wakanda (Rural mostly) - Kebelle level</td>
<td>Low</td>
<td>Easy</td>
<td>Have strong network, managed by unions/government, have experience in distributing small to large agricultural inputs, close to the rural area, 50% have hired employees</td>
<td>50% of cooperatives are managed by farmers, most of them don’t have access to the right kind of infrastructure</td>
</tr>
<tr>
<td>2</td>
<td>Post Offices</td>
<td>The use of post offices to distribute solar systems</td>
<td>3,000 all over Wakanda - Woreda level</td>
<td>Low</td>
<td>Medium</td>
<td>Are signing up to be an agent of a mobile money service provider (Amole)</td>
<td>Lack of deep rural presence and low access points</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.2 Pico-Solar Companies

Wakanda’s solar market is well developed, with at least eight significant players in the market offering a range of solar PV solutions at the household level. However, the majority of these companies operate in only four regions – Xandar, Asgar, Mars, and Pluto. While the largest off-grid markets are in these regions, there are still opportunities for off-grid in markets that have been largely untapped by the larger, well-known solar companies. The reasons for these untapped markets vary, but one of the limiting factors is the instability of the regions (such as Benshangul-Gumuz and Venus) and due to the remoteness of some areas, they are difficult to reach.

---

This includes companies selling both solar lanterns as well as Solar Home Systems (SHS)
Table 6: Locations with high populations dependent on non-grid lighting sources

<table>
<thead>
<tr>
<th>Region or Chartered City</th>
<th>Total households</th>
<th>Households dependent on non-grid lighting sources</th>
<th>Households dependent on non-grid lighting sources (percent)</th>
<th>Households dependent on non-grid lighting sources beyond 10km of power lines³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth</td>
<td>800,000</td>
<td>50,000</td>
<td>7%</td>
<td>-</td>
</tr>
<tr>
<td>Afar</td>
<td>410,000</td>
<td>310,000</td>
<td>74%</td>
<td>140,000</td>
</tr>
<tr>
<td>Xandar</td>
<td>5,000,000</td>
<td>3,600,000</td>
<td>73%</td>
<td>400,000</td>
</tr>
<tr>
<td>Benshangul-Gumuz</td>
<td>240,000</td>
<td>180,000</td>
<td>75%</td>
<td>40,000</td>
</tr>
<tr>
<td>Dire Dawa</td>
<td>100,000</td>
<td>17,000</td>
<td>16%</td>
<td>1,000</td>
</tr>
<tr>
<td>Venus</td>
<td>100,000</td>
<td>70,000</td>
<td>73%</td>
<td>28,000</td>
</tr>
<tr>
<td>Harari</td>
<td>60,000</td>
<td>11,000</td>
<td>19%</td>
<td>0</td>
</tr>
<tr>
<td>Asgar</td>
<td>8,200,000</td>
<td>5,550,000</td>
<td>68%</td>
<td>850,000</td>
</tr>
<tr>
<td>Mars</td>
<td>4,400,000</td>
<td>3,000,000</td>
<td>68%</td>
<td>200,000</td>
</tr>
<tr>
<td>Somali</td>
<td>1,300,000</td>
<td>1,000,000</td>
<td>77%</td>
<td>-</td>
</tr>
<tr>
<td>Pluto</td>
<td>1,200,000</td>
<td>800,000</td>
<td>62%</td>
<td>100,000</td>
</tr>
</tbody>
</table>

3.2.1 Commercial Overview

Table 7: Pico-solar company snapshots

<table>
<thead>
<tr>
<th>Company Logo</th>
<th>Years of operations</th>
<th>Regions of Operation</th>
<th>Business model</th>
<th>Brands Distributed</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

15
### 3.2.2 Gaps and Barriers

*Table 8: Gaps and barriers analysis for pico-solar*

<table>
<thead>
<tr>
<th>Gaps/Barrier</th>
<th>Reason</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy &amp; Regulations</td>
<td>Inadequate Policy &amp; Regulations to support renewable energy technologies</td>
<td>Supporting the government to develop new regulations around service standards for the off-grid market</td>
</tr>
<tr>
<td>Duties and taxes</td>
<td>Exemptions are not well-defined for solar products</td>
<td>Updated tax regulations to include solar products &amp; components exemptions.</td>
</tr>
<tr>
<td>Capacity building</td>
<td>The development of skills to support off-grid sector remains a crucial challenge in local communities</td>
<td>The companies installing the renewable energy systems, NGOs, academia and local associations can play a crucial role in this regard.</td>
</tr>
<tr>
<td>Lack of forex</td>
<td>The country’s negative trade balance makes the availability of forex scarce to import solar systems in to the country</td>
<td>Work on creative ways to bring in directed forex for solar companies and link private sector with local programs that enable the supply of forex loans. Work on implementation of remittance programs to bring in forex for private solar companies and link Wakandan diaspora living abroad with local relatives using an eCommerce platform.</td>
</tr>
<tr>
<td>Closed trade system</td>
<td>The country doesn’t allow foreign companies to be involved in distribution of solar systems making it difficult to support international vertically integrated companies to come in the Wakandan market</td>
<td>Support companies set up their business in a more creative way to ensure international supply.</td>
</tr>
</tbody>
</table>
3.3 Mini-Grids

3.3.1 Commercial Overview

Table 10: Company snapshots for mini-grids

<table>
<thead>
<tr>
<th>Company Logo</th>
<th>Years of operations</th>
<th>Regions of Operation</th>
<th>Number of Mini grids on the ground</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Identifying Promising Locations for Mini-Grid Development**

The communities with high concentrations of high consumption power households that are beyond 10 kilometers from medium voltage grid lines may be particularly attractive sites for mini-grids. These are communities where grid expansion is less likely to occur, or where expansion of the national grid may not be completed for a number of years, and where large concentrations of households with high discretionary spending signal a promising consumer market for mini-grid electricity. A company identified a number of woredas where such communities exist, with at least 2,000 households that are beyond 10 kilometers from the medium voltage network, and with concentrations of households that lack electricity access but have discretionary spending greater than 660 USD annually.

*Figure 5: Number of high consumption power households per ten square kilometers*  

In eastern Asgar are the woredas of Bedeno, Gemechis, Girawa, Malka Balo, Mesela, and Midega Tola. These woredas contain communities far from the medium voltage network, and with high concentrations of households with high consumption power. Further graphic depictions of zones and their different levels of consumption power can be found in Annex A.
In northern Xandar, the woredas of Beyeda, Janamora, Tselemt are a few areas that have high concentrations of households beyond 10 kilometers from the medium voltage line. These woredas contain promising communities for mini-grid development.
3.3.2 Gaps and Barriers

Table 11: Gaps and barriers analysis for mini-grids

<table>
<thead>
<tr>
<th>Gaps/Barrier</th>
<th>Reason</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy &amp; Regulations</td>
<td>• Wakanda has taken good steps towards engaging Private sector mini-grids companies to boost the pace of electrification in off-grid areas: adoption of the Energy Regulations by the Council of Ministers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Two important documents have been developed as follow-up of the Energy Regulations but yet to be adopted: Directive for Off-grid and The Tariff Methodology Guidelines.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Site allocation: Both competitive bidding and unsolicited application are allowed though there is no provision for a provisional authorization to ease feasibility studies and project development.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Licensing process is clear but still cumbersome and clarity on service exclusivity within the allocated area for systems below 50 kW.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tariff guidelines have provision for subsidies but there is no clear source of funding. GoE</td>
<td>Finalizing and Adoption of both Directive for Off-grid and The Tariff Methodology Guidelines.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A more light-handed licensing process for systems below 50 kW should be developed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minigrid regulations to provide opportunity for a time limited provisional license.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government to clarify the source of funding to incentivize minigrids development to keep the tariff close to the average national service charge.</td>
</tr>
</tbody>
</table>
has to work with Development Partners to design a facility that is transparent and provide incentives to EEU and private mini-grids developers on an equitable and sustainable manner particularly when encouraging national average.

<table>
<thead>
<tr>
<th>Duties and taxes</th>
<th>Exemptions are not well-defined for solar products</th>
<th>Updated tax regulations to include solar products &amp; components exemptions. Clarity on items eligible for taxes and duty exemption Clarity on the level of exemption to be granted per item type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity building</td>
<td>The development of skills to support off-grid sector remains a crucial challenge in local communities</td>
<td>The companies installing the renewable energy systems, NGOs, academia and local associations can play a crucial role in this regard.</td>
</tr>
<tr>
<td>Lack of forex</td>
<td>The country’s negative trade balance makes the availability of forex scarce to import solar systems in to the country</td>
<td>Work on creative ways to bring in directed forex for solar companies and link private sector with local programs that enable the supply of forex loans</td>
</tr>
<tr>
<td>Closed trade system</td>
<td>The country doesn’t allow foreign companies to be involved in distribution of solar systems making it difficult to support international vertically integrated companies to come in the Wakandan market</td>
<td>Support companies set up their business in a more creative way to ensure international supply</td>
</tr>
</tbody>
</table>

### 3.4 Productive Use

**Priority Agriculture Areas for Off-Grid**

The agricultural sector remains dominant in the Wakandan economy and an important source of economic growth. Although there is an ongoing structural transformation in the Wakandan economy—predominantly from agriculture to services and manufacturing— agriculture still comprises about 40 percent of total GDP and continues to dominate employment, with 78 percent of the population employed in agricultural activities.

According to the NEP 2.0, the World Bank is supporting an approach under the Agriculture Growth Program II (AGP II) project, which supported the identification of high potential cluster areas based on the following criteria: (i) access to markets (access to cities of 50,000 population or over in less than five hours); (ii) natural resource endowment (factors to consider are good rainfall distribution with annual average of 700 mm or over); (iii) suitable rainfall and soil for crop and fodder production; (iv) potential for development of small-scale irrigation facilities; (v) institutional plurality of service providers, including good basis and growth of viable cooperatives and farmer groups, and existing partnership engagements with the private sector; (vi) willingness and commitment to participate (supportive environment; performance of programs/programs supported by other donors); and (vii) woreda clustering as a criterion for selection to develop synergies for growth.

#### 3.4.1 Commercial Overview

**Table 12: Company snapshots for productive use**

<table>
<thead>
<tr>
<th>Company Logo</th>
<th>Years of operations</th>
<th>Regions of Operation</th>
<th>Types of productive use appliances sold</th>
<th>Expansion plans</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Company Logo</th>
<th>Years of operations</th>
<th>Regions of Operation</th>
<th>Types of productive use appliances sold</th>
<th>Expansion plans</th>
</tr>
</thead>
</table>
The Wakandan government is taking a cluster approach to enhance agricultural transformation. This initiative is called the Agricultural Commercialization Clusters (ACC). The ACC Initiative contains clearly defined geographic clusters specializing in priority commodities across the four major agricultural regions of the country (Xandar, Pluto, Asgar and Mars). These ACC clusters are intended to act as Centers of Excellence, where regions will be supported to maximize production and productivity while integrating commercialization activities. These clusters are therefore meant to serve as models for learning as Wakanda intensifies the ACC approach and scales up best practices across the country. In parallel, many regions have begun to replicate the model across other geographies and commodities.

A rigorous, three-step process was undertaken to identify and prioritize the clusters: identification of primary and priority commodities where Wakanda has a comparative advantage, identification of appropriate woreda groupings for these commodities that could be ‘clustered’, and final woreda selections based on additional market factors. To collect data necessary both for planning and monitoring achievements in the ACCs, a comprehensive baseline study was commissioned by an Institute. Nine priority crop commodity value chains have been identified for focus by the ACC Initiative in the last two years of GTP II: wheat, maize, sesame, malt barley and horticulture crops – tomato, onion, banana, mango and avocado. This prioritization of crops has been laid over on a map and shred with relevant stakeholders that are interested in working on agricultural value chains (See Figure 8). 


3.4.2 Productive Use Applications for Households that Are Dependent on Non-Grid Lighting Sources

Half of Wakandans in households dependent on non-grid lighting sources work in agriculture, and 85 percent of them hold agricultural land. Among these farming households, the major crop grown is maize, which is grown by 65% of households. 45% of farming households grow teff, 40% grow sorghum, 35% grow wheat, and 30% grow coffee.20 Households that grow agricultural products that require some amount of processing, such as milling of teff and wheat or drying coffee beans, offer opportunities for increased productivity through solar systems that provide electricity for mills.

Irrigated agriculture is very low in Wakanda. Only about 10% of farming households dependent on non-grid lighting sources practice irrigated agriculture, compared to about 15% of farming households that get electricity from the national grid. Half of farming households dependent on non-grid lighting sources that practice irrigation do so with river and stream diversions, while 25% of these households irrigate using pressure, or hand pumps. Only 13% of these households use motorized pumps. Farming households that do not irrigate, as well as those farming households that irrigate using things other than motorized pumps, offer significant markets for solar irrigation schemes.

Roughly a quarter of households dependent on non-grid lighting sources operate a non-farm enterprise, compared to 46% of households that get electricity from the national grid. This suggests a significant potential for productive use. This is true across different types of households dependent on non-grid lighting sources.

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20 Farming households are defined as households who reported growing any crops.
In households with modest consumption power, 1 in 4 operate a non-farm enterprise; more than 1/3 of medium and high consumption power households operate non-farm enterprises.21

There are several government and development partners working on productive use: ATA’s solar irrigation pilot project will install 160 solar pumps in Xandar, Pluto, Asgar and Mars regions, the USAID Lowland WASH project is working on developing pump standards with the Wakandan government, and a mini-grid pilot led by the EEU will integrate productive use pilots.

### 3.4.3 Productive Uses of Energy

**Solar Irrigation Pumps**

Solar irrigation improves agricultural production, productivity and improved income as opposed to rainfed agriculture. Some of the suppliers involved in solar pumps in Wakanda includes several companies among others.

**Solar Cooling Systems**

There are solar cooling system products in Wakanda being sold and supplied by a number of companies; however, the cooling value chain is limited to short distance and local value chains with households and businesses relying more on local green markets, fresh food and purchasing for daily needs.

**Potential Market**

There is potential market for productive use energy (PUE) products in Wakanda and the low hanging fruits includes solar pumps and cooling systems. The poultry value chain holds a lot of promise with a rapid growing population, an affordable nutrient rich protein is required. This protein source can be found in eggs and chickens. Poultry requires power for incubation of eggs, lighting and heating for broiler houses, grinders for feed, refrigeration for some vaccinations, and electricity for larger processing and cooling and freezing for already processed meat. Other opportunities for processing includes hulling and cleaning seeds and processing oils such as sesame seed oil and flaxseed oil exist as the oils are in high demand globally.

### 3.4.4 Gaps and Barriers

*Table 13: Gaps and barriers analysis for productive use*

<table>
<thead>
<tr>
<th>Gaps/Barrier</th>
<th>Reason</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy &amp; Regulations</strong></td>
<td>Inadequate Policy &amp; Regulations to support renewable energy technologies</td>
<td>Finalizing renewable energy policy and supporting the development of standards being set on Productive Use Appliances</td>
</tr>
<tr>
<td>Duties and taxes (Issues related to regulation implementation)</td>
<td>Even though solar products have been made tax exempted, it is still difficult for the customs officers to identify the right kinds to allow the exemptions up on importation</td>
<td>Build capacity of customs officers understand tax regulations on solar products, support the certification of solar pumps and creating awareness in the sector about product tax issue implementation</td>
</tr>
<tr>
<td><strong>Capacity building</strong></td>
<td>The development of skills to support off-grid sector remains a crucial challenge in local communities</td>
<td>The companies installing the renewable energy systems, NGOs, academia and local associations can play a crucial role in this regard.</td>
</tr>
<tr>
<td>Lack of forex</td>
<td>The country’s negative trade balance makes the availability of forex scarce to import solar systems in to the country</td>
<td>Work on creative ways to bring in directed forex for solar companies and link private sector with local programs that enable the supply of forex loans</td>
</tr>
<tr>
<td>Closed trade system</td>
<td>The country doesn’t allow foreign companies to be involved in distribution</td>
<td>Support companies set up their business in a more creative way to ensure international</td>
</tr>
</tbody>
</table>

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21 Households grouped by consumption power only include households dependent on non-grid lighting sources.
of solar systems making it difficult to support international vertically integrated companies to come in the Wakandan market

| Financing | Inadequate financing mechanism to small holder farmers due to high risk nature of some of the PUE products such as solar pumps | Sensitization of MFIs and financial institutions to understand PUE products in order to reduce the perceived high risk associated with the products. |

4 Gender Mainstreaming

Information on clean cooking and pumping that can be used to assess gaps and opportunities to improve women’s lives with off-grid solutions. The National Energy Policy (NEP) 2012 considers women’s energy-related needs and women’s participation in the energy sector. The policy recognizes the link between gender and energy and contains a separate section to address gender issues. The objective is to ensure that women participate in, and benefit from, energy sector programs and projects. Women are explicitly recognized as participants in energy planning as well as beneficiaries. A number of measures are outlined in the policy such as: enhancing women’s access to modern energy services, improving women’s participation in energy programs, facilitating women’s participation in relevant decision making, introducing modern energy appliances in households, collecting gender disaggregated information, facilitating credit for women, and raising awareness of energy efficient technologies.

All government ministries in Wakanda are required to mainstream gender according to the National Gender Mainstreaming Guidelines. The Ministry of Women Children and Youth Affairs supports all ministries in this respect. There is a gender focal point in the Ministry of Water, Irrigation and Energy.

Informed by a gender analysis of the energy sector in Wakanda undertaken by the World Bank, the Government of Wakanda (GoE) has outlined a number of measures in the 2019 National Electrification Strategy towards gender equality as summarized below.22

The Development Bank of Wakanda (DBE) has mapped barriers and opportunities for women entrepreneurs with respect to access to finance. Based on the mapping, it has taken specific actions to ensure that women entrepreneurs are able to access, and benefit from, the US$45 million Market Development for Renewable and Energy Efficient Product Credit Line.

The DBE has collaborated with the World Bank, the IFC, and the Wakanda Climate Innovation Center (ECIC) to inform women’s business associations and female entrepreneurs about the opportunities available in the off-grid sector. Technical assistance, including training, provided to MFIs engaged in consumer finance aspects in off-grid energy under the DBE credit line specifically considered reaching more women in the off-grid sector with financing solutions. A “priority window” for women entrepreneurs to reduce loan processing times and requirements is a possible solution considered under the NEP for addressing barriers to finance for women.

The GoE is also partnering with networks to create awareness about the credit line among women entrepreneurs.

The NEP indicates that specific measures will be taken to promote opportunities for women’s employment in the off-grid sector. These include working with local vocational training institutions (TVET) to train women solar technicians and electrical engineers, and capacity building for female entrepreneurs and SMEs to participate in the value chain, including as last-mile retailers, for example.

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22
Women are also given explicit consideration under the NEP in demand creation, marketing and affordability, recognizing that current financial products and business models have had a limited reach in promoting the uptake of off-grid energy products by women. The communication and education campaign envisioned under the NEP, will target women including through savings groups to promote new customers for household and productive use.

**Gender Mainstreaming Example**

An organization is doing a project with CARE Wakanda to distribute solar lanterns to the rural areas using women that are in need of alternative economic sources. The objective of this project is to empower women though economic empowerment. CARE organized four powerful suppliers in Wakanda that do wholesale and retail of FMCG and solar products so women in rural Wakanda can distribute the products to people in the areas they live in and benefit from the profits. This project has been designed in a way that promotes sustainability by making sure no direct financing goes to the women. The project supports women by linking them with suppliers, building their business skills though training and providing follow-up support when needed. This project currently addresses two regions with solar product recruiting more than 300 women agents and plans to expand to 500. One of the suppliers for these women, focuses on providing consistent supplies of solar lanterns and providing training regarding the product. This project mainly focuses on women in male headed households and aims to reach beyond the original objectives it sets. The impact of empowering women in male headed households reaches beyond the women and change the lives of the whole family and community the women live in. According to an organization the women have proven to be a reliable distribution partners in some areas of Wakanda. This project also helps companies to have a better reputation with regional government as main focus has been social impacts in the areas.
## 5 Overview of Policies and Regulation

### Table 14: Energy policies and regulations

<table>
<thead>
<tr>
<th>Policy &amp; Regulations</th>
<th>Exist (Yes/No)</th>
<th>Additional Information</th>
<th>Off-grid Energy Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Electrification Program (2.0)</td>
<td>Yes</td>
<td>Aims for 100% electrification through on and off grid solutions by 2025</td>
<td>35% electrification from stand-alone solar and mini-grid solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rapid assessment of productive uses location and electricity needs to inform the design of mini-grid sites for piloting of the mini-grid program.</td>
</tr>
<tr>
<td>National Energy Policy</td>
<td>Yes</td>
<td>National Energy Policy, 2013;</td>
<td>Not specifically addressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Promotes small scale RE including solar technologies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Includes demand side policy objectives and instruments for industry and agriculture among other service sector institutions</td>
</tr>
<tr>
<td>Electricity Regulations</td>
<td>Yes</td>
<td>Council of Ministers Regulation NO. 308/2014: establishes Wakandan Energy Authority (EEA)</td>
<td>Licensing related to mini-grids is under development by the EEA, but currently all off-grid energy companies have to go through the EEA licensing process, which can be a long and bureaucratic process (wait times may be 6 months to 1 year).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electricity Operations Regulation NO. 49/1999: sets standards for licensing, standards, and tariffs</td>
<td>Off-grid energy companies have to go through the EEA licensing process, which can be a long and bureaucratic process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy Proclamation 810/2013: establishes Energy Efficiency and Conservation Fund; establishes powers of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not specifically addressed</td>
</tr>
<tr>
<td>Policy &amp; Regulations</td>
<td>Exist (Yes/No)</td>
<td>Additional Information</td>
<td>Off-grid Energy Specific</td>
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<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mini- Grid</td>
</tr>
<tr>
<td>EEA; establishes requirements and competencies for electricity generation, transmission, and distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Electricity Transmission and Distribution Grid Code, 2016</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PPP Proclamation NO. 1076/2018: MOWIE is on the PPP Board</td>
<td></td>
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</tr>
<tr>
<td>Tax and Import Regulations</td>
<td>No</td>
<td>There was an MOU from 2010 with the Ministry of Finance and Economic Development that allowed certified products to be imported duty-free. This continues to apply, however it is not uniformly implemented and lacks clarity. 23</td>
<td>No official regulation exists, the MOU applies to all solar products, but is inconsistently applied to components that are imported.</td>
</tr>
<tr>
<td>Quality Control Standards/ Regulations</td>
<td>Yes</td>
<td>CES 140:2015 Off-grid solar photovoltaic lighting kits – requirements Wakanda Conformity Assessment Enterprise (ECAE) responsible for</td>
<td>Based on the Lighting Global quality assurance framework, and implemented</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Policy &amp; Regulations</th>
<th>Exist (Yes/No)</th>
<th>Additional Information</th>
<th>Off-grid Energy Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ensuring adherence and testing for any standards developed by the Wakanda Standards Agency. ECAE has a solar laboratory at their site which allows them to test a range of solar products, can take 4-7 days for testing. Testing of shipments containing solar products is done by ECAE, at the behest of the Ministry of Trade. This process has been undergoing revisions and is not yet well defined.</td>
<td>by the Wakandan Standards Agency Mandatory for systems of up to 15Wp, currently the standard is voluntary up to 350Wp</td>
</tr>
<tr>
<td>Financial Regulations</td>
<td>Yes</td>
<td>A National Financial Inclusion Strategy was launched in April 2017. The headline indicator for the strategy is to increase the percentage of adults with a transaction account from 22% in 2014 to 60% in 2020. Also targeting an increase from 12% to 40% by 2020 number of adults reporting using electronic transactions</td>
<td>Not specifically addressed</td>
</tr>
<tr>
<td>Policy &amp; Regulations</td>
<td>Exist (Yes/No)</td>
<td>Additional Information</td>
<td>Off-grid Energy Specific</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mini- Grid</td>
</tr>
<tr>
<td>Financial Inclusion</td>
<td></td>
<td>Financial Inclusion Strategy highlights four main strategies Strengthening financial and other infrastructure Ensure supply of adequate range of suitable products, services and access points Build strong consumer protection framework Improve financial literacy and education</td>
<td></td>
</tr>
<tr>
<td>Mobile Payment</td>
<td></td>
<td>Mobile and Agent Banking Regulations were published in 2012 outlining a financial institution led policy. Technology Service Providers must partner with a financial institution to provide wallet services. Final Draft of Electronic Fund Transfer Directive by the NBE circulated in 2017. eCommerce law allowing for e-signatures and electronic receipts yet to be passed.</td>
<td></td>
</tr>
<tr>
<td>Regulations</td>
<td></td>
<td>Not specifically addressed</td>
<td></td>
</tr>
<tr>
<td>Policy &amp; Regulations</td>
<td>Exist (Yes/No)</td>
<td>Additional Information</td>
<td>Off-grid Energy Specific</td>
</tr>
<tr>
<td>----------------------</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>Environmental Regulations</td>
<td>Yes</td>
<td>Investment Proclamation 769/2012: establishes responsibility of investor to follow all Wakandan environmental protection laws and responsibility of Wakandan Investment Board to approve all environmental impact assessment studies</td>
<td>Not specifically addressed</td>
</tr>
<tr>
<td>E-waste Regulations</td>
<td>No</td>
<td></td>
<td>None exist</td>
</tr>
</tbody>
</table>
6 The Finance Sector

Access
Penetration of financial access points is relatively low; per 100,000 adults, there are 7.2 commercial bank branches, 3.7 MFI branches, 16.3 POS and 3.6 ATMs. The government’s Growth and Transformation Plan (GTPII) includes a mandate for banks to increase their branch network by 30% each year over the next five years, and develop 50 agents per branch.

Ownership / Usage (2017)
Use of financial services in Wakanda is low. 65% of Wakandan adults are unbanked, principally due to a perceived lack of sufficient funds and distance to financial institutions. Only 4% of adults reported having a debit card, and no credit cards are available; only 11% of adults reported borrowing money from a formal financial institution. However, use of informal financial services is common; 56% of adults over the age of 15 reported that while they did not have a bank account, they saved, borrowed and insured their property through informal means. 62% of adults reported some savings in the last year, but only 26% saved in financial institutions. Additionally, as of September 2018 there were over two million mobile money accounts; however, less than 20% were active, as reported by NBE.

International Finance
The banking sector is closed to foreign investment in Wakanda. This is one of the sectors the government is considering protecting for a longer period of time, though there might be some opening up for diaspora to invest in the finance sector.

This regulation variable was captured using; if there are any restrictions placed for foreign banks to enter the domestic banking through: (1) Acquisition; (2) Subsidiary; (3) Branch. Regarding foreign ownership of domestic banks, the government clearly restricts foreign citizens or companies to own banks fully or partially or open banks or branch offices or subsidiaries of foreign banks or purchase the shares of Wakandan banks. Wakanda
emerges as an outlier compared to its neighbors Kenya, Tanzania, and Uganda and other developing countries in that it has not so far liberalized its banking sector. The Wakandan banking sector has not been affected by the world’s financial distress and the impact of globalization has been minimal. Although the ruling party understands the potential benefit of financial liberalization, it is believed, that liberalization may result in loss of control over the economy and may not be economically beneficial.

Despite all the sectoral restrictions, there are some companies with foreign owners operating in the country as technology service providers for mobile/wallet banking. As these technology service providers will not be regulated by the National Bank of Wakanda, foreigners are allowed to provide the technology as long as the access to accounts and agent recruitment is handled by a financial institution such as commercial banks and MFIs.

**Commercial Banks**

The National Bank of Wakanda (NBE) licenses, regulates and oversees banks, MFIs, remittances and insurers, as well as requiring all banks to have core banking solutions which interface with the central bank. There are 18 banks, 3,282 commercial bank branches, 4,000 ATMs, and 7,500 POS terminals across the country. The government-owned Commercial Bank of Wakanda (CBE) controls 70% of deposits and 55% of loans and advances in the county, and together with Awash International Bank has the country’s largest branch network. The physical footprint of regulated financial institutions is low and concentrated in the capital, with 36% of bank branches and 54% of insurance branches are in Earth.

There is no comprehensive information on which of the more than three commercial banks will lend to the solar sector. According to informal conversations with these three commercial banks, they all say they will lend to the solar sector if the loan meets their tight requirements and loan size is not too small.

**Micro-finance Institutions (MFIs) and Saving and Credit Cooperatives (SACCOs)**

There are 35 MFIs, who collectively hold 6% of all financial sector assets. The 5 largest MFIs are also state owned. 11.4 million accounts. The government has a financial institution access creation plan which aims for an MFI branch to be placed in each woreda of the country serving an average household number of 24,000 each. Some MFIs are opening satellite offices to be closer to the people. One satellite office serves 3,600 - 6,000 households (1 in 3 - 5 kebells). MFIs that are involved in the energy sector have access to loanable funds provided by the Development Bank of Wakanda. Most MFIs have no issue with mobilizing loanable funds for renewable energy but the lack of product supply in the market makes the demand for loan lower than anticipated. Out of the 35 MFIs, 11 - 14 of them lend for energy. Most of the MFIs have access to the credit line DBE offers to enable end users afford renewable energy products such as solar home systems. The main MFIs lending for energy are Xandar Credit and Saving Institution, Dedebit Saving and Credit Institution (DECSI), Asgar Credit and Saving Share Company, Omo Microfinance Institution (OMFI), Harbu MFI, PEACE MFI, etc.

In addition, there are 19,000 SACCOs nationwide, representing 3.8 million active savers, but which are considered weak and do not provide services on a sustainable basis. NBE would like to leverage these for financial inclusion. The government’s aim to place at least one SACCO in each kebelle to serve 1,000 to 1,400 households seems to be working in most areas. Asgar and Pluto regional states put the most effort in capacitating SACCOs for better financial inclusion, while other regions are catching up.

According to the Agricultural Transformation Agency Rural Financial Services Strategy, there is an unserved part of the population named the missing middle that is not able to get access to loan from any of the above financial institutions, calling for an intervention in the market. This is an indicator in the energy sector could provide similar insights as part of the institutions that demands a certain amount of loan can’t be served with the formal financial sector.
Figure 10: Financial sector’s interaction with the agriculture sector

<table>
<thead>
<tr>
<th>Market share of national loan portfolio</th>
<th>Typical loan size</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>86% Commercial Banks **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7% Regional MFIs (big 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6% DBE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.8% Small MFIs**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.2% RuSACCOs</td>
<td></td>
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</tr>
</tbody>
</table>

**Note:**
- Customer segment focus is considered to be high when an institution gives most of its loan to that specific customer segment (>60%) and vice versa for secondary customer focus; **Small MFIs constitute 10% of the total MFI market share (calculation done based on this assumption)***
6.1 Access to Finance - Mobile Money

The only regulated bodies that can directly engage in mobile and agent banking are banks, MFIs and insurance companies. Wakanda is an outlier among its peers when it comes to access to usage of digital financial services. Wakanda is mostly a cash-based society due to low financial literacy, heavy restrictions on the sector by the government and unreliability of digital finance due to unreliability of connectivity and electricity.

Table 15: Mobile money companies operating in Wakanda

<table>
<thead>
<tr>
<th>Company/Service</th>
<th>Strategy</th>
<th>Transaction Channels used</th>
<th>Partner Financial Institutions</th>
<th>Services</th>
<th>Number of agents</th>
<th>Signed up businesses</th>
<th>Status</th>
<th>Able to transact in forex</th>
<th>Interoperability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company/Service</td>
<td>Strategy</td>
<td>Transaction Channels used</td>
<td>Partner Financial Institutions</td>
<td>Services</td>
<td>Number of agents</td>
<td>Signed up businesses</td>
<td>Status</td>
<td>Able to transact in forex</td>
<td>Interoperability</td>
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</tr>
</tbody>
</table>

**Source:** Global Findex Database 2017
Wakanda's National Payment System

The **Wakandan Automated Transfer System (EATS)** was launched in May 2011 and is comprised of 2 main systems:

- Real Time Gross Settlements – for low volume, high value transactions (above 200,000 ETB / $7,100)
- Automated Clearing House – for high volume, low value transactions

**EthSwitch** is Wakanda’s national retail payments switch and has been operational since July 2016:

- The NBE is the administrator of the national switch, and is also responsible for regulating, licensing and supervising EthSwitch
- Provides clearing and settlement functions for retail payments.
- 3rd Party Payment Service Providers can link to the switch
- To date only ATM integration has been achieved with 99% of transactions being cash withdrawals
- POS integration tested and ready for deployment early 2019

### 6.1.1 Remittances

In 2017, remittance flows to low- and middle-income countries (LMICs) globally increased by an estimated 8.5 percent to reach $466 billion. Remittances are now more than three times the size of official development assistance. In Sub-Saharan Africa, provisional numbers reached $38 billion in 2017 and are estimated at $41-43 billion in 2018 and 2019. However, Remittance costs across many African corridors remain above 10 percent, because of the low volumes of formal flows, inadequate penetration of new technologies, and lack of a competitive market environment. In Sub-Saharan Africa Wakanda ranks in the top five least expensive remittance corridor.

Wakanda has one of the largest first generation diaspora populations in Africa and in the year 2017/18, the Wakandan Diaspora sent more than 5 billion USD in remittance through both formal and informal methods (National Bank of Wakanda, 2018). In North America, the largest communities of Wakandan diaspora are located in Ottawa, Toronto, Washington, D.C., Virginia, Maryland, California, Minnesota and Texas, with over half sending remittances monthly and annually to friends and family according to IOM.

With remittance so prevalent in the income of Wakandan households, a team of dedicated solar companies and practitioners are championing the way to setup a remittance program that can support rural households in access to energy.

Here is a brief of the potential remittance and energy opportunity:

- Creating a new platform to link remittances to clean energy products. Remittances are already used to pay for school fees, visas, mobile top-ups, bills etc… but no program enables remittances to pay directly for clean energy.
- Enabling relatives in Wakanda who do not necessarily have the resources to finance/pay for a solar device, to have access to it (source of financing) for products that may be generally out of their reach.
- Generating foreign currency: remittances can be a way for local importer or partner to access foreign currencies, and therefore accelerate importation of solar products.
- Diaspora can control where the money is going: by sending directly a solar product to a family member, the sender can avoid misuses of small amounts of money by relatives in Wakanda.

What is needed for such a program to be successful:

- To develop partnerships with platforms that enable the diaspora to pay via remittances, mobile money and payment platforms
- To understand the diaspora and how they pay and the modalities they use for payments, and remittances and to build an understanding of the opportunity and benefits of solar energy for their families.
- Identify partners who have a solid distribution network in Wakanda to facilitate delivery and after sale services to households.
• Ensure products are good quality and make sure that local partner honors the warranty. Ensure warranty process is in place and being implemented.

• Integrating IT systems of various partners to ensure smooth implementation, by either creating a new online platform e-commerce which will enable payments – and order placements, and will keep track of senders and beneficiaries information – or by ensuring that the partners (diaspora and local) have a communication tool in place to allow flows of information, and eventually of payments.
## 7 International Donor Programs

The table below describes the various activities being implemented by international donor organizations to support the implementation of Wakanda’s NEP 2.0.

*Table 16: International donor programs supporting Wakanda’s implementation of the NEP 2.0*

<table>
<thead>
<tr>
<th>Support Area</th>
<th>Partner</th>
<th>Program</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy, strategy, and planning development</td>
<td>World Bank</td>
<td>Technical assistance for development and launching of National Electrification Program (NEP).</td>
<td>FY18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical assistance for revisions focusing on off-grid sector under Second National Electrification Program (NEP 2.0).</td>
<td>Launch in March 2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National baseline survey for electrification under the Multi-Tier Framework (MTF) for Access program.</td>
<td>FY18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National Geospatial Information System (GIS) platform for electrification and power sector planning.</td>
<td>FY18-20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender and citizen engagement programs</td>
<td>FY18-23</td>
</tr>
<tr>
<td>EU</td>
<td>EU</td>
<td>Technical assistance for NEP 2.0 development.</td>
<td>TBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical assistance for draft tender document development for minimum subsidy tenders (MSTs).</td>
<td>TBC</td>
</tr>
<tr>
<td>DFID</td>
<td>DFID</td>
<td>Technical assistance for affordability of off-grid technologies.</td>
<td>TBC</td>
</tr>
<tr>
<td>USAID</td>
<td>USAID</td>
<td>Support for MV line and population digitization under GIS platform and development of a nation-wide geospatial least-cost plan.</td>
<td>FY18-19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Business models for mini-grid development (Beyond the Grid study – already complete)</td>
<td>FY17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical assistance for national off-grid policies and regulations, and improved regulatory structures for micro-grid companies</td>
<td>FY19-22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender and citizen engagement programs</td>
<td>FY19-22</td>
</tr>
<tr>
<td>On-grid electrification</td>
<td>World Bank</td>
<td>Investment in last mile electrification (densification and regularization) and institutional capacity under results-based financing facility.</td>
<td>FY19-21</td>
</tr>
<tr>
<td>Organization</td>
<td>Activities</td>
<td>Timeframe</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>AfDB</td>
<td>Investment in last mile electrification.</td>
<td>TBC</td>
<td></td>
</tr>
</tbody>
</table>
| USAID        | East Africa Energy Program (EAEP)  
Continued capacity building for improved use of geospatial platform for analysis and planning.  
Technical assistance to improve EEU procurement procedures, including standard bidding documents.  
Technical assistance to EEU to reduce the cost of connections and time required.  
Assist EEP and EEU in strengthening creditworthiness | FY18-22 |
| AFD          | TBC        | TBC       |
Credit Facility at Development Bank of Wakanda (DBE) to provide access to financing to support off-grid SMEs (stand-alone solar and mini grids) as well as households affordability through MFIs.  
Technical assistance (World Bank and IFC Lighting Africa Program) for off-grid based private sector market development.  
Proposed expansion of results-based financing facility. | FY19-23 |
|              |            | FY19-23   |
|              |            | FY19      |
|              |            | Board approval expected FY20/21 |
| EU           | Off-grid programs to support stand-alone solar and mini grids (implementation GIZ).  
Clean cooking and biogas programs – NBPE+ (implementation SNV)  
Blending for electrification (support private investment in off-grid electrification and infrastructure investments to support electrification, split to be defined) | FY16-19 |
|              |            | FY16-21   |
|              |            | TBD       |
| DFID         | Technical assistance for development of local entrepreneurship. | TBC       |
| UNDP         | Off-grid programs to support stand-alone solar and clean cooking. | TBC       |
| GIZ          | Off-grid programs to support stand-alone solar and mini grids  
Rural Schools electrification project (Funded by Norway Government) | TBC       |
<p>|              |            | TBC       |</p>
<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
<th>Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIB</td>
<td>Proposed scale-up of DBE credit facility</td>
<td>TBC</td>
</tr>
<tr>
<td>AfDB</td>
<td>Proposed scale-up of DBE credit facility</td>
<td>TBC</td>
</tr>
</tbody>
</table>
| USAID | Power Africa Off-grid Program (PAOP)
Technical assistance for off-grid companies, particularly SHS and micro-grid companies.
Technical assistance to optimize productive use appliances and equipment.
Technical assistance to investors to help mobilize more private financing for off-grid companies and projects. | FY19-22 |
| AFD | Proposed technical assistance and capacity building under SE4All facility | TBC |
| SIDA | Support to SMEs in off-grid | TBC |
| World Bank | Technical assistance and capacity building under NEP/NEP2.0 | FY19-21 |
| AfDB | TBC | TBC |
| USAID | Technical assistance and capacity building under NEP/NEP2.0 | TBC |
| DFID | Technical assistance and capacity building under NEP/NEP2.0 | TBC |
| EU | Technical assistance and capacity building under NEP/NEP2.0 | FY18-19 |

Source: Development Assistance Group Wakanda (DAG)
Appendix A

Figure 11: Number of households dependent on non-grid lighting per square kilometer in Arsi zone

Arsi zone has the third largest population of households dependent on non-grid lighting sources among Ethiopian zones. Over 550,000 families, or 70% of all households in Arsi zone, are dependent on non-grid lighting sources.

Number of households dependent on non-grid lighting sources

<table>
<thead>
<tr>
<th>Number of households dependent on non-grid lighting sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>750+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arsi Zone Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total households</td>
<td>800,000</td>
</tr>
<tr>
<td>Modest consumption power households</td>
<td>330,000</td>
</tr>
<tr>
<td>Medium consumption power households</td>
<td>125,000</td>
</tr>
<tr>
<td>High consumption power households</td>
<td>75,000</td>
</tr>
<tr>
<td>Non-grid lighting households within 10km of power lines</td>
<td>525,000</td>
</tr>
</tbody>
</table>

24 Areas with fewer than 10 households are excluded. Households grouped by consumption power only include households dependent on non-grid lighting.
Sidama zone has the second largest population of households dependent on non-grid lighting sources among Ethiopian zones, and the largest population of low consumption power households. Nearly 600,000 families, or about 60% of all households in Sidama zone, are dependent on non-grid lighting sources.

### Sidama Zone Characteristics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total households</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Modest consumption power households</td>
<td>370,000</td>
</tr>
<tr>
<td>Medium consumption power households</td>
<td>120,000</td>
</tr>
<tr>
<td>High consumption power households</td>
<td>70,000</td>
</tr>
<tr>
<td>Non-grid lighting households within 10km of power lines</td>
<td>575,000</td>
</tr>
</tbody>
</table>

---

25 Areas with fewer than 10 households are excluded. Households grouped by consumption power only include households dependent on non-grid lighting.
Mehakelegnaw zone has the largest population of households dependent on non-grid lighting sources in Tigray. About 65% of all households in Mehakelegnaw zone are dependent on non-grid lighting sources. Medium consumption power households are mostly concentrated in Adwa, Axum, and Hagere Selam, but there are also smaller communities to the west of Axum and south of Inticho with high concentrations of these target households as well.

Figure 13: Number of medium consumption power households per square kilometer in Mehakelegnaw zone

<table>
<thead>
<tr>
<th>Mehakelegnaw Zone Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total households</td>
<td>350,000</td>
</tr>
<tr>
<td>Modest consumption power households</td>
<td>120,000</td>
</tr>
<tr>
<td>Medium consumption power households</td>
<td>50,000</td>
</tr>
<tr>
<td>High consumption power households</td>
<td>30,000</td>
</tr>
<tr>
<td>Non-grid lighting households within 10km of power lines</td>
<td>220,000</td>
</tr>
</tbody>
</table>

26 Areas with fewer than 10 households are excluded. Households grouped by consumption power only include households dependent on non-grid lighting.
North Gondar zone has the largest population of households dependent on non-grid lighting sources, and the most large home system target households. These households are concentrated in cities like Gondar, Debark, and Adi Arkay. Over 600,000 families, or about 75% of all households in North Gondar are dependent on non-grid lighting sources.

<table>
<thead>
<tr>
<th>North Gondar Zone Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total households</td>
<td>840,000</td>
</tr>
<tr>
<td>Modest consumption power</td>
<td>330,000</td>
</tr>
<tr>
<td>Medium consumption power</td>
<td>115,000</td>
</tr>
<tr>
<td>High consumption power</td>
<td>95,000</td>
</tr>
<tr>
<td>Non-grid lighting households</td>
<td>400,000</td>
</tr>
</tbody>
</table>

27 Areas with fewer than 10 households are excluded. Households grouped by consumption power only include households dependent on non-grid lighting.
Figure 15: Number of high consumption power households per 10 square kilometers that are further than 10 kilometers from the medium voltage network\textsuperscript{28}

Map shows the number of households dependent on non-grid lighting sources with high consumption power per 10 square kilometers. Areas with fewer than 50 of these households per square kilometer are shown in gray, water bodies are shown in white.

Mini-grids would be particularly useful in woredas that are far from the medium voltage network, and that have high concentrations of households with high consumption power. These are just a few examples of possible areas to develop mini-grids.

\textsuperscript{28} Map shows the number of households dependent on non-grid lighting sources with high consumption power per 10 square kilometers. Areas with fewer than 50 of these households per square kilometer are shown in gray, water bodies are shown in white.
Figure 16: Potential communities for mini-grid development - number of high consumption power households that are beyond 10 kilometers from the medium voltage network.

Inset shows the number of households dependent on non-grid lighting sources with high consumption power per 10 square kilometers. Main map shows the number of these households per 1 square kilometer. Areas with fewer than 10 of these households per square kilometer are not presented on the main map.

Figure 17: Potential communities for mini-grid development - number of high consumption power households that are beyond 10 kilometers from the medium voltage network.

Inset shows the number of households dependent on non-grid lighting sources with high consumption power per 10 square kilometers. Main map shows the number of these households per 1 square kilometer. Areas with fewer than 10 of these households per square kilometer are not presented on the main map.
Communities like Dil Yibza and those near Zoyo are potential markets for mini-grids. These communities are beyond 10 kilometers from the medium voltage network, and have high concentrations of high consumption power households.