Powering Jobs 2019: The Energy Access Workforce

Dr. Rebekah Shirley, Chief Research Officer, Power for All
October 8, 2019

powerforall.org/poweringjobs
rebekah@powerforall.org
@RGShirley
Overview

- Motivation
- Campaign Overview
- Research Scope
- #PoweringJobs Research Highlights
- Q&A
- Next Steps
Agriculture, Energy and the Future of Work

- The growing impact of climate change on Africa’s largely rain-fed agricultural sector is deepening its food crisis and affecting the predictability and availability of work for millions in farming, 65% of Africa’s labor force.
- Meanwhile, as jobs grow scarce, recent improvements in healthcare access have led to a youth explosion. According to the AfDB young men and women between the ages of 15 to 24 comprise over 34% pop of sub-Saharan Africa.
- Today there are still 650 mill people in SSA with no access. Govs and private sector are tackling this challenge, and new distributed renewable energy technologies (DRE) are at the center -- 80% of the unelectrified are rural.
- Rural, small-holder agriculture is likely the sector best poised to benefit from the potential of clean energy access to mitigate climate change, unlock productivity, create local jobs, and boost near-term economic growth.
#PoweringJobs: Solving SDG 7 and SDG 8

- **Awareness:** Data & communications show that DRE markets can create positive social impact on energy access and employment.

- **Advocacy:** Grow support within target institutions for financial, policy and programmatic support for DRE training and education.

- **Activation:** Demonstrate new opportunities for youth and women (connect the skills set need for DRE to energy sector more broadly).
Partners: Community of Action

Global

Global

India

Kenya

Nigeria

Funding Partners
#PoweringJobs Campaign Timeline

- **2018 Survey launch**
  - Q4 2018
  - Campaign launch at IOREC, Singapore
- **Data collection**
  - Q1 & Q2 2019
  - Focus group discussion
- **Data analysis and report draft**
  - Q3 2019
  - Convene Global and Country Steering Committee
- **Report launch and Round table**
  - Q4 2019
  - ILO/HPLF Event Local Action Support
- **2019 Survey launch**
  - Q4 2019
Technology and Jobs Scope

- **Pico-solar Appliances**
  - < 10 W
- **Solar Home Systems**
  - 10 W+
- **Productive Use Appliances**
  - variable
- **C&I Standalone Systems**
  - 100 W+
- **Mini-grid Systems**
  - > 1 kW

**Direct Jobs**
- Formal
- Informal
  - Data from survey and focus groups

**Productive Use Jobs**
- Formal
- Informal
  - Data from focus groups and literature

**Indirect Jobs**
- Formal
- Informal
  - Data from literature where possible

**Induced Jobs**
- Formal
- Informal
  - Not included in survey scope
Survey Sample: 3 countries; 139 respondents

- **End-user product providers** sell pico-solar appliances, SHS, solar water pumps, or other DRE products to end users.
- **Project developers and installers’** revenue mainly comes from the development and implementation of projects instead of products. They are usually involved in procurement of panels and batteries, site feasibility study, system design, construction.
- **Mini-grid operators** are private companies which operate and maintain mini-grid systems and are characterized by sales of electricity as core part of business model.
- **Manufacturing and upstream supply chain** companies are those whose core business is in manufacturing, assembling, importing, and wholesale.
- **Sector service providers** work closely with the DRE sector to provide services such as microfinancing for energy access, metering and software services, training, human resources, research, and advocacy.
Key Study Outputs

1. Job estimates and projections
   - Full-time equivalent (FTE) direct formal jobs estimate
   - Direct informal jobs estimate
   - Productive use jobs estimate
   - Future projections based on best available market forecasts

2. Workforce Trends
   - Gender balance
   - Youth participation
   - Job function breakdown
   - Recruitment challenges
   - Wage and compensation
   - Level of engagement

3. Recommendations
   - Key recommendations for DRE on local capacity building, gender inclusion, and youth employment
The DRE Energy Access Workforce

- In all three focus countries, DRE is already a job engine. In 2017–18, the DRE sector provided 95,000 direct, formal jobs in India, 10,000 in Kenya and 4,000 in Nigeria, as compared to 92,400 on-grid solar jobs in India, 11,000 in national utility jobs in Kenya and 10,000 jobs in electricity, gas and steam sector in Nigeria.

- The DRE sector has a 2x–5x wider impact in the informal sector through direct, informal jobs and productive use jobs. In 2017–18, the sector provided 200,000 informal jobs in India, 15,000 in Kenya and 10,000 in Nigeria. In terms of productive use jobs, the sector provided 470,000 in India, 65,000 in Kenya and 15,000 in Nigeria.

- By 2022–23, mini-grid may grow to be one of the most important DRE employers, contributing about 5,000 direct formal jobs and 5,800 informal jobs – an increase of 20-fold as compared to only 260 jobs in 2017–18. The realization of this projection is dependent on the support of KOSAP on mini-grids.

- Sales and distribution makes up 40% of Kenya DRE sector’s skill demand, as the country continues to top the charts in pico-solar appliances and SHS sales in Africa. By 2022–23, the trend may continue as market grows with existing customers’ system upgrades.

- Management and business administration represents a main skill gap. They makes up more than 20% of the Kenyan DRE workforce. Managerial talents are also said to be one of the most difficult talents to recruit, according to experts. Business soft skills were identified as a major gap across all jobs functions.

- Women’s participation in the DRE workforce is low – 23% of the direct formal jobs are taken up by women, as compared to global RE sector’s 32%. Women engage more through informal work. Youth participation is high.
JOBS ESTIMATES & PROJECTIONS
The scale of DRE direct formal workforce is already on the order of on-grid solar sector in India, national utility company in Kenya and electricity, gas and steam sector in Nigeria. In addition to direct formal jobs, the DRE sector employs 2x–5x more people through indirect jobs and productive use jobs.
Jobs Projections in 2022–23

- Direct, formal jobs may grow by 100%, 70% and more than 10x in India, Kenya and Nigeria between 2017–18 and 2022–23.
- Direct, informal jobs remain constant in India, double in Kenya and more than double in Nigeria between 2017–18 and 2022–23.
The DRE sector provides highly skilled, full-time, long-term jobs. More than two-thirds of the workforce is skilled and full-time with average retention of more than 30 months.

<table>
<thead>
<tr>
<th>Skilled labor</th>
<th>Level of Engagement</th>
<th>Average Retention in Months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>India</td>
<td>Kenya</td>
</tr>
<tr>
<td>Average Retention in Months</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time</th>
<th>Contractor</th>
<th>Informal worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Women account for less than 30% of the direct formal jobs, as compared to 32% for the global renewable energy sector. This despite expressed value of women to supply chain.

- Women constitute higher percentage of the informal workforce across all three countries.
- Youth participation is high. Companies express strong interest in hiring young people.
Job Function Breakdown in 2017–18

- In India and Kenya, approximately 40% of the jobs are in sales and distribution.
- In Nigeria, project development and installation makes up a large part of the workforce.
- In all three countries, management and business administration are an important part of the workforce.
Kenya: 
End-User Product Provider Workforce Profile
Kenya:
Mini-grid Operator Workforce Profile

- Engagement
- Function
  - Management & business administration
  - Research & development
  - Manufacturing & assembly
  - Project development & installation
  - Operations & maintenance
  - Sales & distribution
  - After-sales service
- Gender
  - Women
  - Men
- Skill
  - Unskilled
  - Skilled
- Age
  - Youth (15–24)
  - Adult (25+)
Job Function Breakdown in 2022–23

- In India, skills needs may shift slightly away from sales and distribution to project development, installation and O&M.
- In Kenya, sales and distribution remains the most important skill in demand.
- In Nigeria, project development and installation skills remain in high demand, while importance of O&M grows.
Key Findings

- The DRE sector has emerged as a significant employer in emerging markets. Although nascent and just beginning to scale, it has already grown a direct workforce (persons working directly for DRE companies) comparative to traditional utility-scale power sectors and is expected to more than double by 2022–23, according to our early estimates.

- Compared to direct, formal employment, the DRE sector employs twice as many workers through informal jobs and five times as many through productive use jobs, both critical as informal work is the largest source of employment for most SSA countries.

- Pico-solar appliance and SHS companies are currently the jobs engine of the DRE sector, though employment from mini-grids is likely to grow, match and potentially exceed this in some regions.

- The DRE sector currently provides high skilled jobs, with relatively high engagement and retention, across a wide range of job types: management, legal, sales, distribution, operations, maintenance and customer service. Companies reported major challenges in recruiting managerial talents.

- Data suggests that women and youth are the hardest impacted by the dearth of employment opportunities, particularly those in rural communities. Women’s participation in the direct workforce is low (avg 25%), but is very high in the informal workforce. Youth participation is high across job groupings (avg 40%).
Insights and recommendations

• There are clear skills needed to unlock the DRE sector’s potential to scale and create more employment, presenting an opportunity for collaboration between government, academia, training organizations, and industry associations. Managerial skills are in high demand, being identified as the most difficult to recruit.

• Alongside technical skills, DRE companies reported that general business soft skills are critically lacking, affecting every aspect of company performance. These include leadership, finance, strategic planning, communication, chains of command, project management, compliance, anti-harassment, and HSE.

• There is clearly opportunity for further youth engagement. The lack of awareness on the opportunities offered by the sector, and the lack of youth experience and the lack of established pipelines for youth recruitment present their own challenges that Universities and TVET institutions can help solve.

• Similarly, there is a need for greater participation of women in the sector. Encouraging women’s participation in the labor force is important, as unemployment rates are higher among women, especially rural women. At the same time, women are beneficial to the DRE sector in particular areas of the value chain.

• The sector’s massive footprint in the informal and productive use sectors presents an opportunity to encourage direct training interventions, and the formalization of labor to align with local and international decent work standards, compensation standards, and social protections.
Campaign Communications

Powering Jobs Census 2019: The Energy Access Workforce

1 in 4 women in the DRE workforce

109,000 DIRECT, FORMAL DRE jobs across India, Kenya and Nigeria

5x Size of productive use workforce compared to direct, formal workforce

POWER FOR ALL RESEARCH SUMMIT
Jobs, decentralized renewables, and the energy transition

As part of the Powering jobs campaign, 5x comprehension jobs create 120,000 direct, decent, blue-collar jobs in renewable energy, solar home systems, and industrial (CDI) systems, energy grids, and industrial pumps. The synthesis key findings for India:

In 2017-18, the DRE sector in India provided 90,000 direct, formal jobs (20% of the overall sector), with 35,000 in India, 55,000 in Kenya and 1,000 in Nigeria.

In 2022-23, India's DRE sector could employ 230,000 people, 140,000 in India, 90,000 in Kenya and 10,000 in Nigeria.

In 2027-28, the sector could provide as many as 250,000 direct, formal jobs in India, 150,000 in Kenya and 15,000 in Nigeria.

In India, 60% of jobs are in renewable energy, 30% in solar home systems and 10% in industrial systems.

Early and rough estimates of productivity jobs struck through existing electricity saw 2017-18. Those are 49,000 jobs provided in India, 22,000 jobs in Kenya and 1,000 jobs in Nigeria.

In India, 3 jobs are in direct, formal use workforce.

Prosumer appliance and SHS companies are currently the job engine of the DRE sector, though employment from mini-grids is likely to grow, reach and potentially exceed in some regions.

In 2017-18, prosumer appliances and SHS dominated the DRE market due to the high margins. These strategies for renewable grids and productive use applications, employment trends may evolve.

In Kenya, micro-grids, prosumer appliances and SHS companies accounted for 94% of direct, formal jobs (1,200). In India, prosumer appliances and SHS companies accounted for 96% of direct, formal jobs (26,164), with 1,000 mini-grids and 1,000 solar home systems. In Nigeria, mini-grids accounted for 98% of direct, formal jobs (16).

In Nigeria, the total number of grid-based companies that are in the sector and provided 73% of direct, formal jobs. To achieve the government’s Vision 2030 95,000 with mini-grids as the core business, 20,600 mini-grid jobs will be needed, accounting for 98% of direct, formal jobs by 2022-23.

The DRE sector provides skilled, middle-income working-term jobs, and distribution skills are important for sustaining the sector, while management skills are essential for scaling the business.

https://www.powerforall.org/campaigns/poweringjobs
THANK YOU

#PoweringJobs
A Global Campaign to Build an Energy Access Workforce

powerforall.org/poweringjobs
#PoweringJobs