

Powering Africa: Observations from Kenya

July 16, 2013 by Catherine Wolfram — 4 Comments



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During his trip to Africa at the end of June, President Obama announced the [Power Africa initiative](#). The press release highlighted several goals, including adding generation capacity in the six target countries, which include Kenya, and increasing the number of households and businesses with access to electricity by at least 20 million.



I was recently in Kenya meeting with potential partners for a research project that will measure rural households' demand for grid connections, as well as the social and economic benefits of bringing people electricity. (The project is joint with Professors [Ted Miguel](#) and [Eric Brewer](#).) I gained several insights on the opportunities for growth in the local power sector as well as the challenges to bringing power to more Kenyans.

Let me start with a couple facts. The total electric generating capacity in Kenya is about **1,700 MW**. By comparison, the generating capacity in California, where population is 40 million compared to Kenya's 45 million, is **70,000 MW**. Kenya has plans to add substantial capacity in the near future, including several large geothermal projects.

On the distribution side, the Rural Electrification Authority in Kenya has made tremendous strides over the past six years building out the low-voltage distribution network. Nationwide, more than three-quarters of the Kenyan people now live within 1.2 km of the grid. We visited a regional office for the agency and saw rows and rows of transformers, waiting to be installed, so this share will likely grow even higher in the future.



New transformers awaiting installation

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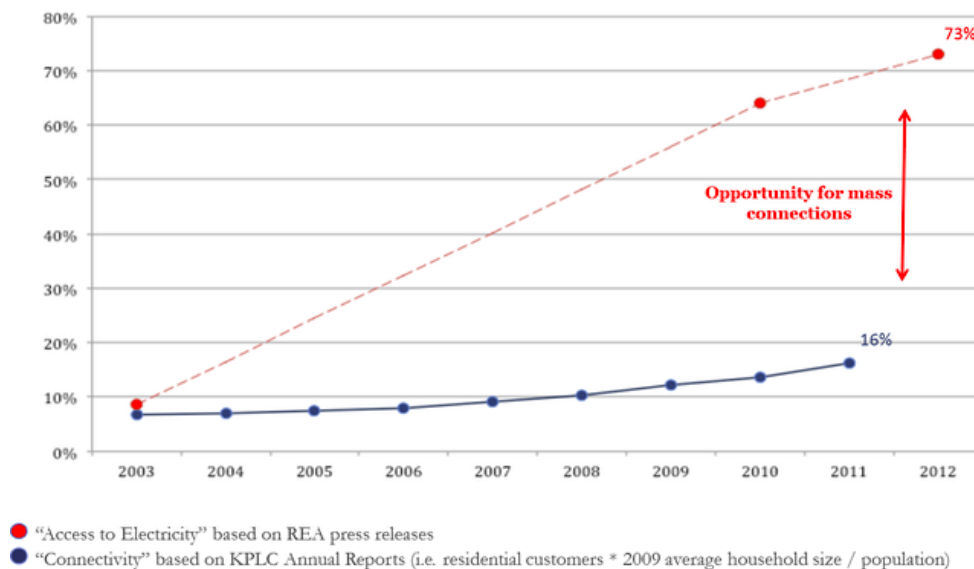
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Kenya Power Company, which operates the distribution system nationwide, will connect a household to the grid as long as it's within 600 meters of a transformer, so many households are within striking distance. Here's the catch, though. The household has to pay about \$400 to KPC for the connection, and there is talk that the company plans to increase the connection charge to almost \$900 this summer. In a country where the per capita income is around \$800, most households are priced out of a connection.

As a result, roughly 20 percent of the population actually has electricity in their homes. More than half of the people in the country are living under the grid without access to it.



Many households in Kenya are near the grid, but not yet connected

I met with a grandfatherly gentleman I'll call Mr. X in Kisumu rural, close to Lake Victoria. His house, on a steep hill overlooking a picturesque valley, is about 100 meters downhill from a secondary school that began receiving electricity 3 years ago. He quietly answered questions about his living situation and smiled patiently at my attempts to thank him in Swahili ("asante sana").

Mr. X became animated when the conversation turned to "stima" or electricity. He was indignant that the nearby school had electricity but he did not. When probed, he told us that the only reason he did not have power was the large connection charge – he could pay for the wiring in his home and afford the monthly payments.

Without electricity, Mr. X spends about \$7 per week buying kerosene that he uses to cook and power a large, pressured kerosene lamp that lights his whole house. Plus, to buy kerosene each week, he must pay about \$1.25 for a motor scooter ride to the nearest village, about 5 km away.

When probed about what he would most like to do if he got electricity, he mentioned cooking and lighting his home, so it's likely that his kerosene costs would decline significantly with a connection. He also wanted to iron his clothes and operate a welder, the latter of which could potentially bring him more income.

Access to electricity has the potential to transform many lives – creating income-generating opportunities, allowing children to study later at night and replacing expensive, time-consuming and polluting alternatives such as kerosene. As energy economists, we have many opportunities to learn about the benefits of electricity as well as the best business and policy models to use to increase access. Programs like Power Africa can be hugely impactful, so we need to make sure we do them right.

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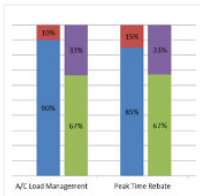
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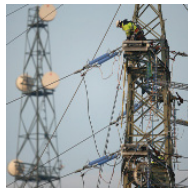
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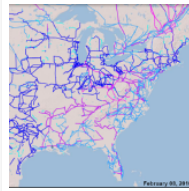
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Catherine Wolfram

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I travelled in Kenya and Tanzania recently. Tanzania has hydro power generation from Mount Kilimanjaro, but most places have no electric power, essential to development. I did a few posts from there.

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How long will Kenyans have to wait before they will even have the opportunity of considering a commercial grade thorium reactor?

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July 18, 2013 15:11 

What Kenya has to do is to extend credit to this man, and charge low to no profit flat rates. I would strongly advocate CSP with Molten Salts for Kenya.

If I could offer a suggestion to President Obama and the Power Africa Initiative, My suggestion is CSP, CSP, CSP. This makes so much sense it's not even worth asking the question.

In The Long term Thorium for the World, absolutely. But for now, Kenya should look at CSP with molten salts. CSP is compatible with Thorium.

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