

Annex-I

Specifications of Solar Panels in a Classrooms

(For 4 Fans and 6 Energy Savers with 2 hours of Battery Backup)

Product	Quantity	Capacity	Illustrative Picture
PV Panels (Mono Crystalline)	3 Nos	250 Watt with Panel Efficiency of 17% and cell efficiency 16.5%.	
Hybrid Inverter	1 No	3 KVA	
Batteries	2 Nos	50 to 75 AH – Lead Acid/VRLA/Tabular	
Fixed Frames	1 Job	14 SWG (Gauge Size) Powder coated, rust Protect frames & fixtures for PV Panels. Strong enough & capable to withstand high speed wind.	

Annex-II

PTC Guidelines for Installation of Solar Panels in a Classroom (For 4 Fans and 6 Energy Savers with 2 hours of Battery Backup)

How to Install:

Step 1: Purchase of all required material according to the approved specifications and transport at site;

Step 2: Identification of most appropriate site for installation of panels;

Step 3: Fixing of powder coated frame and fixture for PV panels.

Step 4: Fixing of PV Panels, Charge Connector, Battery, Inverter etc.

Step 5: Series/Parallel connection of PV Panels.

Step 6: *Connection between PV Panels and Charge Controller.

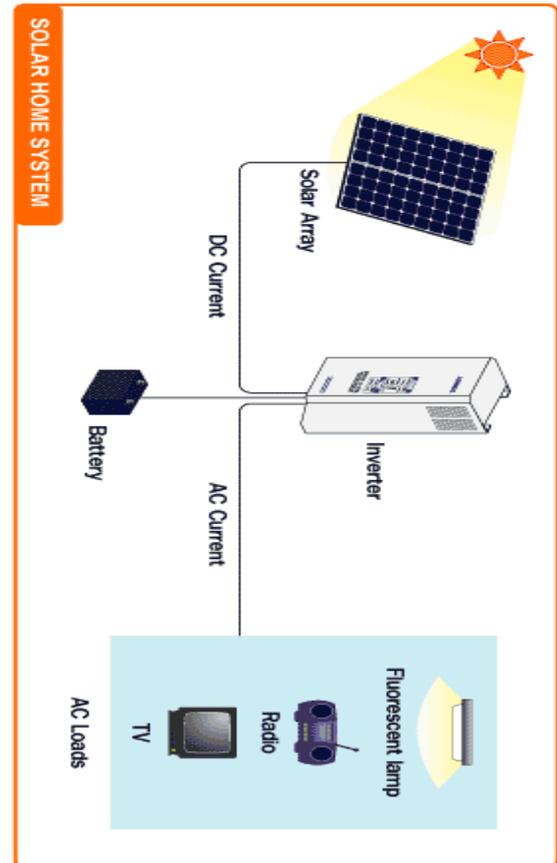
Step 7: *Connection between Charge controller and Battery

Step 8: *Connection between Battery and Inverter.

Step 9: *Connection between inverter and Appliances (Fans, Energy Savers)

*99.99 % Copper 6 MM Single Core Cable covered in flexible UV-Resistant conduits indoors to protect from any mishap.

(For Load up to 1000 Watt)



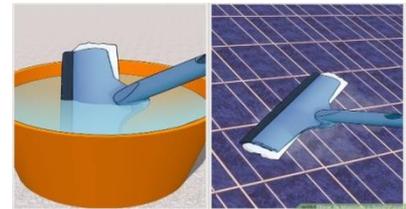
How to Maintain PV Panel:

Purchase a solar panels cleaning kit. It should contain a liquid soap, a wiper, a small brush and in some cases another brush with a longer handle.

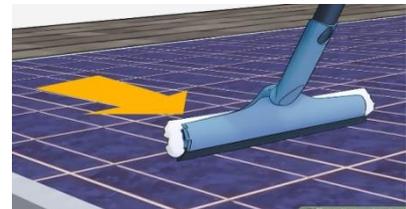


Mix the soap with water in a bucket. The amount that needs to be mixed should be mentioned on the bottle of liquid soap.

Dip the brush into the soap and water mixture and gently rub it over the solar panels. If you have the panels divided into smaller arrangements then you should be able to get the job done with a small handheld brush. However, for larger arrangements it can be difficult to reach the panels in the middle so you will need to use the brush with the longer handle



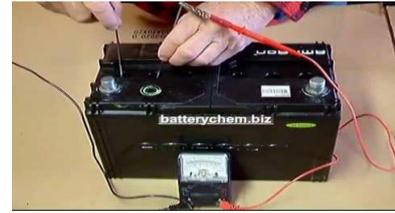
Wipe the solar panels with the wiper while the panels are still wet. At times, the wiper is attached at the back of the brush. It is important that you don't allow the soap to dry on the solar panels since this will block the amount of sunlight that they can absorb and make them inefficient.



How to Maintain of Battery:

Watch Cell Voltage:

Check the voltage level every three months, if the voltage is too low then the tester will have suggestion of maintenance or replacement



Keep Battery Clean

A dirty battery will have negative effect on the charge. Take off the clamps and remove any dirt, grease and oxidation. Every six to eight months the battery terminals should be scrubbed with a wire brush



Insulate Battery Properly

Insulate the Battery properly to keep the battery warm during winter and also to prevent from higher temperature as higher temperatures drain the battery fluid more quickly than lower temperatures. Keep an eye on its placement and make sure that it stays undamaged



Add water

Check the water level of the battery (in case of lead acid/tabular) every few months, if it is lower than the bottom of the refill than add some distilled water with a funnel and if using VRLA battery (valve regulated lead acid) then no need of filling distilled water.



Check the placement

Make sure that the battery tray is clean and is sitting precisely

How to Expand from one to two rooms:

Additional Load = 4 Fans and 6 Energy Savers

Only need to purchase more

Product	Quantity	Capacity
PV Panels (Mono Crystalline)	3 Nos.	250 Watt with Panel Efficiency of 17% and cell efficiency 16.5%.
Hybrid Inverter	No need extra quantity and can adjust with an old system	
Batteries	No need extra quantity and can adjust with an old system	
Fixed Frames	1 Job	14 SWG (Gauge Size) Powder coated, rust Protect frames & fixtures for additional PV Panels. Strong enough & capable to withstand high speed wind.

S.No	Load/appliances Detail	Req: solar capacity(watt)	Inverter required	Backup Hrs	Battery required
1	2-fans + 2-E.savers	500	1-kva	2	65 AH X 02
2	4-fans + 4-E.savers	750	1-kva	2	100AH X 02
3	6-fans + 6-E.savers	1200	2-kva	2	150AH X 02
4	8-fans + 8-E.savers	1500	3-kva	2	200AH X 02
5	10-fans + 10-E.savers	1800	3-kva	2	150AH X 04
6	12-fans + 12-E.savers	2250	3-kva	2	100AH X 06