



**Community
Solutions
Initiative**

February 21, 2014

The Honorable Ed Royce, Chairman,
The Honorable Eliot Engel, Ranking Member,
U.S. House of Representatives Committee on Foreign Affairs
Washington, DC 20515

Dear Chairman Royce and Ranking Member Engel:

As members of the initiative to address energy poverty, www.communitysolutionsinitiative.org, an effort of the 430,000 member worldwide professional society the Institute of Electrical and Electronic Engineers (IEEE, www.ieee.org), as well as of the Power and Energy Society within the IEEE, we would like to express support Electrify Africa Act, and wish to lend our support in whatever manner to your efforts. With the generous support of the IEEE, the Nuclear and Plasma Physics Society, NexTek Engineering, Russell Engineering and numerous other organizations and individual volunteers, we have been able to develop a photo-voltaic system which brings basic electricity services to people at the rural, village level in an affordable and economically sustainable way. Our primary pilot project thus far has seen 15 such installations, each servicing 80 residences deployed in Haiti with help from USAID, with more on the way, and thus at present providing clean energy services to 1100+ village homes and 7000 residents. We are currently initiating similar operations in Nigeria, Cameroon, South Sudan and Kenya, with waiting lists in several other African countries.



Figure 1: 1st CSI system Deployment in Haiti, 2010



Figure 2: Home Battery and Lighting Kit – provides 15 hrs of light with 2 bulbs before recharge at station; auxiliary services such as cell phone charging also supported

The United Nations, esp. through its efforts such as the declaration of 2012 as “The Year of Sustainable Energy for All” (<http://www.se4all.org/>), as well now as declaring 2014-2024 the Decade of Sustainable Energy for All, has estimated the worldwide number of those without access to electricity as approximately 1.3 billion, with 84% of those living in rural areas. As you know, Sub Saharan Africa (SSA) alone accounts for nearly 600 million people living without access to basic electricity, and with demographic trends and limited national government resources, that number is expected to grow by 2030 while other regions (India, Bangladesh and S. Asia) make marked progress in reducing such numbers. This is shown in Table 1 below.

The estimate of \$20 billion annual investment in energy infrastructure for Africa alone to achieve universal electricity access by 2030 is demonstrated in Table 2. As the UN has tracked such investing, expected sources such as national governments, multilateral and bilateral institutions and the private sector are lagging in meeting these commitment levels, with the private sector (which CSI is engaging) cited as lagging the most.

	2009			2030		
	Rural	Urban	Share of population	Rural	Urban	Share of population
Africa	466	121	58%	539	107	42%
Sub-Saharan Africa	465	121	69%	538	107	49%
Developing Asia	595	81	19%	327	49	9%
China	8	0	1%	0	0	0%
India	268	21	25%	145	9	10%
Rest of developing Asia	319	60	36%	181	40	16%
Latin America	26	4	7%	8	2	2%
Middle East	19	2	11%	5	0	2%
Developing countries	1 106	208	25%	879	157	16%
World	1 109	208	19%	879	157	12%

Table 1 Population Lacking Electricity Access (millions) (UN 2010, "Energy Poverty: How to Make Modern Energy Access Universal?")

	2010-2020	2021-2030	Total
Africa	119	271	390
Sub-Saharan Africa	118	271	389
Developing Asia	119	122	241
India	62	73	135
Rest of developing Asia	58	49	107
Latin America	3	3	6
Developing Countries*	243	398	641
World	243	398	641

*Developing countries total includes Middle East countries.

Table 2 Additional Investment to Achieve Universal Electricity for All (billion \$) (UN 2011, "Energy for All: Financing Access for the Poor")

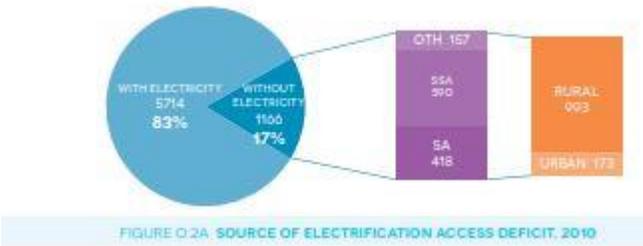


Figure 3 UN SE4ALL Global Tracking Framework 2012 Report

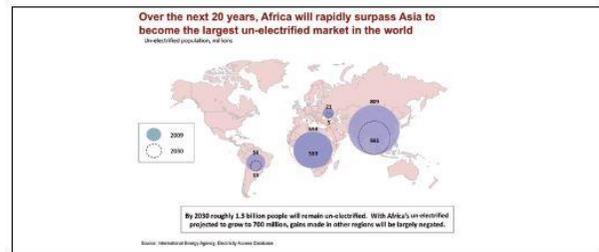


Figure 4 World Bank

As you are well aware, having sponsored the Electrify Africa Act, the Power Africa Act of 2013 is focused more on solutions involving developing energy sources for large, typically urban installations, rather than at the rural level which is seen in Table 1 above to dominate the overall need for electricity services in Sub Saharan Africa, by a figure of nearly 4:1. Power Africa further also directs only 2% of investment towards renewable energy. Our vision of effectively addressing such overwhelming rural electricity needs involves mini-, micro- and especially off- grid approaches, typically involving abundantly available renewable energy resources (solar energy in our case), as grid extension is economically infeasible for the dispersed rural populations of Sub Saharan Africa, as estimates for grid extension typically range near \$10,000 / km.

While we have been able to have our Nigerian NGO (non-government organization; developing such partnerships is vital to our approach) avail itself of a \$100k grant of the Power Africa Off-Grid Energy Challenge (<http://www.ieee-pes.org/ieee-pes-congratulates-winning-green-village-electricity-project>), compared to the overall investment needs this is just a nice, well-intentioned drop in the bucket. We have engaged a professional fundraiser to assist us in canvassing contacts (individuals as well as businesses) within our own organization to provide investors in our system, but being able to participate in cultivating investor relations with such Power Africa partners as the Overseas Private Investment Council (OPIC) and the Millennium Challenge Corporation (MCC) via passage of the Electrify Africa Act would be invaluable and huge for our cause. Passing the Electrify Africa Act, and further initiatives resulting from that passage, would assist groups like ours to significantly scale our solution to reach millions or tens of millions of individuals otherwise stuck in "energy poverty," and by implication in the other various forms of impoverishment that result.

Another shortcoming of the present form of the Power Africa Act of 2013 is its current limit of just 8 African countries. As our initiatives thus far include partnering with NGOs in Nigeria, Cameroon, South Sudan and Kenya, only the group in Nigeria has thus far gained any impact from the Power Africa Act. Current operations in Cameroon and South Sudan as well as the inquiries into startups in Congo, Uganda, Zambia and Ghana will not even qualify as recipients of Power Africa initiatives for several years yet. As we seek to scale up these projects as well as bring along NGO partners in other sub Saharan Africa nations, the encouragement of investments across a much broader range of countries will be crucial to our ability to serve these populations.

To conclude, passage of the Electrify Africa Act would immensely help initiatives such as that begun by CSI, and is a significant first step in opening the possibilities of introducing even more significant investing into village energy infrastructure systems, as per the following statement:



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"This definition of electricity access to include an initial period of growing consumption is a deliberate attempt to reflect the fact that eradication of energy poverty is a long-term endeavor." - World Energy Outlook, 2011 "Energy for All," International Energy Agency (IEA).

While in Wash. DC this week, I was able to finally visit the Jefferson Memorial, and find his words inscribed in that dome to be relevant to this issue, to put a Jeffersonian perspective on this affair:

"I have sworn upon the altar of God eternal hostility against every form of tyranny over the mind of man."

While this was originally written in support of a different cause, one would do well to consider and adopt that spirit in addressing energy poverty and the manner in which it limits the educational and quality of life possibilities of such a significant portion of humanity.

Passage of the Electrify Africa Act, with its emphasis on energy needs of these vast rural populations, would provide meaningful and crucial encouragement for the process of addressing the development and economic needs of Sub Saharan Africa.

Thank you for your leadership on this issue,

A handwritten signature in black ink, appearing to read "Ray Larsen".

Ray Larsen
CSI Co-Chair
SLAC National Accelerator Lab, Stanford University, MS 50
2575 Sand Hill Road
Menlo Park, CA 94025
Tel: 650-926-4907
Cell: 650-888-9075
larsen@slac.stanford.edu

Seth Myers, CSI Volunteer/Ambassador

Cc:

Robin Podmore, CSI Co-Chair
Patrick Ryan, PES Executive Director
Michael Wilson, CSI Program Manager
Michael Deering, IEEE Foundation
Charlie Michaud, CCS Consultants
Derek Welbourn, CSI Implementation Advisory Committee Chair
Daniel Wessner, CSI Education Co-Chair
Patrick Lee, IEEE Foundation Committee