

Solar-Hybrid-Technology



Independent Energy Supply for St. Gabriel's Hospital Namitete, Malawi

- **Reliable and sustainable energy supply**
- **Independent from the public grid**
- **Appreciable reduction of energy costs**
- **Reduction of CO₂ emission**

The Hospital

St. Gabriel's Hospital is situated 60 km southwest of Lilongwe, the capital of the equator-near country Malawi. The hospital, which was founded in 1959, is closely tied to the Luxemburg Order of Carmelite Sisters and is financially supported from this side.

Experienced doctors from foreign countries support the hospital with their expertise and give a valuable contribution to improve the quality of medical care.



The present energy supply

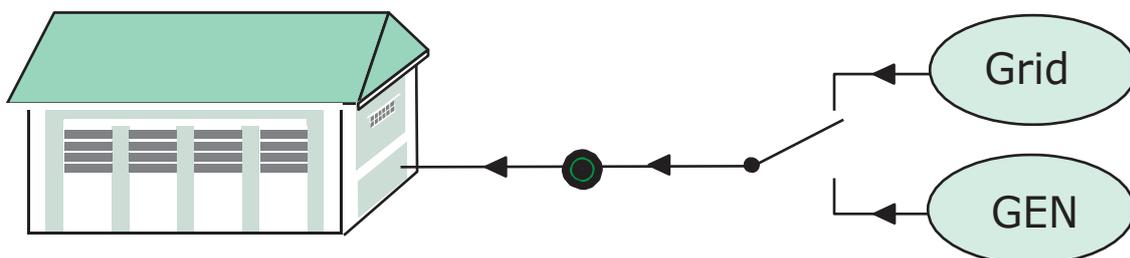
In the hospital, which is connected to the public grid, longer power cuts appear almost every day.

Two Diesel-Generators with different power have been used up to now to ensure the necessary energy supply. These Diesel-Generators have been switched on also precautionary, because the power cuts could appear at any time, also during operations.

However, the switching-over has not happened without interruption, which has created an additional risk in the operation of the hospital.

Most frequently diagnoses are Malaria and Tuberculosis, but with 480 operations per year the hospital is specialized in the field of accident surgery.

The costs for public electricity and fuel for the two Diesel-Generators have been a significant financial burden.



The new energy supply with Solar-Hybrid-Technology

The heart of the new energy supply for St. Gabriel's Hospital in Malawi is a 50 kW solar PV system with an efficient storage battery. This system is combined with the public grid and the two Diesel-Generators.



To realize a 24 hours reliable energy supply with minimal operating costs, different energy sources are automatically and infinitely switched on or off, according to the demand of the hospital.

The solar produced energy will always be consumed primarily.



Variations in irradiation and consumption are regulated by the battery, which guarantees a stabile 24 hours power supply system.

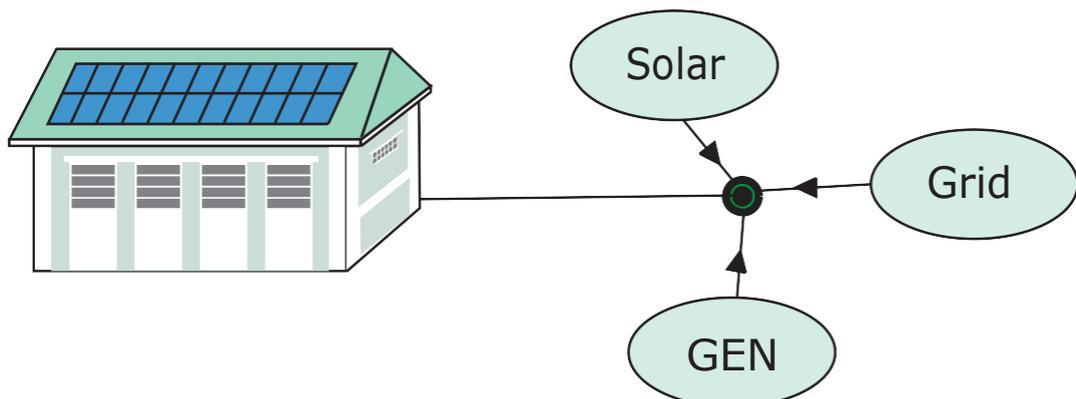
With the intelligent and self-learning load system the batteries reach an above-average durability.

The entire individually programmable system is working fully automatically and guarantees a 100% save and uninterrupted energy supply with high ecological sustainability and economical use of the available energy sources.



As a further option, hot water can be sourced by using the cooling water circulation of the Diesel-Generator (power-heat-cogeneration).

In this way, the over-all efficiency of the system can be further improved.



Solar-Hybrid-Technology:

- Reliable 24 hours energy supply
- Individually programmable, fully automatically working system
- Infinitely switching on and off, according to energy demand
- Batteries with intelligent and self-learning load system
- Batteries with above-average durability
- Cost saving by economical use of energy sources
- Power-heat-cogeneration as additional option
- Display for visualization of energy harvest and CO₂ emission optional
- Shipment in a maritime container
- Installation and training of technicians optional



- ✓ Technical Consultancy
- ✓ Procurement
- ✓ Logistics
- ✓ Training

Goethestrasse 43, D-52064 Aachen, Germany
 Tel. +49(0) 241-47798-0 Fax -15
 Email: begeca@begeca.de
 Internet: www.begeca.de

Technical data Solar-Hybrid-System St. Gabriel's Hospital:

Daily available energy:	180-220 kWh
Power of solar modules:	50 kWp
Power of battery-inverters:	30 kW
Battery capacity:	196 kWh
Power of Diesel-Generators:	180 kWh
Consumption of Diesel fuel:	0,3l / kWh