

Minnesota Renewable Energy Society

Solar Power Trailer

Set up and operating instructions

This Solar Power Trailer is equipped with two 4000 watt inverters that draw power stored in the 16 deep cycle lead acid batteries. That power has come from sunlight shining on the photovoltaic (PV) panels covering the roof and driver's side of the trailer.

BATTERIES ARE VERY DANGEROUS AND AN EXPLOSION HAZARD. DO NOT TOUCH THEM UNDER ANY CIRCUMSTANCES. IF IMPROPERLY HANDLED DEATH OR SERIOUS HARM COULD OCCUR.

ELECTRICITY IS INHERENTLY DANGEROUS AS WELL. IF YOU ARE NOT FAMILIAR WITH THE USE OF HIGH POWERED ELECTRICAL EQUIPMENT, DO NOT OPERATE THIS TRAILER.

BE SURE YOU USE ELECTRICAL CORDS ADEQUATELY SIZED FOR THE AMOUNT OF ELECTRICITY THE LOADS WILL DRAW.

IF YOU NOTICE ANY SPARKS, FIRE, SMOKE OR MALFUNCTION, LEAVE THE TRAILER IMMEDIATELY AND CONTACT EMERGENCY PERSONNEL AND MRES.

To set up the trailer:

1. Assess your site. You want the trailer to be located near the items you wish to power, yet in as much full sun as possible to get the greatest input from the PV panels. You also need to be able to drive the ground rod into the ground. (See #6 below).
2. Park the trailer with the driver's side pointed as nearly south as possible on a level surface, again to maximize PV input.
3. Chock the wheels to keep the trailer from rolling. Unlock the passenger side door and remove the piece of plywood and the hitch lock.
4. Loosen the trailer ball clamp, remove the chains and light connector and lower the trailer tongue jack onto the piece of plywood, lifting the tongue off the towing ball.
5. Attach the trailer hitch lock to the hitch to prevent theft of the trailer.

6. Run the ground rod and wire out the front access port (the white plastic pipe with the screw-on cover that sticks out the front of the trailer near the passenger door floor) and drive the ground rod into the ground with a hammer in a location that it will not be tripped over.

7. Tilt out the driver's side PV panels so they are as close to perpendicular to the sun's rays as possible and lock in place with the locking rods. Place the large orange safety cones at the outside corners of the extended panels to keep people away from the sharp, protruding corners of the PV panels.

8. Check the meter located on the passenger side door of the trailer. When the % battery charge button is pushed, the digital readout should read 100% or very nearly so. Keep your eye on this meter. This is the only meter that will indicate the battery charge level. **DO NOT LET THE % CHARGE DROP BELOW 50% OR IRREPARABLE DAMAGE COULD BE DONE TO THE BATTERIES FOR WHICH YOU WILL BE HELD RESPONSIBLE.** If, during operation, the battery charge drops to 55% or less, you must immediately stop using the trailer.

9. The top inverter is labeled #1 and the bottom #2. Each inverter has a corresponding numbered outlet box located near the floor below the inverters. When you have more than one device to plug in, plug one into the #1 outlet box and one into #2. Each inverter pulls electricity from a different set of batteries, so using both equally is best for long battery life. Run your extension cords through the front access port.

10. Go to the inverter(s). If the "set inverter" menu is not visible, press the red on/off menu" button. Using the set point buttons, move the cursor (appears as an underline) to the "on" setting under the "set inverter" menu on both inverters.

11. Enjoy the clean, quiet power that only bottled sunshine can provide.

CLOSING UP THE TRAILER

1. When you are finished, turn the inverters to the "off" position using the set point buttons.

2. Unplug your loads and remove your extension cords.

3. Lower the side PV panels and close the latches that hold them tight to the side of the trailer. Store the orange cones in the trailer.

4. Pull the ground rod from the ground and place back in the trailer. Close the front access port tightly.

5. Unlock the trailer hitch and store the lock in the trailer.
6. Move your towing vehicle into position and lower the hitch onto the towing ball.
7. Tighten the ball clamp, attach the chains and light connector.
8. Store the piece of plywood and wheel chocks in the trailer and securely close and lock all trailer doors.
9. When the trailer is returned to the MRES storage site, be sure to place the hitch lock on the hitch and relock the trailer before leaving.

If you have any questions, call Doug Shoemaker at 612-308-4757.



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2928 5th Avenue South • Minneapolis, MN 55408
www.mnRenewables.org