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Off-grid rural electrification for \$25

Welcome

Submitted by [Rob Katz](#) on June 15, 2005 - 10:26. [Energy](#)  
 A recent article ([available here](#), [PDF](#)) in the journal [Science](#) tackles the problem of electrification in low-income households with analysis showcasing a robust technical solution that could be made available for US\$25 fixed-cost, without subsidy. The technology, solar-powered white [light emitting diodes](#) (WLEDs) are more efficient than fuel-based lighting (biomass, kerosene, candles, etc) by a factor of 100. In addition, the article's author, Evan Mills, estimates that fuel-based lighting accounts for annual worldwide energy consumption of 77 billion liters of fuel per year – an amount equivalent to US\$38 billion per year or US\$77 per household. Mills states:

*"Despite the paucity of lighting services obtained, individual unelectrified households in the developing world spend a comparable amount of money on illumination as do households in the developed world."*

With 14% of urban households and 49% of rural households without electricity as of 2000 (citation [here](#)), this represents a huge market opportunity. Companies are starting to take high-tech water filters, wireless telecommunications, and financial tools into low-income communities. When will companies start taking high-tech approaches to off-grid electrification into those same communities? At \$25 per year, some microfinance organizations should think hard about giving loans to purchase these systems.

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