

# Garonga Safari Company

## OFF-GRID CASE STUDY



### OVERVIEW

**Garonga Safari Camp and Little Garonga are luxury camps set in the Greater Makalali Private Nature Reserve.** This site is 500km from Tegwaans Solar head office and therefore a moderately remote site.

Garonga Safari Camp is focused on sustainability and utilizing Green energy. In-line with focus an Off-grid system was designed with only an AC-generator as back-up.

Combined tracking & static PV is utilized. This system has 6.6kWp mounted onto the Tegwaans Solar designed "Sun chaser" optimizing system, following the position of the sun throughout the day. The remaining 33.3kWp are ground mounted facing 10 °E of TN (Southern Hemisphere) for early morning sun (mid-summer). PV generation is optimized to reduce generator run time. This off-grid system can be remotely monitored using OPTICS RE to assist in early detection of system interruptions such as Dirty panels, blown fuses and inclement weather.

### CHALLENGE

- Provide un-interrupted power supply to the lodge for a Luxury bush experience
- Remote location without direct electricity supply – Fully Off-grid
- Garonga Safari Camp sustainability and become self-sufficient with GREEN energy
- Remote Monitoring for high quality data and predictive supply interruptions
- The Location of the Camp can have extreme weather conditions and a well designed system is required to overcome these challenges

*We built a new Exclusive Lodge that was in a remote location of the reserve. There was no Grid in this location and it therefore became a clear choice to avoid installing Grid for our GREEN model. Instead we opted for Exclusive quality Off-grid Solar System. I have Outback Power in my other sites and they are my solar products of choice.*

**Bernie Smith**

Owner

SYSTEM SPECIFIC	
<b>Location</b>	Gravelotte – Greater Makalali, Limpopo, South Africa
<b>System Power</b>	42kW power , 220kWp generation and 80kW storage
<b>Components</b>	<ul style="list-style-type: none"> <li>- 6 x 7kW GS 70 48E Outback radians</li> <li>- 6 x FM100 Outback charge Controllers</li> <li>- 1 x 6kW Tegwaans Solar – Sun Chaser (fitted with 18 x 370watt Solar Panels)</li> <li>- 90 x 370watt Solar Panels - Ground Mounted</li> <li>- 2 x MATE3S</li> <li>- 2 x Hub 10.3</li> <li>- 1 x 80kW FreedomWon LiPO3Battery</li> </ul>
<b>Back-up</b>	1 x Gen-King 3phase; 77kW AC Back-up Generator





## SOLUTION

- This true off-grid Hybrid Outback system is suited to its surroundings. Providing Garonga Safari Camp With a simple and effective solution to harness the power of the African sun, this system delivers:
  - Fully Off-Grid Solution
  - 220 kWh PV generation
  - 42kW Outback DC to AC demand power supply
  - Remote Online Monitoring
  - 80kW Battery Storage
  - AC generator for back-up

## OFF-SITE MONITORING SYSTEMS

- SUN OFF (Mobile app)
  - Remote monitoring of temperature and relative Humidity using SUN OFF application.
  - Remote I/O of Equipment ie. Air-Con
- OPTICS
  - RE Remote monitoring of complete outback system. Solar input & Load.



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