PV System Report

Grid Interactive 1KW system & 4 X 225 Amp Hour batteries for a 10KWH capacity with an average daily load of 10KWH

Roanakh.com
Designs for Solar Electricity

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PREPARED FOR ROANAKH.COM
SAMPLE REPORT FOR KRISHNA @ ROANAKH.COM

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PV System Report

This is a sample detailed report, on the expected performance of a PV system that is prepared by Roanakh.com for its customers.

The simulation of the PV system is based on the following inputs from the customer: Location of the PV system in the world, System Load information by day of the week and time of the day or a simplified consumption per day load data, The PV Panel Array configuration and model of PV Module used in the array, Battery bank information – number and configuration of the array as well as the model of the Battery used (mixed models in PV arrays and Battery banks are not supported) and the Model and number of Inverters used in the PV system.

Sample PV System Parameters

Location:	Los Angeles, CA
Average Daily Load (Both weekdays and weekends)	10 KWH
PV Module Model	SHELL SM100-12
PV Panel Configuration	2 in Series X 5 Parallel Strings
Total PV Array Rated Max Power	1003 Watts
PV Array Tracking and Angle	Fixed – Tilted 30 Degrees south
Battery Model	DEKA 12V225
Battery Bank Configuration	2 in Series X 2 parallel Strings
Battery Bank Nominal KWH Rating	10.8 KWH
Battery Charging backup (grid or generator)	Yes – Low State of Charge 20% to 80% max state of charge
Inverter Model	Outback FX2024
Number of Inverters	1

The following pages show the results of a simulation of the above system over the period of 1 year (Jan1-Dec31) and will contain detail information on the PV power produced as well as the state of charge of the battery for the year. This simulation will also allow grid power to charge the battery if the state of charge of the battery falls to 20%.

The Simulation will use Climate information based on the TMY2 data file extracts from the National Renewable Energy Laboratory. These files are available over the Internet at NREL's website. These TMY2 data files are annual averages of up to 30 years of meteorological data, and are well researched and documented. For International locations and where recorded data is not available, the latest methods in estimating hourly and daily insolation will be used. The behavior of the PV Array will be based on the Sandia National Labs PV Performance model. The behavior of the battery bank approximates the behavior of lead-acid batteries without taking into the effect of temperature on the performance of the battery.

Please be advised that, though utmost care has been taken to simulate the performance of your PV system, there is no guarantee that the simulation will be able to completely represent the behavior and performance of your system. There are many variables and some approximations used in the simulation methods not to mention the ever changing nature of climate and solar insolation that prevent this and any simulation of Solar PV systems to be 100% accurate. Use this as a guideline in estimating the behavior of your system and adapt your design accordingly.

Questions on your report – contact Roanakh.com

THANK YOU FOR YOUR BUSINESS!

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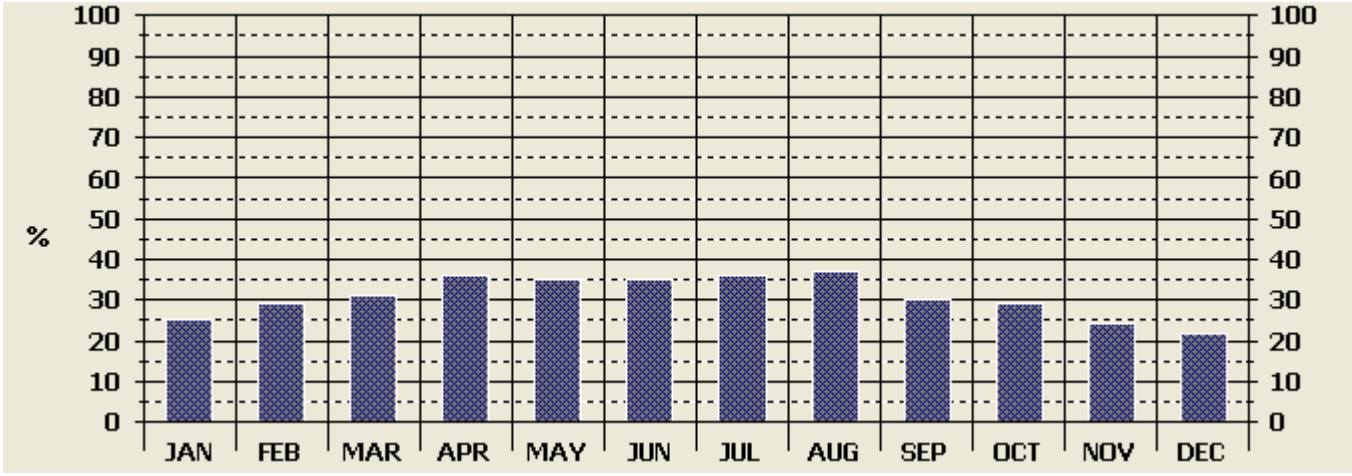
PV System Report for Krishna @ Roanakh.com - Summary for the Year

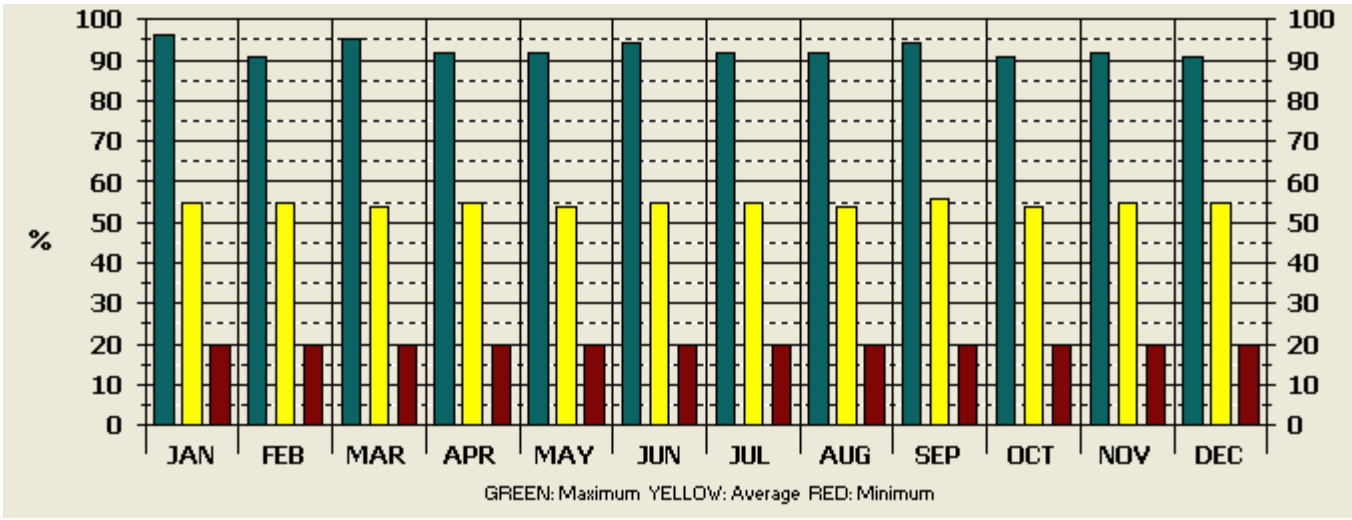
The results of the simulation over the entire year for the PV system above are shown below: The first chart is the % of load generated by the PV system to support the load.



%of Load generated by the PV system

The Average Solar power generated by the PV array will contribute to 30.8% of the load defined. The remaining energy will need to be provided by either the Grid or a generator providing backup power to the battery bank.

The second chart below shows the Battery State of Charge (SOC) by % for every month:



The battery bank hits the defined minimum state of charge of 20% every month triggering the back up charging of the batteries either using power from the grid or from a generator. Minimum backup charge capacity is 1.57KW and will be needed for around 2106 hours to keep the system operational.

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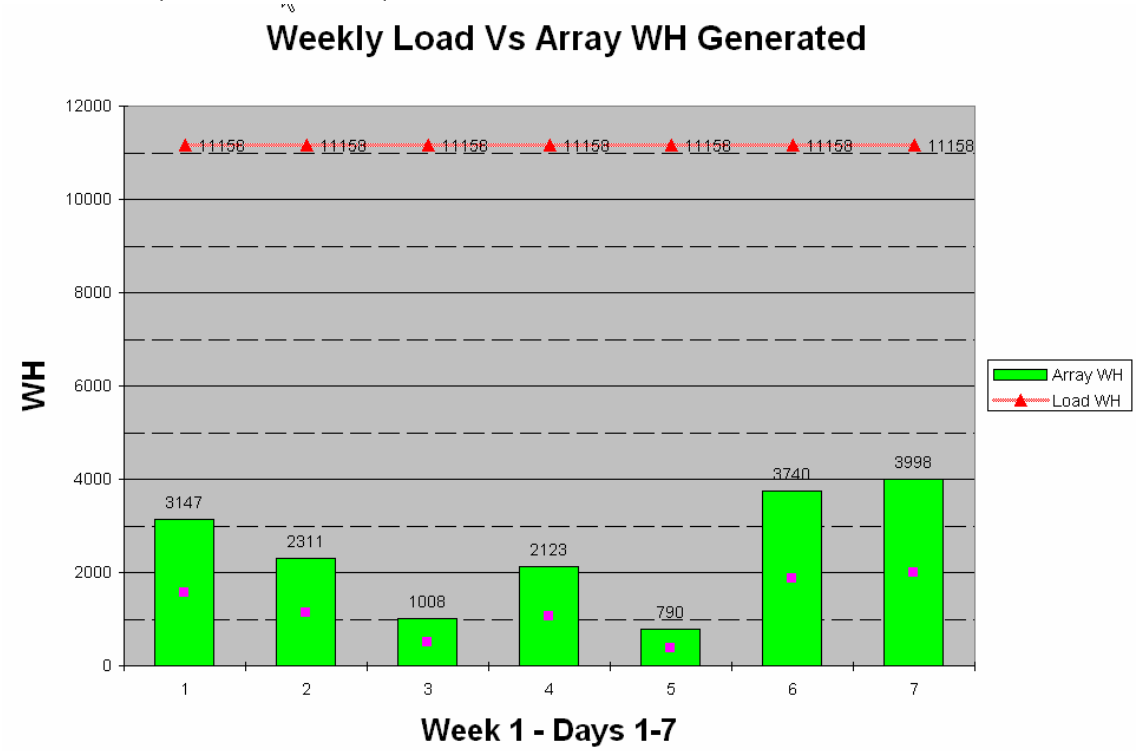
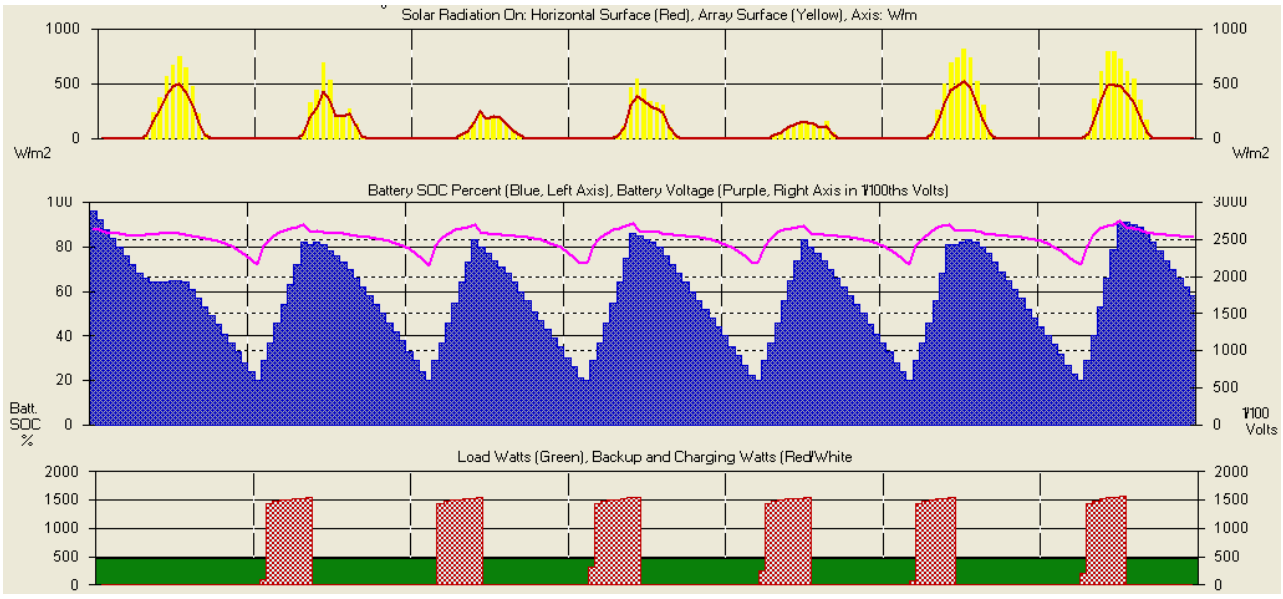
PV System Report for Krishna @ Roanakh.com - Week 1 Detail Summary

The following pages and charts show details of the system performance by week. The chart below shows the PV power generated in Week 1 compared to the load requirements of week 1.



The chart below shows the Battery State of Charge in Week 1 along with the backup power required to keep the battery bank above the specified minimum and up to the specified maximum.



The times when the battery bank hits the predefined minimum SOC and needs to be charged by the backup charging system is shown in Red/White.

The final report will have information for all 52 weeks similar to the information in the previous pages.

Contact Krishna to order a Simulation Report for your system TODAY. !!!
Krishna@roanakh.com

The Simulation Report costs less than 5% of your system cost and will give you an in-depth understanding of your system behavior.