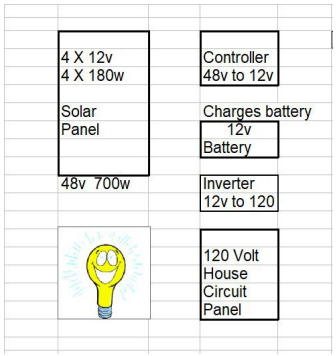
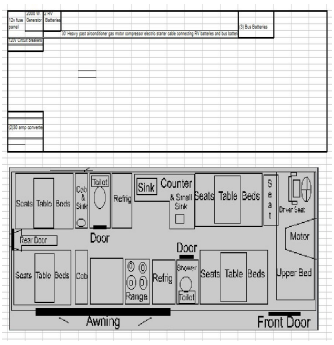

4 X 12v
4 X 180w
Solar
Panel
48v 700w
Controller
48v to 12v
Charges battery
12v
Battery
Inverter
12v to 120
120 Volt
House
Circuit
Panel


Sink
Counter
Seats
Table
Beds
Door
Motor
Upper Bed
Awning
Front Door


SHADOW


VEVOR Generator Inlet Box, 50amp Power Box, SS2-50P Power Inlet Box, 3 Prong Power Inlet Box 50A, 125V Generator Power Inlet Box, 6250W Generator Box, 10AWG ETL Listed Inlet Boxes For Outdoor Use
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ROVER
SHADOW

Explaination of the solar system assembly photos above

First step is to determine how many watts your house or RV needs to provide your needs !
Add up each electric powered device you need to power, and how many constant hours it needs power.
Major component cost:
175watt solar panel $200 each (12volt x 4 = 48v & 700watts charging batteries MAX)
60 amp controller $350 each (can only handle 800 watts input from panels)
3000watt inverter $ 375 each (handles 12volts and up to 3000watts)
90 AH. DC. .Batt. $ 125 each One battery provides 90 amps for one hour. Don't use more than 50% to protect battery!
30amp batt. charger $100 each to charge the batteries if the sun doesn't shine when needed, using gasoline & propane generator..
1. Solar system simplified: Solar panels to Controller to batteries to Inverter to circuit breaker panel

2. Photo of the Blickley Farm from an airplane piloted by grandson Isaac Blickley

3. Winter view of barn, garage and house of Blickley Farm, inhabited by daughter Rhonda,

4. Floor plan of the converted bus where Bill and LaVerne live spring, summer and fall,

5. The bus is parked in the shade of large trees, so the solar panels are placed 100 feet away to get in more sun.

6. The solar arrays are on boat trailers so that they can be moved and eventually have been made to be turned to track the moving sun.

7. Constructing the solar panel array base was done sheltering in our barn during the fall and winter,

8. We were able to make the frame out of locally purchased galvanized steel angle that had holes that were a perfect solar panel match,

9. After constructing the outer frame each panel was carefully bolted into the frame,

10. In the third and forth row of photos above, the manual rotation (sun tracking) adaption is shown:
a. One axle was removed, to make the trailer single axle, and more easily turned,
b. a center post is securely mounted to the center of the trailer axle and frame.
c. a 4'x8' 3/4" piece of treated plywood is placed, on the ground, under the trailer, with a 3" PVC toilet drain base plumbing fitting securely fastened to the center of the plywood.
d. The trailer is positioned on the plywood so that the center post is fitting in the center of the PVC plumbing fitting, keeping the center of the trailer array in place, while the trailer and array is turned to directly face the sun.
e. a trailer dolly is used to move the front of the trailer and cause the solar array and trailer to be able to face the position of the sun in the sky.
f. When the trailer is turned, the sun creates a shadow on the trailer frame help indicate when the array is aimed directly at the sun.
g. Connecting the solar array to our bus and the solar battery controller, 100' away, we dug a trench and buried the 10 gage underground cable

11. Placing the system in the bus was a searching and deciding where it would safely fit, and how to install things process,
We decided to cut a hole, and make a door in a bus side panel, and replace the LP tanks sitting there with the controller, inverter, cables, fuses and switches

12. Our batteries are now in four battery banks placed inside the bus. The battery cables are placed inside the bus metal frame. To protect the heavy 2.0 gage welding cable we ran the battery cable in PVC water pipe to protect the cable.

13. We wanted to be able to disconnect one or both of the arrays from the bus to be able to use one or both at the farm house, so we decided to install two heavy duty, outdoor input sockets on the bus back bumper,

14. These input sockets are not cheap but are very durable, water resistant and have a temporary locking ability for the plug,

15. The bus had a normal 120 volt hookup and a 7000 watt generator and now needed to be wired for 120 volt solar inverter,

16. a. I was not confident to do the three way , land-line, generator and solar inverter hookup, so we hired an electrician,
b. After some discussion with the electrician, we together wired a special switch into the system to select the desired electric source,

17. Just inside the back bumper, where the LP tanks had been, we installed the controllers,

18. Just below the controllers, on the old LP platform, we installed the 12v to 120v inverter,

19. To monitor the electric use of things in the bus and the productivity of the solar system, we have several monitoring devices,

Note:
We are running eight 12v 180watt solar panels in two arrays of four connected in series, potentially producing 1400 watts.
Since the arrays, connected, can provide 1400 watts, we added the farm house controller on the bus to handle the extra wattage.
We are prepared to separate the two arrays so that one array/trailer can be moved to the farm house.
We also are preparing to be able to keep all solar arrays at the bus or move them both to the farm house.

We also have a rebuilt 1937 windmill running a traditional hand water pump capable to provide water for the bus water tanks.
The windmill is not in the most efficient location for access to wind but the hand pump is convenient for campers.
We have learned to limit our use of water and know we can hand pump, when the wind does not make the windmill work pumping.