

WCCTV

A Comprehensive Guide
On Maintaining Solar
Panels Throughout Winter

Maintaining Solar Panels Throughout Winter

In Winter, Solar Panels can lose around 25% of their efficiency due to shorter days, making every hour count even more than normal.

Most mobile surveillance units will utilize solar energy in order to provide continuous power autonomy, all-year-round. However, in winter power production can be disrupted, and it's important that to maintain service and minimize downtime, you take relevant steps to support this.

Being a market leader in surveillance, we understand the role solar panels play in running mobile units, and within this guide we walk through what to expect with your solar panels during winter and steps you can take to care for them.



What to Expect From Your Solar Power Energy

Solar panels work by converting sunlight into electricity and heat through a process called photovoltaic effect. Power created is dependent on multiple factors, however, the main factor tends to be based on weather conditions.

Throughout spring and summer, days are longer, and the likelihood of sunlight increases, meaning solar panels will produce more power. However, in Winter this drops. Although solar panels work during the colder months, they generally produce less energy due to:



- *Fewer daylight hours*
- *Sun is lower in the sky*
- *More cloudy days*
- *Increased chance of snow*

Overall, during Winter, you should still expect your solar panels to produce power and work as needed, however, you should always prepare for the production of power to be reduced over this time.

How to Maintain Your Solar Panels During Winter

Due to the reduced power productivity, maintaining your solar panels is crucial to maximizing the power it receives. Power is required 24/7, all-year round, otherwise losing this creates a lapse in security which jeopardizes your service, leading to increased risk of security breaches, theft, and property damage.

Therefore, any surveillance solutions that utilize solar power require extra care during the Winter period to ensure optimal power production and management. This will help maintain your security and ensure that crime prevention continues.



Keep Panels Clean

Regularly remove snow, dirt, and debris to allow sunlight to reach the panels



Check Power Connections

Ensure all cables and batteries are secure and protected from frost



Monitor Energy Levels

Track performance data to spot dips in output early



Check Panel Positioning

Tilt or adjust panels if possible to capture more low-angle winter sunlight

Clean Any Debris Off of Your Solar Panels Regularly

Snow could be an obstacle for your solar panels as they prevent sunlight from reaching the panels themselves and as winter brings a higher likelihood of snowstorms and heavy snowfall, you have to be prepared for build-up to occur.

- ➡ Snow may not melt away quickly, so remove build-up if safe to do so.
- ➡ Other debris from storms and weather should be cleared where possible.
- ➡ Consider angling your panels before winter to prevent accumulation.

Debris and snow may seem like small issues, however, when your solar panels are responsible for powering your security systems, even minor blockages can have a significant impact. Keeping your panels clear ensures a consistent energy supply, allowing your surveillance equipment to operate effectively and maintain continuous monitoring without interruption.



Angle the Solar Panels to Ensure Full Sun Exposure

Angling is everything with solar panels - not only to prevent build-up from snow or debris but also to maximize the amount of sunlight they capture and convert into power.



Optimize Panel Angle

The tilt of your solar panels affects both sunlight absorption and snow shedding.



Location & Season Matter

To ensure proper placement, have a professional advise on the best position.



WCCTV Managed Support

All of our trailers come with a managed service, including a full site survey.

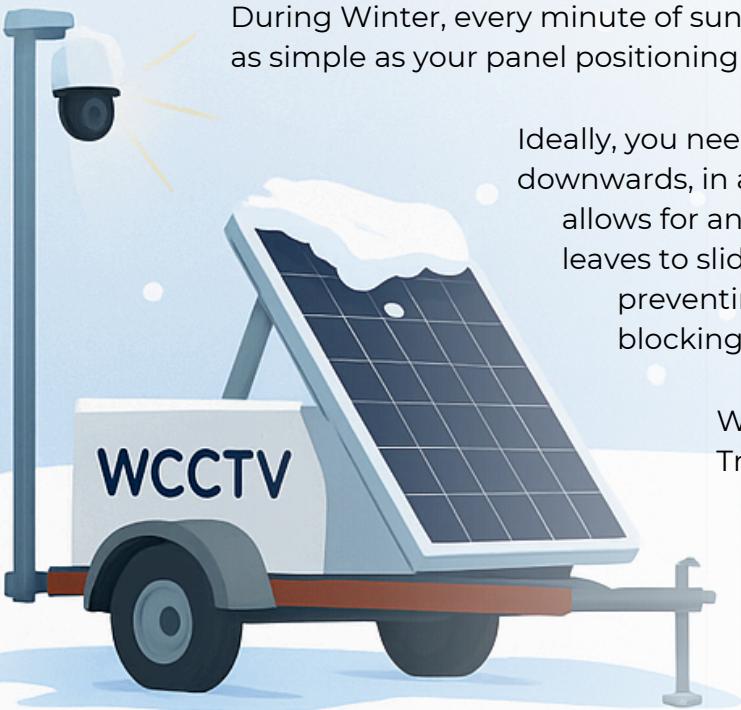


Even small adjustments in solar panel angle can make a big difference to performance

Ensure Your Solar Panels Avoid Snow Build-Up

As mentioned previously, both the angle and positioning are key to preventing build-up. Allowing this to occur can block sunlight from reaching the solar panels, which reduces the production of power.

During Winter, every minute of sunlight counts, and something as simple as your panel positioning could be vital to power loss.



Ideally, you need your solar panels pointing downwards, in a diagonal direction. This allows for any debris such as snow and leaves to slide down the solar panel, preventing it from settling and blocking access to any sunlight.

With our Solar Surveillance Trailers, we position our panels to do this during the installation and to provide advice if you require it during your time with our surveillance systems.

Reduce Any Shade Blocking the Solar Panels

Similarly to the angle and positioning being important to preventing light blockage on your solar panels, the location where your solar panels sit is also essential in preventing this.

The placement of any surveillance solution needs to center around coverage and ensure that all perimeters you wish to protect are secured by cameras.

However, when you are using a solar powered option, you need to ensure there are no objects that could create shade and block light from reaching the solar panels.

For remote locations, consider trees, branches and bushes both in front and behind that could create shade, and for jobsites, consider containers, materials and tall buildings.



Monitor the Solar Panel Performance at Winter

Like with any power source, you need to monitor it to ensure it is working as required. Although power production will be reduced over the Winter period, the effectiveness of your solar panels should actually increase, so keep an eye out for any performance changes as this might signal an issue with the unit.

This can be completed by yourself or your security provider, depending on the service you receive from them. At WCCTV, we utilize a remote power management tool that real-time monitors the performance of your batteries and solar panels to prevent any performance catastrophes. As part of this high-quality tool, our Surveillance Trailers are provided with all the following features:



True Battery State-of-Charge



Time Remaining Feature



Remote Power Monitoring and Management



Local Remote Control



Complete Performance History

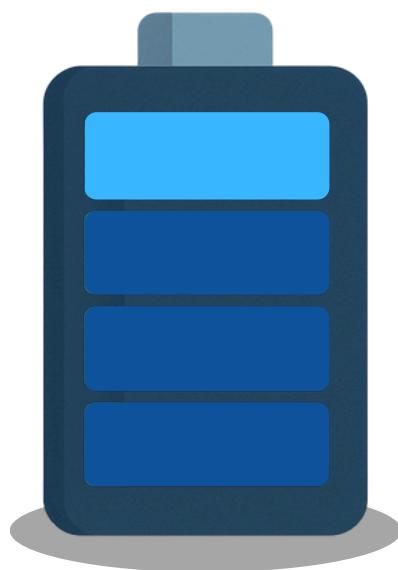


Allows Users to Set Alerts And Alarms on Devices

We also offer additional software like our Heartbeat diagnostics service that runs comprehensive health checks on our surveillance cameras to monitor performance.

Provide Sufficient Back-Up Power Over Winter

Solar panels should provide sufficient power over Winter, however, it is natural to have concerns. If you do have concerns, it may be best to invest in a surveillance system that utilizes back-up power, to provide you with complete power autonomy and reliability in the service.



Weather can be unpredictable and you will never know how much sun your solar panels will receive throughout Winter, so taking that extra precaution can provide you with that boost in reassurance you are looking for. Especially for those locations such as jobsites, critical infrastructure facilities and off-grid spaces where they are without power or internet.

Our Solar Surveillance Trailers operate completely autonomously and aim to support all industry types, regardless of power or internet available to you. Although there are various benefits to our Solar Surveillance Trailers, one of the biggest benefits is the fuel cell back-up we provide that allows them to work in all types of conditions.

Sustaining Reliable Solar Surveillance in Winter

Winter conditions can challenge even the most advanced solar surveillance systems, but with proactive care and smart technology, reliability doesn't have to drop with the temperature.

From regular maintenance and build-up removal to performance checks and technology developments ensure solar panels on your panels continue to generate sufficient power, even during the Winter months.

With tools like Stellifii and remote monitoring, our solutions help support your solar and your site's protection at all times, providing real-time insights and key performance information in order to keep every unit operating smoothly.

By investing in ongoing maintenance and intelligent management platforms, organisations can safeguard uptime, optimise energy efficiency, and maintain continuous visibility, no matter the weather. Reliable solar surveillance isn't just about installation, it's about consistent care, data-driven oversight, and a commitment to performance all-year-round.



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