

Reasons for the low power generation of PV plants



Background

Installing a PV plant is not only a contribution to environmental protection and green energy, but also a stable investment. Therefore, the rate of return of a PV plant is closely related to the amount of power generation.

Part of the installation of PV plants sometimes encounters that the overall operating power of it is low when the power plant is running, resulting in the power generation not reaching the reasonable value of the PV system with same capacity in the area. This Solis seminar will share with you some of the reasons and solutions for the low power generation of PV plants.

Causes and solutions for abnormal power generation of PV plants

1. PV panels are blocked by shadows, resulting in low power generation. For example, there are barriers such as utility poles and walls around the power station.



Solution: It is recommended to deal with the obstructions around the PV plant in time. If it is an installation and design problem, appropriate adjustments can be made according to the site conditions.

2. The accumulation of particulate matter on the surface of the PV panel causes pollution on the

surface of the battery, resulting in a decrease in power generation, especially in areas with dense industrial emissions, where suspended solids are more likely to form.



Solution: It is recommended that the owner of the power station regularly clean the PV panels.

3. The number or model of PV panels connected to the same MPPT is inconsistent. Due to the "bucket benefit", the MPPT runs at the lowest PV string voltage, which leads to a decrease in power generation.

Solution: Check the PV panel model, orientation, angle, and quantity of the strings



which connected to the same MPPT of inverter; ensure that these parameters are consistent.

4.The maximum current of the PV panel is higher than the Max. input current of the inverter, which causes the inverter to operate with a DC current limit, which causes the operating power to be lower than the reasonable power of the photovoltaic system.

Solution: For high-current PV panels, a string inverter compatible with high-current input can be used, or when the inverter input current allows, the number of strings connected to each MPPT can be reasonably reduced.

5.The PV panel used is unqualified or damaged, such as bubbles, variegation and other undesirable phenomena, which will affect the output power of the PV plant.

Solution: Replace bad PV panels in time.

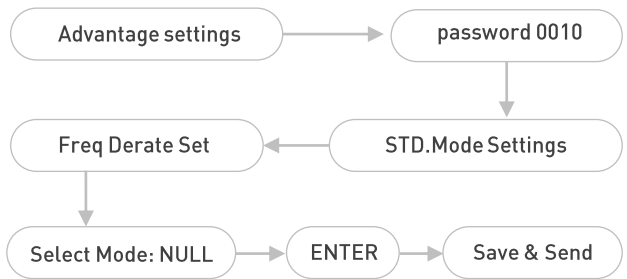
6.The working environment of the inverter is too high or not ventilated. For example, if it is placed in direct sunlight, in a small enclosed and unventilated space, or there is a baffle in the heat dissipation duct, the inverter operation is limited by the surrounding temperature, and it work with "Temperature drop" mode.

Solution: The inverter must be installed in a well-ventilated area, and it is forbidden to place it in a closed space. In addition, for inverters installed outdoors, it is recommended to place sun visors on top of them to avoid direct sunlight, which helps to reduce the temperature of the inverter's working environment.

7.PV system over-frequency derating operation: This mode is an operation mode that the inverter adopts to reduce the power output in accordance with the corresponding power supply requirements to ensure that the frequency of the grid will not be too high.

Solution: For the system in the "over-frequency load shedding" operating state, according to the on-site working conditions and power supply requirements, you can choose to remove or keep this function:

Setup process:

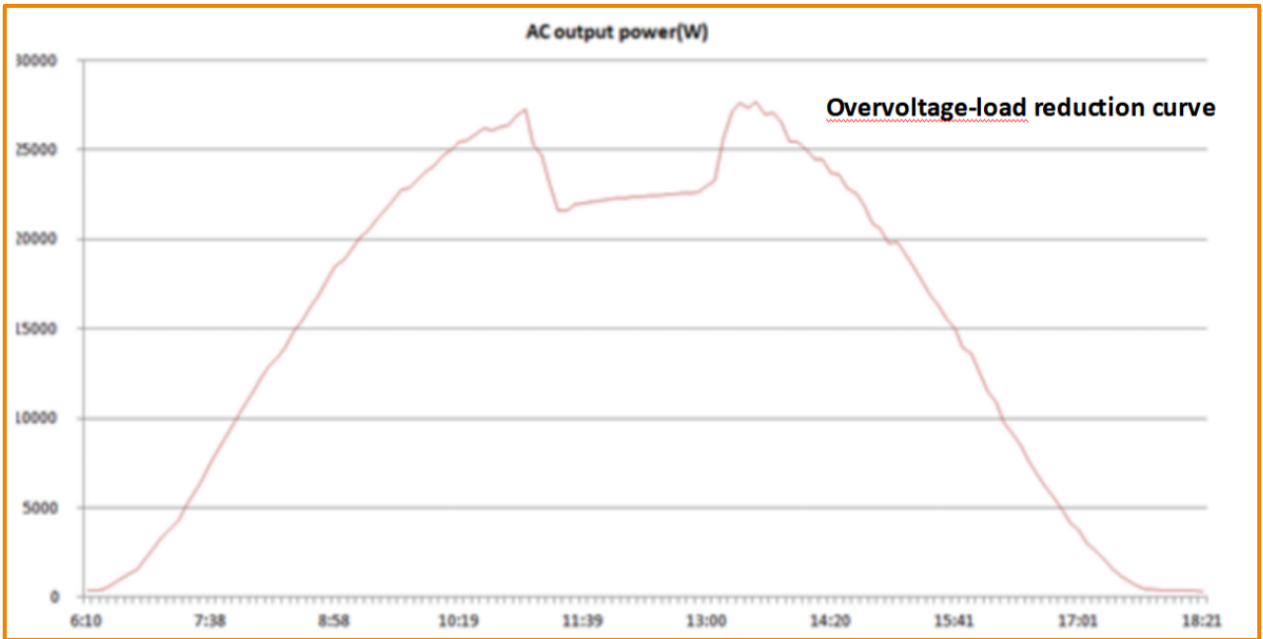
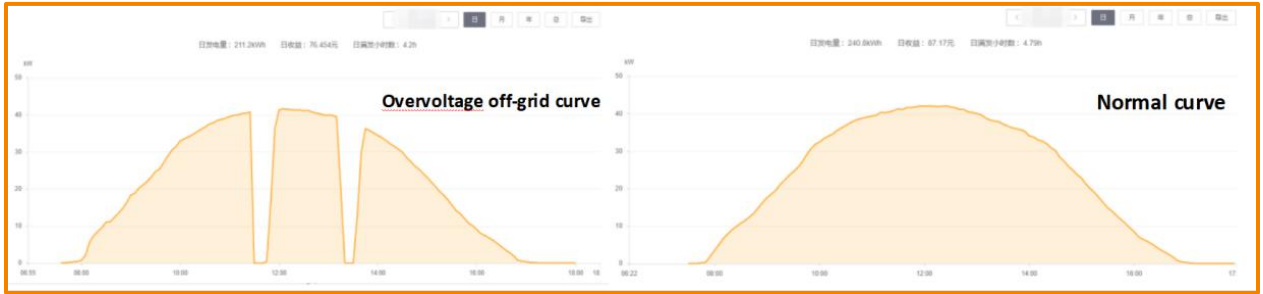


8.PV plant performs reactive power compensation: If the reactive power compensation of the power supply system is insufficient, the inverter needs to generate reactive power to compensate the power supply system, which will cause the inverter to be in a "reactive power reduction" operation state. Reduce its active output.

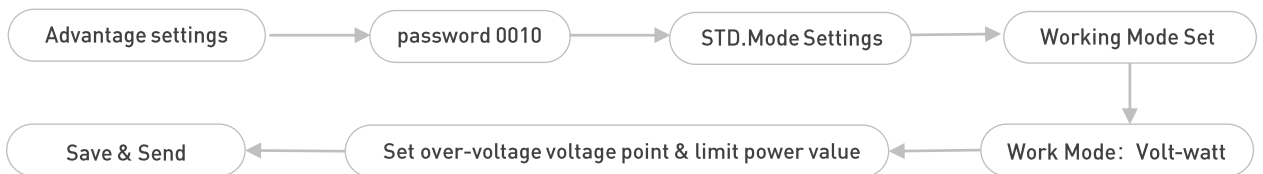
Solution: In view of the "reactive power reduction" operating state of the inverter, it is recommended to check whether the reactive power compensation device in the power supply system is normal. If it is not normal, add or improve the reactive power compensation equipment of the power supply system. The power factor of the converter is corrected to 1.

9.Limited grid capacity: If the grid capacity is limited or the line loss is too large in the area, the grid will be over-voltage, especially when the power generation is high. This will cause the photovoltaic system to be disconnected frequently and cause power generation losses.

Solution: Aiming at the overvoltage problem of the on-site system due to the grid absorption. The inverter "overvoltage and load reduction" function can be used to prevent more power generation waste due to system disconnection.



Setup process:



10.The inverter cooling fan is faulty or the air duct is blocked, and it will run at a reduced power when the "fan abnormal" status is displayed;

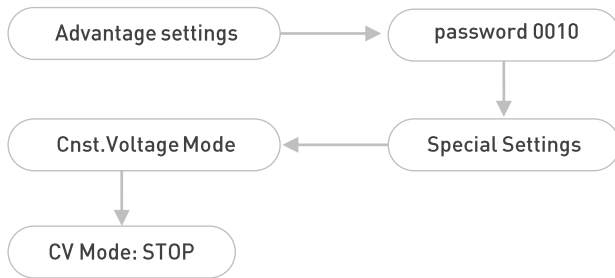
Solution: Check whether the cooling fan is faulty or the air duct is not unblocked. If the fan is malfunctioning, the fan needs to be replaced. If the air duct is not unblocked, the vent needs to be cleaned in time.

11.The inverter was turned on by mistake in the constant voltage mode, resulting in low operating power.

Solution: For the inverter to turn on the constant voltage mode by mistake, it can be cancelled through the following setting process:



Setup process:



Summary

The above points are some of the reasons for the low power generation that the engineers summarized at the site, but the factors that affect the PV plant are the power generation, and it is necessary to deal with different situations in time to avoid power loss.