

## Solar Monitoring Fact Vs Myth

**Myth: If the installation was done well, there is no need to monitor the solar plant.**

**Fact: Solar plants are a long-term investment. Monitoring protects that investment.**

It's true that the quality of the installation affects the overall health of the solar PV plant. However, many other factors influence the power production after the plant is installed. Malfunctions that occur throughout the lifetime of the plant can affect how power is produced. Factors like soilage, shading, string failures, or voltage imbalance can all cause loss of power. The primary goal is to detect system failures immediately and correct them quickly for minimal downtime and maximum financial return.

In the example pictured, shading from the close tree caused a visible power loss. It's likely that the tree was shorter or not there at all when the solar array was installed. As we know, trees grow. The shading by this grown tree caused the plant to produce between 5-10% less than the expected power output.

If this plant was not monitored, the power loss would not have been detected and the financial loss would have been significant.



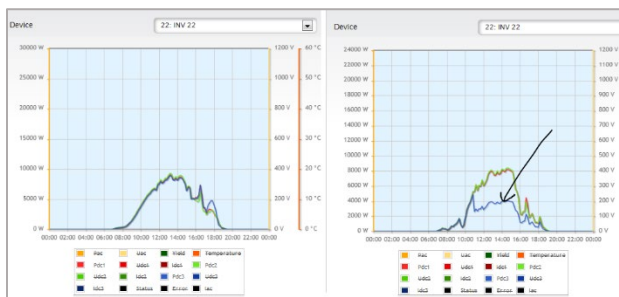
*Example: Solar power production impacted by shading*

**Myth: Small dips in power are nothing to be concerned about.**

**Fact: Even small dips in power production have a significant, negative financial impact.**

It's a common misconception that when a solar plant produces only slightly less than expected, the financial loss is insignificant. Slight, seemingly insignificant losses add up over time. Gradual changes in solar power production can be difficult to detect without a professional solar plant monitoring tool.

In the example to the right, an improper derating of tracker 3 connected to inverter no. 22 was observed through the Solar-Log® monitoring system. This persistent problem caused a loss between 20-30 kWh per day. If left uncorrected, this small kWh loss could add up to a 930-kWh loss, in just one month. The average electricity cost in the area is \$0.12/kWh. That means this “small” loss cost the plant owner \$111.60 in just one month.



*Example: Power Loss Costs \$111.60 in one month*

**Myth: Monitoring that comes with the inverter is enough.**

**Fact: Professional, hardware-independent data logging is needed to ensure all components are working.**

Inverter failures may be the source of yield loss, but many other factors could also negatively impact power production, like cable damage, installation errors, shading, or dirty modules. These factors are difficult to detect without an inverter-agnostic monitoring device. Professional monitoring tools detect these hard-to-see malfunctions and report them to the plant operator. As a result, O&M costs are greatly reduced. First by remotely pinpointing of issues which would otherwise go unnoticed, or which would require costly site visits to identify. Next by providing the information so field technicians go directly to the problem area with the right tools and equipment to correct the issue.

**Myth: Standalone software tools that don't require hardware are the ideal solution for monitoring solar plants.**

**Fact: Software-only tools provide limited functionality and fewer support options when it comes to plant issue detection and analysis.**

Many solar O&M providers dream of having a standalone software product that does not require additional hardware. However, there are many disadvantages to this setup. First, unless service technicians have remote access to onsite devices, there are limited ways they can help troubleshoot issues. Issues can be detected, but field technicians may need to visit the site to correct the issue. Second, software-only setups provide limited energy management functionality. They can lack the sophisticated communication protocols to control onsite devices. Again, creating the need for a field technician to make changes in person. The cost saved on hardware is spent on truck rolls. Finally, standalone software options receive the data from some type of onsite data logger. This means the O&M team needs to learn how to troubleshoot several different onsite devices. Alternatively, having a consistent data logging solution saves the team time and money because the team only needs to learn how to install and troubleshoot one device type and not several.

**Myth: Consumption monitoring is just a feel-good thing for plant owners.**

**Fact: Consumption monitoring is a valuable, inexpensive tool overlooked by many plant owners and installers.**

Consumption monitoring detects changes in plant owner's usage after the plant has been installed. As soon as customers go solar, they often change the way they use electricity, ultimately increasing usage. To the installer who guarantees certain savings, this knowledge is the difference between gaining or losing customer confidence. For plant owners, once they understand how the energy is used, they can make adjustments to lower electricity costs.



*Consumption Monitoring from Solar-Log®*