

POLICY BRIEF

ACTION AGENDA TO BUILD THE WORKFORCE & SKILLS NEEDED FOR UNIVERSAL ENERGY ACCESS

Executive Summary

As many as 4.5 million off-grid, renewable energy jobs could be created globally by 2030, accounting for more than one-sixth of the global renewable energy workforce, estimated to be 24 million by 2030. Yet today, just 2% of global renewable energy jobs reside in sub-Saharan Africa, particularly, impeding the potential of the decentralized renewable energy (DRE) firms recognized as fundamental to ending energy poverty faster. Power for All's [Powering Jobs Census 2019: the Energy Access Workforce](#), shows that national decision makers in sub-Saharan Africa, developing Asia and other energy-poor regions have a unique opportunity to invest in the necessary resources to train the needed entrepreneurial, technical, financial, and managerial talent to deliver universal energy access and create millions of jobs. Following findings of research conducted by ILO, UNIDO and IRENA, energy access is not a question of economics, the poor already spend more on dirty sources of energy than they would spend on clean sources. It is a question of last mile distribution, financing, technical skills and enterprises delivering DREs. A key barrier remains to informed policy making: the lack of quality data³. According to a recent World Economic Forum report, human capital,

which encompasses digital, technical, and vocational skills, is the area that is least prepared for the energy transition in emerging economies. In other words, the energy workforce of the future lacks the necessary skills to fully realize the transition. The lack of a skilled DRE workforce is likely to hinder the achievement of government universal energy access and jobs targets, slow down the building of a more resilient energy infrastructure, and limit the potential of the energy sector to unlock major employment benefits.

Because little reliable data existed on jobs and skills gaps in late 2018, Power for All and a coalition of partners launched the Powering Jobs campaign with two goals: 1) commissioning an annual jobs census⁴ for the entire DRE sector to understand its employment potential; and 2) using that data to support the creation of policies to improve energy access and create skilled jobs. The campaign started with a survey that captured DRE company employment data for 2017–18. Nearly 150 companies in India, Kenya, and Nigeria were surveyed across the DRE technology spectrum.

This policy brief draws out key insights and messages from the annual Powering Jobs Census⁵ and the subsequent national roundtables consultations held in India, Nigeria and Kenya with key practitioners and decision makers relevant to the DRE sector. This brief further provides recommendations for policymakers and stakeholders who are working to deliver clean energy access at pace and scale while also creating meaningful job opportunities for the energy poor.

Key Messages & Evidence

1. Expanding energy access creates jobs directly.

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 comparative to traditional utility-scale power sectors and is expected to more than double by 2022–23, according to jobs census early estimates. In 2017–18, the DRE sector in India provided as many direct, formal jobs (95,000) as the on-grid solar PV sector (92,400). In Kenya, DRE accounted for 10,000 jobs compared to 11,000 from the national utility KPLC. In Nigeria, DRE accounted for 4,000 jobs, compared to 10,000 by the electricity, gas, steam and air conditioning sector.

2. Better training will lead to more jobs being filled locally, and more progress on energy access.

While technical/STEM training is key, also practitioners report strong needs for managerial, finance, legal and sales graduates; in particular, recruitment for middle management is difficult. There are highly skilled work opportunities across many disciplines. But graduates from these programs are often in short supply, are not industry-ready, and established recruitment channels to reach them are missing.

3. DRE is a jobs multiplier, every direct job DRE creates leads to more jobs in the communities they serve.

There are clear signs that access to electricity is creating productive use jobs within the communities gaining that access. Agriculture, the sector which still dominates emerging economies, is likely best poised to benefit from the potential of clean energy access to mitigate climate change, unlock productivity, and thereby boost near-term economic growth and local job creation. The number of productive use jobs stimulated through new or improved electricity access in 2017–18 were estimated at 470,000 jobs in India, 65,000 in Kenya, and 15,000 in Nigeria: five times the DRE sector's direct, formal workforce.

4. The job creation opportunity is major for rural women and youth in particular.

Women's participation in the DRE sector is low, at approximately 25% across India, Kenya and Nigeria, slightly lower than the 32% of the broader global renewable energy sector. Youth participation (young men and women between 15–24 years) in the workforce is relatively high (about 40% in Kenya, and 30% in Nigeria). Companies suggest youth and women's participation brings significant value to the energy access value chain, and could be higher, but traditional gender stereotypes, internal business culture, the lack of graduate industry exposure and recruitment channels are a barrier.

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

Pico-solar appliances and SHS accounted for 97% of India's total direct, formal DRE employment in 2017–18. The equivalent numbers for Kenya and Nigeria are 75% and 25% respectively. Many of these were associated with government initiatives, but as the government phases out support for the sector, these numbers are not likely to grow.

Sources:

1. R. Ferroukhi et al., "Renewable Energy and Jobs," International Renewable Energy Agency, Abu Dhabi, Dec. 2013.
2. ILO, UNIDO, IRENA 2016: On non-financial barriers to energy access
3. "Fostering Effective Energy Transition: A Fact-Based Framework to Support Decision-Making," World Economic Forum, Mar. 2018.
4. "Powering Jobs Census 2019: The Energy Access Workforce," Power for All, July 2019.
5. Shirley R, Lee C-J, Njoroge H, Odera S, Mwanzia P, Malo I, Dipo-Salami Y. Powering Jobs: The Employment Footprint of Decentralized Renewable Energy Technologies in Sub Saharan Africa. J Sustain Res. 2020;2(1):e200001. <https://doi.org/10.20900/jsr20200001>

- 1. Strengthen public-private links for technical and soft skills:** Stronger collaboration between government, industry, and academia is needed for development of standardized, accredited, industry-relevant curricula and for the establishment of career development programs for both university and vocational training programs graduates; and for widespread, easily accessible soft skills training. These soft skills include leadership, finance, strategic planning, communication, chains of command, project management, compliance, anti-harassment, and health and safety.
- 2. Promote DRE enterprise development and enable financing:** Enterprises for DRE last mile distribution are key. Enterprise and/or banking solutions should be massively up-scaled to finance higher up front cost.
- 3. Seize the youth employment opportunity:** Stronger industry collaboration with higher education and TVET institutions is needed tailored for specific workforce categories through well-functioning and highly visible recruitment channels. For youth in University and TVET institutions forums such as university clubs, open days, and job tours for graduates, are also important to help young people navigate the gap from campus to employment. For vulnerable youth who have obtained skills in the informal sector or at their local vocational training centers, outreach forums need to be organized.
- 4. Increase opportunities for women:** Engaging women in the DRE sector should begin with developing and implementing gender equality policies and practices across the sector, such as gender equality selection criteria for grants and tenders, as well as directly encouraging greater participation of women in education and training programs. Information campaigns demonstrating the DRE value chain opportunities for women would also increase access to information and job opportunities for women.
- 5. Formalize labor certification:** Developing pathways to recognize and certify skilled, but uncertified, technicians will help formalize rural employment opportunities. Establishing updated, easily accessible, regional databases of certified technicians is another simple solution to provide companies with easier access to vetted, qualified skilled labor.
- 6. Further data collection:** Early estimates show that while the potential for direct jobs is large, the potential for informal and productive use jobs may be far larger. However, stronger collaboration and standardized data collection is needed by the sector.
- 7. Link rural business and productive use training programs with DRE:** Governments prioritizing rural

development should utilize the positive feedback loops that energy creates in rural communities in terms of the potential for more and better local jobs, improved educational and healthcare opportunities, and ultimately in reducing rural to urban migration.

- 8. Appropriate consideration of local manufacturing opportunities can create even more jobs:** While governments dream of high-tech manufacturing in Africa in the future, many under-explored opportunities exist today around assembly and manufacturing of components like housings, mountings, cabling etc. Kenya has local solar and cookstove manufacturing because of government tax incentives.
- 9. More transparency means more jobs:** Governments holding back information on energy planning data, learnings from public utilities on rural consumption, and other information are also holding back jobs potential in their countries. Improving access to planning and market information will improve DRE companies' abilities to grow their businesses, impacts, and relationships with public utilities and government agencies.

Contact information

Visit powerforall.org/poweringjobs for more details and to get involved. Or email poweringjobs@powerforall.org

About the Campaign

[Powering Jobs](https://powerforall.org/poweringjobs) is a global campaign to ensure that the needed skills and jobs in clean, distributed energy are created to achieve universal electricity access for 1 billion people, and to employ the energy workforce of the future, especially women and youth. The campaign aims to create powerful evidence and stories to elevate and legitimize skills and training, and ensure building the new energy workforce is at the center of international and national development policy.

About Power for All

[Power for All](https://powerforall.org) is a multi-stakeholder coalition campaigning to rapidly scale decentralized renewable energy in order to achieve universal electricity access before 2030. Decentralized renewables -- including green mini-grids and solar systems designed for households, businesses and productive use appliances -- offer the fastest, most affordable and cleanest path to electricity access for all. Power for All brings together about 300 business, finance, research and civil society organizations. Learn more at powerforall.org