

## The Challenge

The Ghana Energy Development and Access Project (GEDAP) by the Ministry of Power implemented 5 mini-grids on a turn-key basis to provide access to electricity service 24/7 and enhance income generating activities to a total population of around 3,500 in remote island communities on Volta Lake. This project was the first of its kind promoting RE based mini-grids to play a key role in Ghana's transition to a low-carbon economy while electrifying population in rural areas.



Trama TecnoAmbiental (TTA)

## System components

<b>Inverter/Chargers:</b>	Studer 21 x Xtender, XTH 8000-48
<b>Solar charge controller:</b>	Studer 46 x VarioTrack, VT-80
<b>Other:</b>	Studer 5 x Remote Control, RCC-02 Studer 5 x Internet communication module, Xcom-GSM

## Why Studer

Studer equipment is especially designed for off-grid applications. The Studer product's flexibility allowed to use a modular solution matching the different system configuration based on the demand and field studies. In addition, the systems are easily scalable and can be operated and monitoring using centralize tools and equipment.

## The Solution

The five mini-grids implemented by Trama TecnoAmbiental (TTA) required a different design and configuration based on the demand surveys and project context. By choosing the Studer solution it was possible to use the same equipment in different configurations (three-phase or single-phase, batteries of different size and configuration, a mix of PV and wind power generation, different size of back-up diesel generators) monitored with the same tool and procedures.

The centralised system provides electricity through a low-voltage distribution grid consisting of a three-phase backbone feeder with single-phase laterals connecting single-phase loads at each customer's premises. A dedicated line feeds high-efficiency LED street lamps throughout the villages.

## Project outcome

The five mini-grids serve as a demonstration project and showcase to representatives from other West African countries. This flexible design can be adapted to any configuration required by a rural electrification project with the following advantages:

- The modularity allows the mini-grids to be scaled up (or down). Requests for service upgrading started immediately after the start-up phase, corn-mills operation, cooling equipment, etc. A 20% extension is already under negotiation.
- Installation and operational costs are minimized using the same equipment with different configurations
- More effective training for local O&M
- Centralized, efficient management of spare parts

## The Company

### TRAMA TECNOAMBIENTAL SL (TTA)

Global consulting and engineering company with headquarters in Barcelona, Spain. Since its founding in 1986, fully committed to a sustainable energy development, TTA has been providing specialized services in distributed generation through renewable energies, energy management and efficiency, rural electrification, self-generation, integration of renewables in buildings, sustainable architecture, as well as, specialized training, education and technological development related to its activities.

## For more information please contact:

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