SunWize
Power & Battery

Snowed In?

No problem for solar

A SunWize® Power Ready System exposed to severe weather on Mt. St. Helens, WA. The system powers a camera that takes photos of the lava dome.

Many questions arise regarding how snow cover on a solar array affects a solar |system's performance in areas of the country that experience severe winter weather. It is a logical concern since a snow covered solar array will only receive a fraction of the solar radiation it would receive during normal operating conditions.

There are several solar module and system design factors in place that address snow coverage. Together these factors provide proven, highly effective means of dealing with snow.

1. Solar modules are designed to shed snow. This effect is achieved because of the following:

- Solar modules use a low-iron, highly tempered glass front surface. As a result the glass has an extremely low coefficient of friction, making it difficult for debris, including snow, to stick to the front of an array.
- Solar modules are typically tilted greater than 35 degrees to enhance the self-shedding effect of snow and to minimize build up of fresh snow.
- Solar modules run at a warmer temperature than the outside air by as much as 20°C. As snow melts, exposing the module surface, the covered surface quickly warms and speeds up the melting process.

2. Solar systems are designed to compensate for the snow loading.

- The amount of battery autonomy needed to carry the system through inclement periods varies with local weather conditions. Snow represents an additional challenge since fair weather days are lost waiting for the snow to melt from the array. While five days of autonomy may be more than enough to carry the system through inclement days in the Arizona desert, you may need twice that to gain the same reliability for a load operating in the Pacific Northwest.

A SunWize® Power Ready System provides power to a water reservoir monitor in the Colorado mountains.

A SunWize® Power Ready System in Castle Rock, CO powering a 2.5 amp, 12VDC remote telemetry unit.

- System designers determine days of autonomy with statistical analyses that predict monthly solar system performance and then verify the battery will successfully power the load during extended inclement periods. Snow covered melting and self-clearing periods are included in this analysis.

Solar electric systems are operating with exceptional reliability on all seven continents. Systems are deployed in sites that are within a hundred miles of the Arctic Circle as well as sites along the equator.

In all cases, when the systems are sized using proven techniques for the solar array and battery and when the system's performance is verified with statistical analysis that takes the local weather patterns into account, the result is exceptional annual power system performance under all climactic conditions, including wintertime snow cover.

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