

# Project 1: Solar Mini-Grid

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**Location:** Kowai Town, Kpaai District, Bong County, Liberia

**Beneficiaries:** 150 households (750 people) + 5 community facilities (school, clinic, youth center, processing hub, town hall)

**Project Set up Duration:** 5-month startup phase

**Implementation Period:** 8 years

## Project Overview

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Kowai Town lacks reliable energy access, with households relying on kerosene, candles, and diesel. This project will install an 83.25 kWh/day solar mini-grid with lithium batteries, hybrid inverters, programmable distribution boxes, and prepaid metering. The system will provide over 14 hours/day of clean power to homes, schools, and small businesses. By reducing energy poverty and supporting productive uses (ICT, refrigeration, welding, agro-processing), the system will improve household incomes, health, and local development.

## Objectives

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- Provide clean electricity to 150 households and 5 community institutions.
- Replace kerosene and diesel with renewable energy.
- Enable income-generating activities (milling, freezing, tailoring, welding, phone charging, entertainment).
- Support education and healthcare services (lighting, vaccine storage, clinics).
- Build local skills for long-term system management and sustainability.

## Financials

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- **CAPEX:** USD 100,778 (solar panels, batteries, inverters, distribution)
- **OPEX (annual):** USD 4,900 (maintenance, training, community awareness, regulation)
- **Total (Year 1):** USD 105,678

## Conclusion

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The Kowai Solar Mini-Grid Project is a transformational clean energy solution that goes beyond electricity provision. It reduces poverty, stimulates entrepreneurship, supports education and healthcare, and empowers the community to manage its own energy future. With strong technical, financial, and social foundations, it provides a replicable model for rural Liberia.