Off-grid solar lighting could add 2m jobs to developing nations, finds Berkeley Lab

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Adoption of solar-LED lighting systems in some of the world's most impoverished nations could trigger net job boom, study shows.

There are various innovative schemes designed to bring solar lighting to the world's poorest regions, and the transition from kerosene to clean is boosting employment, too.
SolarAid

A researcher at the Lawrence Berkeley National Laboratory (Berkeley Lab) has studied the impact of the transition from kerosene and other polluting off-grid lighting sources to solar-LED systems in the developing world and concluded that this trend could create two million new jobs in these regions.

Evan Mills has been studying lighting in the developing world for more than 20 years and has argued in his recently published paper, *Job Creation and Energy Savings Through a Transition to Modern Off-grid Lighting*, that solar-based lighting not only delivers environmental and health benefits, but also spurs economic development.

Mills' research found that there are some 274 million households globally that lack access to electricity, but by focusing on the "poorest of the poor" – the 112 million households (largely in Africa and Asia) that cannot even afford a mini solar home system – Mills found that there is even greater scope for job creation than elsewhere.

"People like to talk about making jobs with solar energy, but it's rare that the flip side of the question is asked — how many people will lose jobs who are selling the fuels that solar will replace?" said Mills. "“We set out to quantify the net job creation. The good news is, we found that we will see many more jobs created than we lose."

Fuel-based lighting is common in countries such as Mali, Niger, Sierra Leone and India. The production and sale of these products is not particularly "job intensive", Mills found, with the sector providing around 150,000 jobs worldwide today. By estimating the employment intensity of specific markets and applying it to the broader non-electrified populations across several of these countries, Mills was able to estimate that a switch to solar-LED systems would replace these old methods and jobs, but add vastly more employment roles.

How? Mills collected data on employment rates for larger manufacturers and distributors that represent the majority of global products assured by the World Bank's Lighting Global Initiative. Based on his analysis, Mills concluded that 17,000 jobs are created for every one million solar-LED lanterns provided.

This number excludes the staff required upstream in primary manufacturing locations such as China and Europe, and so – assuming a three-year product life and target of three solar-LED lights per household – two million jobs could be generated solely in these “poorest of the poor” regions, which is far above the 150,000 positions that the status quo currently supports.

And with solar comes greater health, environment and job security, Mills said. "With fuel-based lighting a lot of these people are involved in the black market and smuggling kerosene over international borders, and child labor is often involved in selling the fuel.

"Also, these can be very unstable jobs due to acute shortages of kerosene and government

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subsidies going up and down. It's a very poor quality of livelihood, and the commodity itself is toxic. These new solar jobs will be much better jobs—they're legal, healthy, more stable and regular."

Other benefits include the simple fact that solar lanterns are more attractive, affordable, rugged, portable and durable, and actually produce better light that is conducive for studying and working during hours of dusk.

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Even very basic mini solar kits usually come with a USB port for recharging mobile phones. Until these systems become universal, the feature allows income generation by selling charging to neighbours. This must be significant for the affordability of the investment by poor households.

BTW, it would be nice to see some reports on the effective rate of interest paid by buyers of PAYGO solar kits. There is potential for overcharging, especially as few countries have made the mobile payments systems run by telcos interoperable like bank accounts.