

Energizing job creation: employment opportunities along the off-grid solar value chain

GOGLA

The Voice of the Off-Grid Solar Energy Industry



Introduction

The off-grid solar sector is generating a wealth of new employment opportunities, ranging from entry-level roles to highly skilled positions. The market for off-grid solar products has grown rapidly over the last decade, reaching a cumulative sales volume of 130 million devices in 2017¹. This growth has generated employment across a global value chain, most notably in emerging economies, and created thousands of new jobs. The off-grid industry is also maturing. New products, services and business models are being brought to market and new companies, partnerships and sector support organizations established to service the sector's growing needs. As the industry evolves, so too will the scale and nature of the employment opportunities it generates.

This briefing note explores the nature of jobs being created by the off-grid solar sector. It describes the breadth of employment opportunities created, how jobs are split across the value chain, whether they are high, medium or low skilled, whether they are based in urban or rural areas, and whether women are accessing

off-grid solar employment opportunities. Insights cover four regions: East Africa, West Africa, Central Africa and South Asia. Data for this research was gathered via a survey of off-grid solar companies², supported by structured interviews.

Results of the analysis find that the off-grid sector is creating thousands of highly skilled and well-paid jobs. Additionally, it is supporting the development and training of its workforce, generating jobs in rural regions – which often have fewer employment opportunities than urban areas – and has a higher percentage of female employees than comparable sectors do.

As the second note in a series of three, this briefing note expands on research which shows that with the right sector support and investment, the OGS sector could employ 1.3 million full-time-equivalent workers – ranging from entry-level to highly skilled positions – across East Africa, West Africa, Central Africa and South Asia by 2022³.

1 Dalberg and Lighting Global (2018), Off-grid market trends report.

2 The GOGLA Employment Survey of all GOGLA industry members was conducted in September 2019, with over 35 GOGLA and Lighting Global affiliates contributing data to this research. GOGLA and Lighting Global affiliates include GOGLA members or companies which sell Lighting Global quality verified products.

3 Vivid Economics (2018), Employment Opportunities in an Evolving Market. Off-Grid Solar: Creating High-Value Employment in Key Markets.

An emerging sector and its evolving workforce

By 2022, the off-grid solar sector could support up to 1.3 million full-time equivalent (FTE) jobs across East, West and Central Africa, and across South Asia⁴.

The roles that are being created are primarily in sales, retail, customer relations, management, finance, logistics, engineering, technical support and software development⁵. These jobs support the sale and distribution of solar lanterns, home systems and appliances, as well as the ongoing technical and maintenance needed to service these products. Sales via the pay-as-you-go (PAYGo) business model, where products are paid for in instalments, also leads to additional job creation in customer service and finance.

Market growth is also leading companies to adopt different business models and product offerings. While some companies remain focused on basic energy access, others are moving toward more complex solar-powered appliances and agricultural equipment, proprietary software, non-energy loans, digital financial

and internet services. This expansion of the sector will see increasingly diverse products and services being offered, and subsequently, an increasingly diverse range of employment opportunities.

As well as the jobs created within off-grid solar companies, the off-grid solar industry supports employment in other sectors through partnerships and links to complementary service providers. One example is partnerships with mobile phone companies, where products are sold via mobile phone retail outlets, helping to boost sales and sales positions.

In addition, indirect jobs are being created through linkages with local suppliers for services such as transport, construction, recruitment, insurance and telecoms. GOGLA members in Sub-Saharan Africa and South Asia report that logistics, marketing and communication companies in particular have benefitted from the boost in demand created by the off-grid sector⁶.

Well-paid and highly skilled jobs are being created across the value-chain

To support this growing industry, the off-grid solar sector is projected to generate 510,000 medium and highly skilled jobs and 800,000 lower skilled roles by 2022 (Figure 1)⁷. The available data does not disaggregate these roles into full-time versus part-time positions, although interviews with GOGLA members suggest that most formal employees are employed on a full-time basis.

Many of the positions created by the off-grid solar sector will also deliver substantially higher wages than the average wage of the country in which they are created. Even amongst the lower skilled positions, incomes are typically above countries' respective minimum wages, and often above the average national

wage⁸. Additionally, in lower skilled positions, there are often opportunities for quick progression and wage increases due to training opportunities and the rapid growth of companies.

Well-paid and highly skilled jobs created by the off-grid solar sector may also have wider positive economic impacts. Not only do these competitive wages directly benefit employees and their families, but they may provide an indirect boost to local economies through increased spending and increased government revenue via employee-employer related taxation and social security benefits. The boost to training and skills that the sector provides will also provide long-term benefits for the wider economy.

Figure 1: The off-grid solar industry will support around 200,000 high skill jobs, 290,000 medium skill jobs and 800,000 lower skill positions by 2022 – Source: Vivid Economics

High skill	Medium skill	Lower skill
Graduate or postgraduate degree 3-5 years+ experience	Graduate degree 1-3 years experience	Secondary education Minimal experience
220,000	290,000	800,000
Managers, finance, software developers and other engineers	Technicians, logisticians	Customer relations, sales, retail, other jobs

NOTE Units are in full time equivalent (FTE) jobs

4 Vivid Economics (2018), Employment Opportunities in an Evolving Market. Off-Grid Solar: Creating High-Value Employment in Key Markets.
 5 Vivid Economics (2018), Employment Opportunities in an Evolving Market. Off-Grid Solar: Creating High-Value Employment in Key Markets.
 6 Interviews with GOGLA members.
 7 These figures are given in full-time equivalent (FTE) units, and relate to projected employment in East Africa, West Africa, Central Africa and South Asia.
 8 Interviews with GOGLA members.

Off-grid companies are building the skill-sets of local employees

Off-grid solar companies are hiring educated workers to undertake highly skilled positions but they are also building their workforce through training and capacity building. Many of the staff on off-grid solar company payrolls have at least 2-4 years of post-secondary education, depending on their level of responsibility. Managerial and finance positions require on average 3-6 years of experience and are often sourced from candidates with post-graduate level education; while the average level of professional experience for jobs in retail, logistics and technical services is around 1-2 years. For more technical roles such as technicians and software developers, experience specifically related to off-grid solar is more important, and will become increasingly vital as products evolve into more sophisticated services.

As the industry advances, there will be an increasing demand for these highly-skilled management, strategic and technical roles to support growth into new product spaces, and to enable consumers to benefit from a wider range of consumer goods. In addition, as companies in the off-grid solar sector scale up, more and more skilled employees will be needed to drive business growth into new regions and to ensure reliable, consistent and high-quality customer service. This in turn will create more jobs and contribute to wider economic and social benefits.

To make the most of this growing employment opportunity, support for relevant skills training is key. However, given the youth of the sector, there is currently limited specialized training offered by educational organizations across the four regions reviewed.

Off-grid solar companies have therefore taken the initiative to build up their own workforces through in-house training and support for employee's personal development. On-the-job training is used to adapt existing skill sets to the specific requirements of the sector, particularly for managerial, sales and logistics roles; while many companies establish their own formal local training programs for logistics and sales staff⁹ and invest in external training for their management and technical staff.

“As we scale in different markets, we will need much stronger managerial, soft and analytical skills. Those are the skills that will take the business to the next level.”

BBOX, East Africa

Filling the Skills Gap

While the education and skill level of applicants for roles in the off-grid solar sector is high, finding and training a network of sales and after-sales contact points for the most dispersed rural communities is a particular challenge. ‘Last-mile’ sales are often delegated to agents with limited prior experience when they are first recruited into the role. In addition, as off-grid companies expand into new regions with less experience of off-grid solar, there is a need for more skilled employees to undertake key roles.

Several off-grid solar companies highlighted the skills gap in rural areas as a potential limitation on future business growth¹⁰. A focused effort on increasing capacity would help to underpin the emerging sector and encourage its expansion into new countries and regions.

⁹ See for example: Mobisol - Let There be Power: Mobisol Engages in Business in Africa with Mobile Solar Systems; ZOLA Electric - <https://unfccc.int/climate-action/momentum-for-change/financing-for-climate-friendly/off-grid-electric>; and Green Light Planet's EduMe - <https://www.edume.com/blog/spotlight-on-greenlight-planet>.

¹⁰ Interviews with GOGLA members.

Box 1 – Jean Luc – IT Support Officer – BBOXX Africa

Jean Luc joined BBOXX in 2015, after working in quality assurance for 3 years where he was already earning well above the national Rwandan average wage of RWF 100,000 (USD 110) per month.

Jean Luc changed roles four times in four years, as he progressed in a fast-growing company. He spent eight months as a Customer Service Call Centre Supervisor, with a salary 40% higher than his previous job. Leveraging the skills he acquired as a supervisor, he transitioned into a Sales Agent Administrator, overseeing the work of Sales Agents business processes in Rwanda and Kenya. Under this position his salary doubled, in line with the new degree of responsibility. After 18 months in this position, he was promoted to a Sales Agent Network Deputy position in the same area but with a higher wage. After a further year, Jean Luc transitioned into being an IT Support Officer, where he is now responsible for providing IT support to all nine countries where BBOXX operates. His salary is significantly higher when compared to his starting salary, and in the same range of salaries paid in similar positions in other sectors (RWF 900,000 to 2.2 million (USD 990 to 2400) per month).

Joining a fast-growing company allowed Jean Luc to quickly develop new skills and pursue additional development opportunities. Jean Luc has accompanied BBOXX's rapid growth over the last few years, including expansion to six new countries. He has gained project and business process management skills and technological knowledge, and is still looking to develop further, as he is currently completing his MSc with his dissertation focused on the off-grid solar sector. He sees his experience at BBOXX as providing him with the set of skills and opportunities needed for career progression.



The off-grid sector creates employment opportunities across the economy but especially in rural areas

The off-grid solar sector has rapidly expanded, creating new, well-paid, employment opportunities. Over half of these jobs (56%¹¹) are being created in rural areas where employment opportunities are often limited.

This reflects the nature of an industry for which a strong majority of unelectrified households, the primary audience for off-grid solar products, are situated in rural areas¹². Rural job roles in the off-grid solar sector are largely focused on sales and distribution and typically pay well above the minimum wage of the respective country, or in line with average wages¹³. For a majority of these positions, companies employ payroll staff on long term contracts, with opportunities for progressing in line with business growth (see Box 1). Where sales or other part time roles are commission-based, they provide flexible ways for rural staff to augment other job roles and opportunities to boost their household income.

The benefits of employing staff in local communities is not only felt by the employees but also the companies they work for. Companies are increasingly gaining from the direct personal knowledge that their team have of a community's needs. This can create a virtuous circle where strong sales can lead to new employment opportunities for local staff.

“We employ from the communities within which we work – which we believe has a very positive impact on the community through training and income.”

Mobisol, East Africa

11 GOGLA Employment Survey of all GOGLA industry members was conducted in September 2019, with over 35 GOGLA and Lighting Global affiliates contributing data to this research, and Vivid modelling.

12 Rural is generally defined as outside towns of 5,000 inhabitants or more.

13 Interviews with GOGLA members.

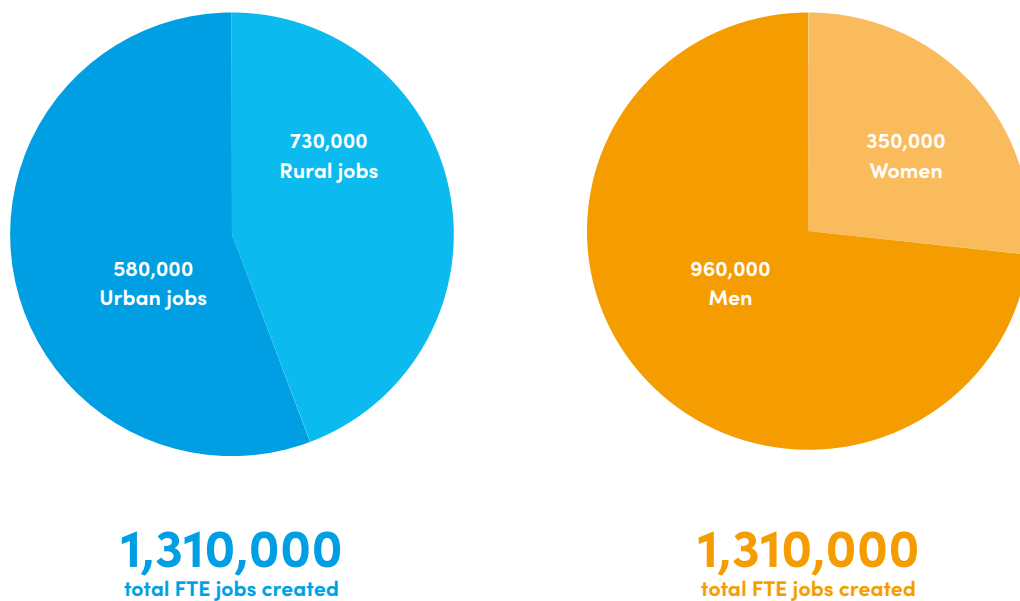
The off-grid solar industry presents good employment opportunities for women – and these opportunities are increasing as the technologies and business models evolve

Approximately 27% of total FTE jobs in the off-grid solar sector are filled by women, and this percentage is expected to rise as the market evolves (Figure 2). This is almost 20% higher than female employment in other energy sectors such as oil and gas, where the number of women only make up 22%¹⁴. As business models such as PAYGo become more widespread¹⁵, they are likely to generate greater employment opportunities for women in the off-grid sector who often undertake customer service roles associated with the business model.

Furthermore, in emerging economies, women are traditionally more closely involved in fulfilling the household's energy needs and are often responsible for the procurement and use of energy¹⁶. They therefore have a close perspective of how to engage a key

customer demographic. A recent pilot study by Value for Women found that, when women were provided the right training on product demonstration and sales techniques, their performance rose to surpass that of their male counterparts – generating 45% more sales and 52% more revenue than male agents¹⁷. As the share of women in off-grid solar employment grows, this can continue to have positive feedback loops, encouraging more women to both adopt off-grid solutions and gain the skills to enter and participate in the sector¹⁸. The Solar Sister network provides a strong example of this opportunity, where female sales agents not only engage other women as purchasers of socially beneficial solar products, but inspire them to join the network as sales agents themselves¹⁹.

Figure 2: Projected number of jobs for employees in rural areas and women in 2022 – Source: Vivid Economics



14 IRENA (2019), Renewable Energy: A Gender Perspective.

15 As discussed in Briefing Note 1 in this series (Vivid Economics (2018), Employment Opportunities in an Evolving Market. Off-Grid Solar: Creating High-Value Employment in Key Markets), the PAYGo market is expected to grow relatively quicker than cash-based sales across emerging regions.

16 Smith (2000), Solar-Based Rural Electrification and Microenterprise Development in Latin America: A Gender Analysis; and UNDP (2013), Gender and Climate Change. Asia and the Pacific. Gender and Energy.

17 Value for Women (2018), A Business-First Approach to Gender Inclusion: How to Think about Gender Inclusion in Small and Medium Enterprise Operations.

18 See for example:

- The Solar Sister model of using female solar entrepreneurs to distribute solar lanterns, enabling entrepreneurs to gain business knowledge, experience, and access to capital.
- The Barefoot College trains women from rural communities as solar engineers, innovators and educators who then spread the knowledge through their local networks, boosting self-sufficiency and energy access

19 Miller Center for Social Entrepreneurship (2017), Turning on the Lights: Transcending Energy Poverty Through the Power of Women Entrepreneurs.



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