Cougar Creek Cabin Solar Project

Summary: Customer has a 2200 sq ft cabin in the mountains near Mt. Pleasant, Utah. The cabin is used by multiple families for recreation purposes. The only power source for the cabin is via a diesel generator. Customer wanted to install a solar power system to provide continuous power for security cameras and internet connection when nobody is using the cabin and for various electrical needs when the cabin is occupied. The diesel generator would just be used for backup power. Installing solar panels on the roof was not ideal because of roof integrity issues and roof slope wasn't optimum for efficient solar panel placement. With the solar panels being at a poor angle, more panels would be required resulting in a higher cost to the customer.

Power Calculations:

Lights

13 lights upstairs
9 lights downstairs
8 lights loft
Total 30 Lights : Assume all lights are changed to 9W LED

Usage: ½ lights 6hrs on, ½ lights 3 hrs on = Average 4.5 hrs on per day
30 x 9W = 270W x (4.5/24) = **~50W continuous power equivalent**

Ceiling Fans

2 ceiling fans @ 50W each running for 12hrs
100W x (12/24) = **~50W continuous power equivalent**

Wireless Bridge **10W Continuous power**

Camera DVR **50W Continuous power**

Video Projector – Run Time 4hrs
300W x (4/24) = **~50W continuous power equivalent**

<u>Total Continuous Power Equivalent = 210W</u>

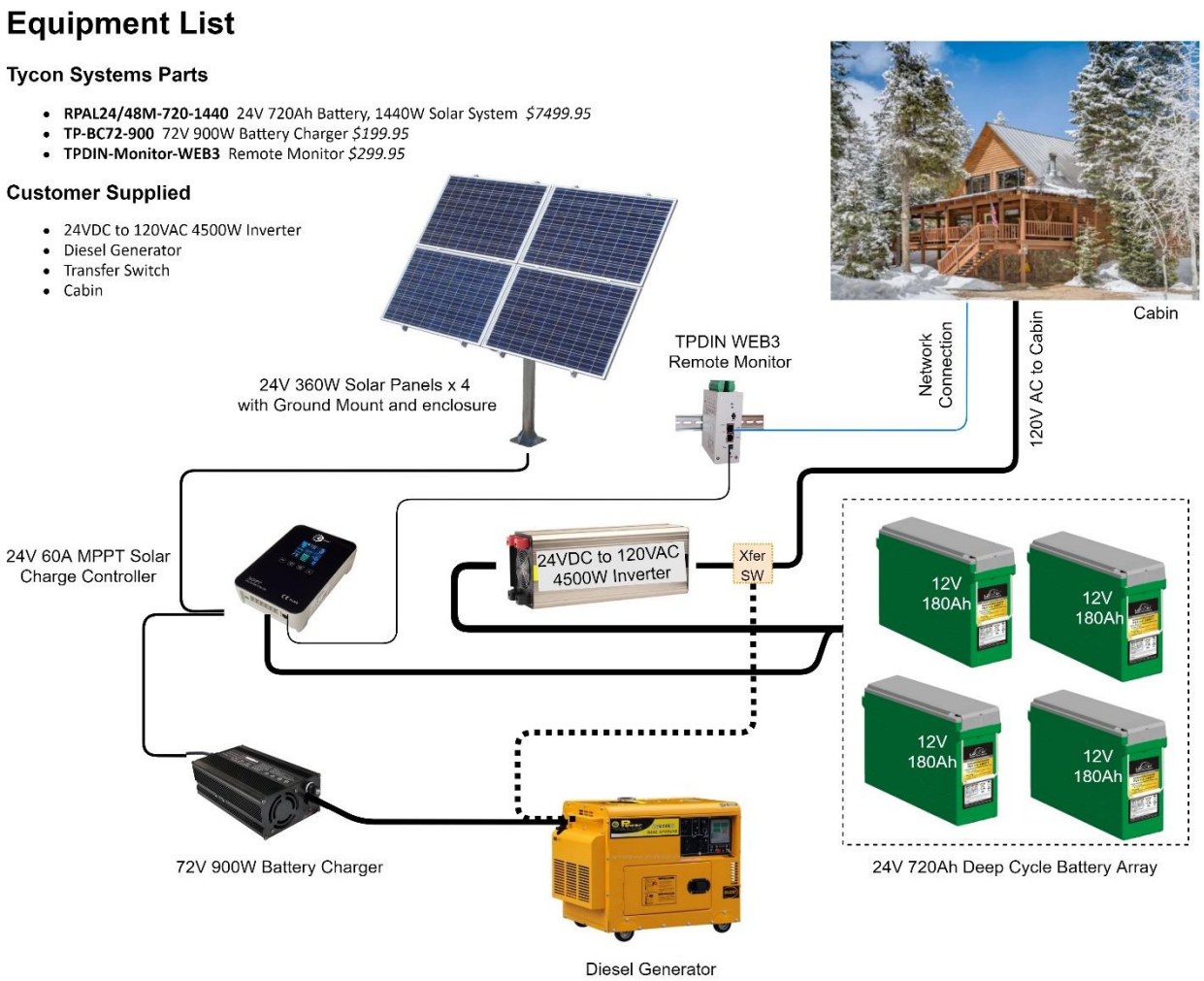
Solar Availability

Mt. Pleasant, UT Zip Code: 84647, Worst Case Peak Sun: Dec/Jan 3.13hrs, April to Oct 6hrs

To support 210W with 6hrs peak sun
At least 958W Solar and 840Ah of battery
To support 210W with 3 hrs peak sun
At least 1916W Solar and 840Ah of battery

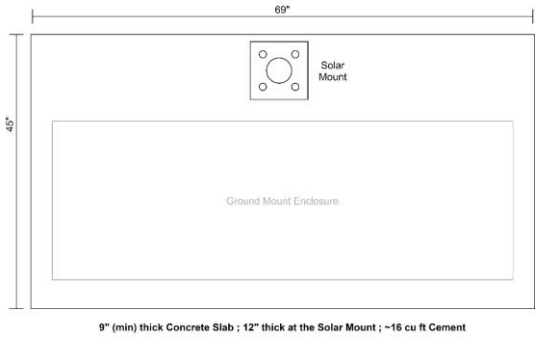
Since the usage of the cabin in winter is low because of accessibility issues due to deep snow, customer decided that he could get by with 1440W of solar and 720Ah of battery and would use the diesel generator as a backup, if needed. After the first winter, he found that the batteries remained fully charged. The cabin had enough power available to power all their devices when it was occupied, and there was continuous access to his security cameras and temperature sensor all winter long. The diesel generator was never used.

The Cougar Creek System Configuration:



Site Preparation:

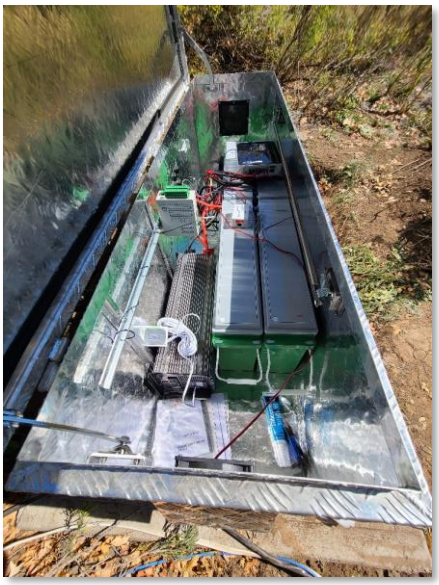
1. Pick a southern exposure site where the solar panels will have an open view of the winter sun. Make sure there aren't any trees or utility poles that will shade the panels.
2. Pour a level concrete slab for the solar panel mount and ground mount enclosure. The solar panel mount system comes with concrete anchors to be able to mount the solar array.



3. Run conduit between the concrete slab and the cabin to carry the CAT5 or better shielded Ethernet cable and the 120VAC cable.

Concrete slab with solar mount pole

Assembled Solar Array



Installing equipment in enclosure

Conclusion: By using a Tycon Systems® affordable pre-engineered Solar Power System, it's possible to power almost any remote cabin using power from the sun for less than $10,000.

Because the solar power system is self-contained, it can be placed some distance from the cabin to take advantage of the best sun location.

The solar panel mount provides easy adjustment of panel tilt and rotation to take advantage of the best sun exposure in winter and summer.

The components used in the Tycon Solar Systems are hardened for long life in harsh environments.

Actual Installation Time (3 people):

- Site Preparation = 5hrs
- Assembly of Tycon Solar System, wiring and systems testing = 4hrs

Note: Larger systems are available to 2160W of solar and 1080Ah of battery if more power is needed for your particular application.

Watch Installation Video

For more information contact: sales@tyconsystems.com