

Operation and Maintenance Manual

Of Residential Solar System

In winter, the power generation of residential solar system becomes less, so there is no need to be nervous, which is a normal phenomenon; Because the sunshine duration becomes shorter in most areas in winter. At this time, it is very necessary to conduct an all-round inspection for the solar system, so as not to delay the power generation, but also to ensure safe and efficient power generation next year.

One.PV module inspection

The energy of the solar system comes from the PV modules. The cracks, hot spots, dust accumulation, poor wiring and other phenomena of the PV modules will directly affect the power generation of the solar system. Therefore, the inspection of PV modules is very necessary. The inspection steps are as follows:

1.Dust accumulation inspection of PV module

PV modules dust accumulation is the most common problem in operation. If more electricity needs to be generated by solar, it is necessary to keep the PV module of the PV modules clean. If there is dust, it can be rinsed gently by soft brush and clean water. It is forbidden to wipe the PV modules with hard objects, and do not clean them with corrosive solvents. In case of snow, it should be cleaned up in time; PV modules cleaning should be done in the morning or evening when the light is weak.

2.Appearance inspection of PV modules

PV modules should be inspected regularly. In case of broken glass, scorched back plate, battery discoloration, loose sealing of junction box, deformation, distortion, cracking or burning, loose plug, falling off, corrosion, etc., they shall be repaired or replaced in time.

3.Shadow inspection of PV modules

The solar system operates outdoors for a long time and is often unattended. It is necessary to check whether there are new growing plants or other objects around that shade the modules. If there are shadows, they

need to be dealt with in time to avoid affecting the modules and power generation.

4. Wiring inspection of PV module

The cables connected between modules should be firmly connected and fixed without looseness and damage, and the cables should not be black and scorched; If problems are found, they should be repaired in time.



Two.Inverter inspection

Inverter is the brain of the solar system. The external operation status of the solar system is basically sent by inverter. The operation status of inverter is also an important step of inspection. The inspection items are as follows:

1.Appearance inspection of inverter

The structure and electrical connection of the inverter should be kept intact without rust, dust accumulation, etc; The cooling fan shall not have large vibration and abnormal noise during operation. In case of any abnormality,the power should be cut off to check whether the filter screen of the ventilation port is blocked,so that good cooling and ventilation cannot be maintained.

2.Wiring inspection of inverter

Each part of the wiring (such as fuse, fan, input terminal,output terminal and earth lead) should be checked strictly and regularly for looseness and whether the cables and cables are black or scorched. Strictly and regularly check whether the wiring of each part is loose (such as fuse, fan, input terminal, output terminal and grounding), and whether the cable is black and scorched; If problems are found, they should be repaired immediately.

3.Monitoring data inspection of inverter

The inverter has the function of intelligent communication monitoring. It need to be checked whether the communication data of the inverter is normal. If there is any problem,the cause should be found out in time; At the same time, the operation data and fault code of the power station can be viewed through the monitoring APP or web page to facilitate the search for the cause of the fault.

4.Protection function inspection

It is advisable to regularly disconnect the AC output side (grid connection side) circuit breaker for inspection to protect the safe and reliable operation of the system.



Three.Distribution box inspection

There are many switches, lightning protection and other electrical equipment in the PV AC distribution box. It is also the place with a high frequency of failure, which should be paid attention to during inspection.

1. Electrical switch inspection

The general PV AC-distribution box mainly includes AC-circuit breaker, lightning protection switch, knife switch and other electrical switches. So, the most important thing is to check the quality of the switch whether there is inaction or damage, especially the installed outdoor distribution box, which is vulnerable to inductive lightning strikes. It is necessary to regularly inspect whether the lightning protection switch is intact.

2. Wiring inspection

It is necessary to check whether each wiring terminal has serious heating, blackening, scorching and other abnormalities, which need to be repaired in time if found. At the same time, the inlet and outlet sides of the distribution box should be blocked to prevent reptiles, mice and other animals from entering the distribution box and causing short-circuit fault.



Four.PV bracket inspection

The function of PV brackets in solar system is to protect PV modules from being damaged by natural conditions such as strong wind and snow, which can withstand the gravity of PV modules for 25 years. The material of the PV bracket mainly includes aluminum alloy and galvanized steel. Generally, it has good compression resistance, strong wind resistance and corrosion resistance.

1.Stability inspection

The PV brackets is exposed to wind and rain for a long time outdoors, and the connector is easy to loosen due to various tensions. It is advisable to inspect that all bolts, welds and brackets connections should be firm and reliable, and the stability of the component brackets should be inspected. If bracket bolts and nuts are loose, they should be stabilized in time.

2.Corrosion resistance inspection

According to the actual situation of the installation site, such as high temperature and humid operating environment, the PV brackets should be regularly checked for corrosion, and the anti-corrosion coating on the brackets surface should not crack or fall off, otherwise it shall be painted immediately.

