

LOCATIONS
Chang'ombe,
Tanzania

POPULATION
2,000

TECHNOLOGIES
Wi-Fi, IoT, Open
Source, Data Analytics

INNOVATORS
Rafiki Power, AMMP

Connectivity

COMMUNITY SOLUTIONS

Every Community has a Vision.

Using Data Collection to Enhance Micro-Grid Efficacy in Africa

In 2017, the village of Chang'ombe received electricity for the first time through a Wi-Fi enabled micro-power grid. Data from solar panels, smart meters, and batteries were all fed into an open source analytical platform; whereby, the data could be visualized and analyzed in real-time. This allows for remote detection of hardware failures, damaged cables, energy production, and usage. This analysis detected a regular period in the day whereby batteries were at their maximum capacity and



energy was consistently lost. Realizing this a much-needed water pump was installed in the community and programmed to only fill the villages' reservoir at the point that the batteries were full. This granted them a much-needed service at no additional energy cost or production.

While at first glance the conditions and lessons learned in rural Tanzania may not seem to be transferable to the rural Canadian context. However, energy scarcity combined with connectivity exposes a valuable example of how data and IoT can enhance all micro-grid installations. Data collection from micro-inverters, and other IoT enabled devices and analytics through open source platforms can provide a means for better maintenance and energy management of micro-grids or even smart homes. Trend analysis can be used to monitor hardware while providing a mechanism for automated triggers that can be programmed to ensure that connected devices use energy in new and innovative ways.

MORE INFORMATION

Blog Article: <https://grafana.com/blog/2019/05/01/how-iot-and-grafana-are-enabling-electrification-across-rural-africa/>

Video: <https://www.youtube.com/watch?v=4iPG7iJHGKU>

Free Open Source Data Storage & Analysis Software:

Elastic Stack: <https://www.elastic.co/products/elastic-stack>

Grafana: <https://grafana.com>

