Jungle Power

A more remote AC Bus

WWF

Krombacher REGENWALD-PROJEKT 2008

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Location

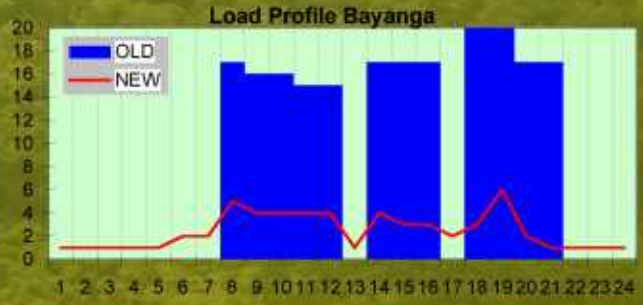
The Dzanga Sangha Project Right in the Congo basin, where the Central African Republic meets Cameroon and Congo-Brazzaville, the "WWF-World Wide Fund For Nature" is supporting the Dzanga Sangha Reservation. It is famous for their rare population of lowland gorillas and forest elephants. Two jungle-camps provide a base station for researchers, visitors and the local Ba'Aka pygmy forest rangers. A larger camp for the administration is located on the Sangha river next to the village of Bayanga.

Design

Project design The development of a power supply concept for remote locations like Bayanga involves

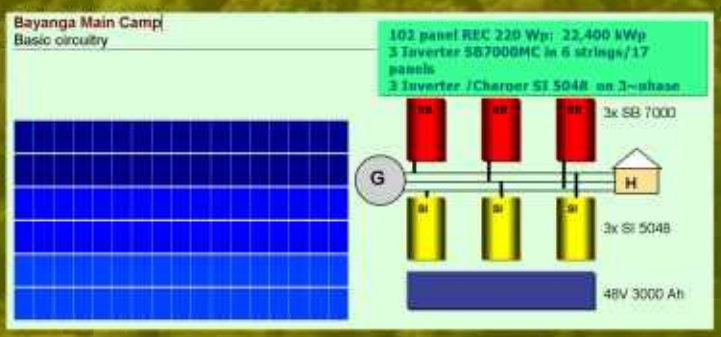
1. **load assessment**, understanding load profile and demand quality
2. **technology selection**, considering the resources and service level
3. **implementation** with training and sustainable management components

Compared to the prior Diesel power supply , the demand side assessment resulted in a load profile providing a full 24 hours 7 days service at 93% less energy



Technology

The Bayanga supply concept prefers the AC-bus to a DC-bus, because the camp uses a new grid with different generators/feed points and the existing Diesel as backup to the PV generator. A three-phase 230V/50 Hz grid connects 15 offices and residences. Maximum power is nominal 36 kVA, surplus energy is stored via the SunnyIsland into the battery. On low battery, the Diesel GenSet is cut in manually, with the SI synchronizing to the grid. Batteries and inverters are installed inside the transport container which is shaded by the PV generator structure, so the interior temperature is not above ambient. All plant data are logged on an SD card and the daily profiles emailed for monitoring.



Lessons Learned

- Sophisticated technology works reliably in remote locations, but regular communication is inevitable
- Installation with **local workforce** goes well, is fun, but regular monitoring is difficult to follow
- Post-commissioning **management**, service, energy watch, is crucial for sustainability, but easily neglected
- **Training** for users and management facilitates power balancing, is cheaper than repair, and changes views

Technology alone will not solve social problems, but it can contribute to new solutions

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