

Title: Modern Energy Cooking Services - What Does The Next 10 Years Look Like?

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Question: Can you discuss the cost of purchasing electrical cooking technologies like pressure cookers, rice cookers, kettles, induction cookers, and hot plates?

Response: The range of costs for electrical appliances is from about \$10 for a task specific item like a kettle, upwards to \$10 to \$20 for a rice cooker, \$20 to \$40 for a simple single hob induction, and \$40 to \$100 for an 6 to 10litre electric pressure cooker. However, before someone says “\$100! The poor cannot afford that!” can I expand and reframe the question. The cost of the fuel over 5 years (a very conservative life of the device) dwarfs the upfront cost (assuming the upfront cost can somehow be covered - I will return to that). An electric pressure cooker has been shown to make savings of about 50% on urban monthly expenditure in East Africa - monthly expenditure of course has a range, but the middle quintile spend about \$12 to \$25 (pre Ukraine). So even at \$100 the cost is recovered in 8 to 14 months, and the household saves between \$260 to \$650 over the five years. Aha, but the perennial problem - where do the household get the upfront cost? While credit through SACCOs can be encouraged, Pay as you go technology for Solar Systems is now well established, and electrical devices can have meters that confirm use. This not only allows the provider to collect weekly, but opens opportunities for results based financing. We have been able to work with Gold Standard to develop a verification of use for carbon credits using meters, and ATEC in Bangladesh and Cambodia are going through this now. Using carbon credit further reduces the cost of the unit, but there are even more opportunities in combining mobile money and metered readings over a longer period of time to actually give consumers the carbon credit payments. Long winded way of saying - the appliance costs is a very small part of a system that is commercially viable and affordable to consumers.

Question: For the population that has access to electricity (but is not using it for cooking), do you have an estimate of the fraction that has only low-power systems (not adequate power for cooking) - systems would need to be upgraded, power generation capacity increased, etc.?

Response: The data is slightly available in the Multi Tier Framework studies of ESMAP and the world Bank. They acknowledge that ‘access to electricity’ is more than being able to just access one light bulb. In capturing their Tiered data we are building a more granular data set that answers your question jim. But more data is needed.

Question: Do you have MECS programmes in any other countries- like India, Nepal, etc?

Response: Yes, we have worked in 19 countries so far. Kenya has been the most wide-ranging engagement but we have strong engagement in Cambodia, Uganda, Nepal, Tanzania and a range of other countries. India we have far reaching action as the Go Electric Campaign seeks to pivot from LPG to electric cooking.

Question: Can you comment on the household level requirements for electrical capacity; e.g. wiring etc? Can instant pots and induction cooktops work safely with wiring installed for just lighting?

Response: This is a potential issue - and Napel for instance installed wiring in its recent grid extension only for 300W. Now they have a national policy to pivot to ecooking, and will have to retrofit transformers and wiring! This is our go to example of why we would like to see integrated planning on energy that includes cooking loads on electricity roll out.

Question: Do you work with international aid programs to move forward on increasing electricity access and use - like the Power Africa program?

Response: Yes we try to. There is a slight UK/US divide in development work. As a UK based programme we sometimes cant get to the States to discuss with decision makers, and sometimes by the time we reach them in target country decisions have already been. Any introduction would be welcome - but yes, the whole point of this approach is to leverage the multi billion aid programmes moving electricity access forward to include cooking loads (and as utilities do more than just provide electricity, they can also offer 'services'. In Uganda we are working with Umeme to offer appliances on on-bill financing)

Question: Does your data include the use of induction cooktops for foods such as injera, tortillas, fried foods?

Response: Injera is really difficult! The surface of the pan has to be at 180 degrees when you pour to get the bubbling, but on the clay that then drops to about 130 to do the rest of the cook. With many of the electrical trials if the surface is hot enough for the bubbling, then it remains too hot and burns the base. If its cool enough not to burn you dont get bubbling! And there are standards of how many bubbles per square inch goog injera has! Fried onions you can do in an EPC - an EPC has a very tight connection between hotplate/heating element and the pot, so it energy efficiency for frying is as good as induction. BUT you can really do tortilla because of the depth of the pot. So during the webinar we talked about people not chaanging their menu. If they insist on tortilla, then they perhaps needs two devices, if they also going to do long cooking of beans etc. But if they get one device, induction for their tortilla, they have to realise that they are spending almost 60% more on the rest of the menu than they could have done with an EPC! Context is everything!