POWER FOR ALL RESEARCH SUMMARY

Productive Uses of Electricity

POWER FOR ALL

30%

AVG MARGINS ACHIEVABLE BY MINI-GRIDS WITH ANCHOR CLIENTS

25%

AVG HOUSEHOLD CONTRIBUTION TO MINI-GRID REVENUES

12-15%

AVG INCREASED REVENUES REPORTED BY MICROENTEPRISES USING DRE

*SOURCE: SPI, 2017

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A much higher priority must be given to promoting productive use of electricity (PUE) for mini-grid business model sustainability and for rural electrification to significantly impact the broader development agenda.

Two new reports from the **International Institute for Environment and Development (IIED)** and a new report from **Smart Power India (SPI)** provide an overview of the opportunities created by PUE by analyzing case studies in Tanzania and India respectively. This new research shows:

To be financially successful, energy service providers must focus not only on a village's existing power demand, but also on building additional demand by supporting electricity-based local enterprises.

» SPI evaluates the commercial performance of 106 renewable energy based mini-grid plants it supports through local partner Energy Service Companies in India.

» SPI's mini-grids represent a total of over 3MW installed capacity, and approximately 12,000 customers. Each mini-grid operates either with or without a telecommunication anchor client.

» With or without a key anchor client, mini-grids are capable of achieving operating margins as much as 30% of revenues. In mini-grid models without anchor telecom clients, shops and commercial microenterprises account for 80% of revenue.

» In either case (with or without anchor telecom clients) households account for less than 25% of revenue, and SPI's evidence suggests that non anchor-based models may not be viable in very small villages.

» Microenterprises on SPI mini-grids reported 12-15% increase in monthly revenue on average.

The importance of stimulating PUE applies to community-based mini-grid models as well.

» European non-profit companies ACRA and CEFA established community based utility companies to manage the small hydro mini-grids established in rural Western Tanzania.

» In each case, the utility companies engaged the community directly (as employees and through information provision); helped established financial support for local microenterprise; and provided vocational training to entrepreneurs.

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» The types of productive electricity uses that emerged included: milling, poultry farming, animal feed factories, carpentry workshops, fish refrigeration and drying, ice-making, and shops (barber shops and groceries).

Many factors are critical to establishing PUE beyond just energy access itself, including capacity development, business permitting processes, access to finance and transportation infrastructure.

» Many newly electrified villages may lack access to markets for their products that are enabled by energy, or to markets for the related inputs, due to poor infrastructure.

» Households and small businesses often lack technical business administration skills, as well as knowledge about how electricity can be used in productive enterprise.

» Long-term and low-cost financing is limited for PUE projects due to uncertain risk profile, requiring complementary financial tools, such as results-based funds for service providers.

Share the Message

DRE developers must focus on developing PUE in order to maximize the development benefits of electricity access as well as for the sustainability of their own business models.

» Promoting PUE to low-income and marginalized groups can increase local impacts but requires time, expertise and financial support.

» Mini-grid developers should partner with MFIs and NGOs and others with expertise in local value chains, to understand and assess opportunities for developing PUE within the community.

» Developers, governments and funders can support innovation in PUE through facilitating access to finance, advice, guidance, training, skills development and networking at the community level.

Sources:

1. Smart Power India (2017). ***Expanding opportunities for renewable energy based mini-grids in rural India.***
2. Best, S., Garside, B. (2016) Remote but productive: Using energy access investments to catalyse enterprises and income in Tanzania's rural communities. IIED Working Paper. IIED, London.
3. Contejean, A. and Verin, L. (2017) ***Making mini-grids work: productive uses of electricity in Tanzania. IIED Working Paper. IIED, London.***
4. Vulcan Impact Investing (2016) ***Powering Productivity: Early Insights into Mini Grid Operations in Rural Kenya***