



2117 Campus Drive
Durham, NC 27708
USA

May 19, 2020

Kenya Renewable Energy Association

3rd floor, Strathmore Business School,
Keri Rd, Off Ole Sangale Rd,
P.O. Box 42040-00100,
Nairobi, Kenya.

To the **Solar Home System Working Group** of KEREA,

RE: The Finance Bill, 2020

We are writing to share with you an analysis that has bearing on your consideration of a proposal in the Finance Bill 2020 regarding the treatment of solar energy equipment imports (the proposed introduction of VAT at the rate of 14% on solar powered development and generation equipment).

In 2019, we published “The True Cost of Solar Tariffs in East Africa” based on the careful analysis of sales data from 700,000 unit sales of solar home systems (SHSs) in Kenya and Uganda. We looked at how consumers would respond to higher prices that would arise from import duties, VAT or other drivers and how this would affect sales, government revenues, and achievement of universal electrification goals. As we noted in the brief, the companies selling these systems are under competitive pressure and thus would pass along a tax increase to their customers. **While the timing of that cost pass-through would be subject to unique circumstances and considerations of each company, the burden of the tariff over time would fall on SHS purchasers.** This price increase would cause a subset of would-be purchasers to forego the investment.

To support your current deliberations, we removed the sales data from Uganda and re-ran the numbers for Kenya alone to consider changes in demand for off-grid systems due to price fluctuations associated with different tax applications over a four-year period, including the re-introduction and subsequent removal of EAC import duties. **We found a high degree of price responsiveness (elasticity) in Kenya: households responded strongly to higher prices of off-grid products (SHS kits with and without televisions) caused by changing tax rates.** The fall in demand exceeded the magnitude of the increase in price, and was slightly higher for SHS kits that included TVs.

Our finding that demand is more responsive for kits with televisions points to the inherent challenges off-grid solar companies face in introducing add-on bundles and appliances to poor, rural customers.

The table below summarizes the Kenya-specific results: A 20% increase in prices would result in a 22% reduction in sales of basic systems that include a panel, lights, and phone charging equipment, and a 24% decrease in sales of larger kits that include televisions. While this would raise some government revenue, **it would also mean that over 52,000 Kenyan households that would have gained access to electricity through these kits would continue to be without power – every year.**

Kenya: Change in Demand and Government Revenue from Price Changes [using Kenya-specific data to calculate demand response]

Change in prices	Change in demand (%)	Change in demand (#)	Change in government revenue (USD)
+20%	-22% (kits w/o TV) -24% (kits w/ TV)	-44,000 (kits w/o TV) -8,400 (kits w/ TV)	+\$4.70M
+15%	-17% (kits w/o TV) -18% (kits w/ TV)	-33,000 (kits w/o TV) -6,300 (kits w/ TV)	+\$3.78M
+10%	-11% (kits w/o TV) -12% (kits w/ TV)	-22,000 (kits w/o TV) -4,200 (kits w/ TV)	+\$2.69M

As discussed in further depth in the full paper, which is attached here and can be accessed at <https://energyaccess.duke.edu/publication/the-true-cost-of-solar-tariffs-in-east-africa/>, reduced access to electricity means foregone benefits that typically come with electricity—like reduced kerosene consumption for lighting, increased study time in the evening for children, reduced cell phone charging expenditures, and increased pollution. The resulting “energy access dividend” amounts to about 4200 KSh per unelectrified household, per year. **For the 52,000 households left without access to electricity due to a hypothetical 20% price increase, this amounts to a loss of approximately 220 million KSh per year, a loss that will be borne by households, the government, and society as a whole.** The paper provides additional details of the methods we used.

We are happy to answer any questions or concerns and can be reached at the contact information below.

Warm Regards,



Jonathan Phillips
 Director
 Energy Access Project at Duke University
jonathan.phillips@duke.edu



Dr. T. Robert Fetter
 Senior Policy Associate
 Energy Access Project at Duke University
rob.fetter@duke.edu