

Factsheet

Electricity and kerosene

- **Access to electricity:** there are approximately 110 million off-grid households in Africa;ⁱ in Sub-Saharan Africa, only 9% of the rural population has access to electricity.ⁱⁱ
- **Electricity is needed for poverty reduction:** access to energy for lighting is linked to economic and social development as it enables home study in the evenings, increases security, and allows commercial activity to occur after dark.ⁱⁱⁱ
- **Kerosene is used instead:** an estimated 58.3 million of those without grid access are using kerosene to light their homes;^{iv} 92% of the population of Kenya use kerosene, mainly for lighting.^v

But, kerosene...

- **... is expensive:** lighting is often the most expensive item in the household budget of Africa's poorest families, typically accounting for 10–15% of total household income.^{vi} In Kenya, kerosene costs between 25 and 30% of a family's income.^{vii}
- **...doesn't support evening study or work:** the light given from a kerosene lamp is very dim so it's not great for reading; a normal 60W light bulb gives over 70 times more brightness.^{viii}
- **...is bad for health:** "We used to cough and get flu when we were using the kerosene lamp, also my children were getting eye pains because of the fake kerosene." Paul Shirima in rural Tanzania told us.
- **...is dangerous:** studies in Nigeria showed 32% of burns in a hospital were caused by kerosene, most commonly from explosion of lanterns during the process of refilling.^{ix}
- **...is bad for the environment:** a single kerosene lamp emits one ton of carbon dioxide over five years – that's the equivalent of driving your car from London to Moscow *and back*.^x

Solar lights can...

- **...save money:** in Kenya, all solar light customers we interviewed recently have reduced their kerosene use since buying the solar light, saving their family nearly £74 a year!^{xi} The savings are most commonly spent on investing in business/farming and food.
- **... increase child study time:** 92% of solar light customers that we spoke to in Malawi said that their children are doing more hours homework. In fact, on average, children are doing two extra hours every evening because having a solar light means that light is always available.^{xii}
- **...improve health:** nearly all of customers we talked to in Kenya said that their family experienced better health since reducing kerosene use, thanks to their solar light. There's been a reduction in eye irritation and coughing.^{xiii}
- **...help the environment:** in Tanzania, nearly nine in ten solar light customers we talked to were using kerosene before the solar light. Since buying the solar light, these customers have stopped using one of their kerosene lamps; that's 200 kilograms of CO₂ emissions saved per lamp, every year!^{xiv}
- **...increase income:** several studies in developing countries show that access to proper lighting (of high enough illumination to enable reading and doing household and business-related activities) has significant positive impact on productivity broadly and income-



generating activity specifically.^{xv}

Sources

If you have any questions on this data, just ask Kat Harrison, Social Impact & Research Manager.

ⁱ Lighting Africa (2010), *Solar Lighting for the Base of the Pyramid – Overview of an Emerging Market*. URL: <http://www1.ifc.org/wps/wcm/connect/a68a120048fd175eb8dcbc849537832d/SolarLightingBasePyramid.pdf?MOD=AJPERES>

ⁱⁱ World Bank (2011). URL: <http://ppp.worldbank.org/public-private-partnership/sector/energy/laws-regulations/rural-electrification-funds>

ⁱⁱⁱ DFID, 2002 as reported in Johnson, Francis and Lambe, Fiona (2009), *Energy Access, Climate and Development*. Commission on Climate Change and Development. URL: <http://www.ccdcommission.org/Filer/commissioners/Energy.pdf>

^{iv} Lighting Africa (2010), *Solar Lighting for the Base of the Pyramid – Overview of an Emerging Market*. URL: <http://www1.ifc.org/wps/wcm/connect/a68a120048fd175eb8dcbc849537832d/SolarLightingBasePyramid.pdf?MOD=AJPERES>

^v Green Africa Foundation (accessed 2012) URL: <http://www.greenafricafoundation.org/section.asp?ID=88>

^{vi} According to Daniel Kammen, Chief Technical Specialist for Renewable Energy and Energy Efficiency at the World Bank – as reported in The Institute of Science in Society (ISIS) (2011), *ISIS Report 06/04/11*. URL: <http://www.i-sis.org.uk/LightingAfrica.php?printing=yes>

^{vii} Energy for Life (2012). URL: <http://www.energy-for-life.info/en/news/news.asp?idcont=311>

^{viii} A kerosene lamp gives off 11 lumens – Energy for Development and Poverty Reduction (2010). URL: <http://www.energyfordevelopment.com/2010/03/measuring-household-lighting.html>. A 60 watt bulb gives off 800 lumens – PowerSure (2008). URL: <http://www.power-sure.com/lumens.htm>

^{ix} Dongo, Andrew; Irekpita, Eshobo; Oseghale, Lilian; Ogbemor, Charles; Iyamu, Christopher and Onuminya, John (2007), *A five-year review of burn injuries in Irrua*. BMC Health Services Research 2007, 7:171

^x Prugue, Ximena (2012), *Energy Poverty: India's Best Kept Secret*. United Nations Environment Programme (UNEP). URL: <http://new.unep.org/wed/blogs/Prugue4.asp>

^{xi} SolarAid (2013) – data collected in Narok district in December 2012 from 66 customers.

^{xii} SolarAid (2013) – data collected in Karonga district in December 2012 to January 2013 from 81 customers.

^{xiii} SolarAid (2013) – data collected in Narok district in December 2012 from 66 customers.

^{xiv} SolarAid (2013) – data collected in Kilimanjaro region in December 2012 from 85 customers.

^{xv} Lighting Africa (2010), *Solar Lighting for the Base of the Pyramid – Overview of an Emerging Market*. URL: <http://www1.ifc.org/wps/wcm/connect/a68a120048fd175eb8dcbc849537832d/SolarLightingBasePyramid.pdf?MOD=AJPERES>

