

Energy Options for the Mayukwayukwa Area

UNLIKELY

- Reticulation from existing power grid: 95% hydro with Zesco grid running from South through Central province.
 - Population density is low with no nearby large population centres to justify extending the grid to Mayukwayukwa
- Oil & Gas: closest hydrocarbon sources in the near term are the offshore areas of Angola (1700km W) and Mozambique (1500 km E)
- Coal: closest source is Mamba coal mine (700km SE)
- Geothermal: closest source is Bwegwa River area (500km SE)

OFF GRID POTENTIAL (ignoring expensive and weather dependent solar & wind with battery storage)

- Manual hand pumps or other means driving pumps or charging batteries for electrical pumps.
 - **Relatively cost effective.**
- New run-of-the-river hydro. **Expensive capital investment, difficult to justify for relatively low demand.**
- Repair existing micro-hydro turbine gearbox. **Relatively cost effective. Unknown capacity & location relative to subsurface water source.**
- Diesel generation could be added. **Costly fuel source.**
- Landfill gas fired turbine. **Unknown landfill conditions & volume (settlement started 1966)**
- Biomass power generation
 - **Small scale dependent on unknown potential for agriculture growing sufficient feedstock**
 - **Micro scale like Biolite stoves suitable for families/huts are relatively cost effective**

Biolite stoves can be customized for mass manufacturing for off-grid areas.

1. burns wood efficiently so that:

- far less wood is required in areas where wood may be scarce
- women who tend to be tasked with collecting wood have much more time to spend on other tasks
- cleaner burning wood reduces the negative health effects of cooking over a wood stove inside or outside a hut

2. the heat generates thermoelectric power (no batteries required) that can power low voltage systems such as mobile phones (keeps the men happy), LED lighting and to charge batteries that can store the power for when the fire is extinguished.



<https://row.bioliteenergy.com/products/campstove-2?variant=59448084491>

