

Betta Value Renewable Energy Recommended PV Maintenance Schedule & Timetable

Betta Value Renewable Energy recommends the maintenance schedule and maintenance considerations set out by the Australian and New Zealand standards governing the Installation and safety requirements of photovoltaic (PV) arrays.

The Following maintenance recommendations have been adapted from Appendix C (Maintenance Recommendations) of the official document AS/NZS 5033:2014

Photovoltaic System Maintenance Safety Considerations:

- (a)** All maintenance **must** be carried out by a **licensed electrician**, and never by any non-qualified personnel.
- (b)** A Photovoltaic array is a live electrical system, which produces dangerously high voltages and currents. Special care should be taken not to come into contact with any wire or components while cleaning the system face, removing debris from under the system, or simply checking the system or its racking for corrosion.
- (c)** Photovoltaic arrays can become extremely hot during operation; special care should be taken not to come into contact with any panels during maintenance for risk of serious burns.
- (d)** Any personnel carrying out maintenance on a PV array should be familiar with the system's emergency shut down procedure.
- (e)** Any personnel carrying out maintenance on a PV array should follow all hazard warning signs present on the system.
- (f)** Anyone carrying out electrical maintenance on a system should shut the system down and interrupt PV array currents according to the manual shutdown procedure as per AS 4777 (series) or AS/NZS 4509.1.
- (g)** Any personnel carrying out maintenance on a PV array should be warned of any live parts that cannot be de-energized during daylight prior to maintenance commencing.

Recommended Minimum PV Maintenance Schedule

SUBSYSTEM OR COMPONENT	MAINTENANCE ACTION	FREQUENCY	REMARKS
Site¹	Verify the following: (a) Cleanliness (accumulation of debris around or under the array) (b) No Shading of the array	Quarterly	Clean site as required Trim trees, if required
PV Modules²	Verify Cleanliness (Accumulation of dust or fungus on array).	Quarterly	Clean if necessary
	Quarterly Clean if necessary Check for visual defects including— (a) Fractures (b) Browning (c) Moisture penetration (d) Frame Corrosion	Annually	PV Modules with visual defects should be further inspected for performance and safety to determine the need for replacement
	Inspect Junction Boxes for – (a) Tightness of connections (b) Water accumulation/build-up (c) Integrity of lid seals (d) Integrity of cable entrance, glands, and conduit sealing (e) Integrity of clamping devices Verify Bypass Diodes	Annually	Replace defective seals, clamps, and bypass diodes
Wiring Installation³	Verify mechanical integrity of conduits	Every 5 Years	Replace damaged conduit
	Verify insulation integrity of cables installed without conduit.	Every 5 Years	Replace damaged cable
	Check junction boxes for – (a) Tightness of connections (b) Water accumulation/build up (c) Integrity of lid seals (d) Integrity of cable entrance and/or conduit sealing (e) Integrity of clamping devices Verify the following: (i) Blocking diodes (ii) Surge arresters for degradation	Annually	Replace defective seals, clamps blocking diodes, and surge arrestors
	Check connections for – (a) Tightness (b) Corrosion	Annually	

SUBSYSTEM OR COMPONENT	MAINTENANCE ACTION	FREQUENCY	REMARKS
Electrical Characteristics	Measure open circuit voltages	Annually	
	Measure short circuit currents	Annually	
Protective devices	Verify Integrity of fuses and fuse holders	Annually	
	Verify operation of CBs and RCDs	Annually	
	Verify operation of earth fault protection systems	Annually	
	Verify operation of solar array isolation device	Annually	
Mounting structures	Verify tightness and integrity of bolts and other fastening devices	Annually	
	Inspect for corrosion	Every 5 years	

1. Any personnel undertaking maintenance on the system should be aware that temperature, shading, and alignment of the system can affect its performance, and thus void the system performance guarantees supplied by the CEC designer.

Care should be taken not to leave any debris, marks, or even a thin film from water or cleaning products on the panel face, and not to bump/move the system in any way which can hinder its performance.

2. The use of infrared imaging is encouraged (if possible) to search for system defects or hotspots which may not be immediately apparent on a visual inspection. This should be carried out in addition to visual checks, not as a replacement for visual checks.
3. Any personnel undertaking maintenance on the system should be aware that modifications or tampering with system wiring and equipment may void the system warranty. It is recommended that personnel first be familiar with the terms of the warranty, and be confident that maintenance checks will not void this warranty.