



Greenplanet Energy Analytics

What About Snow?

- Research has shown that solar can still successfully generate electricity in snowy areas and other harsh environments.
- Light snow has little impact on solar panels because it easily slides off.
- Heavy snow can limit the amount of energy produced by solar panels, but light is still able to move through the snow and forward scattering brings more light to the solar cells than you might expect.
- Even when solar panels are completely covered by snow, they can still generate electricity.
- Until now, the industry estimated solar panels lose about 20 per cent of their energy because of snow buildup in winter. A five-year Northern Alberta Institute of Technology (NAIT) study found the energy loss to be much less – only about three per cent.
- The NAIT study measured the impact of snow on the system as well as how the tilt of each module affected energy production.
- Researchers found the angle of the solar panels has a far greater impact on energy production than snowfall. The ideal angle for maximum energy production with snow accumulation was 45 degrees.

What About Short Days?

- In high latitude countries like Canada, the amount of sunlight received by solar panels is highly seasonal. In particular, the further north you live, the more hours of daylight in the spring and summer and fewer hours of daylight in the fall and winter.
- Fortunately, northern Alberta still receives a significant amount of sunlight, even in the winter.



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Maintenance in Winter?

- Solar panels will melt snow off at a greater pace than shingled roofs as they operate at temperatures above the air temperature.
- Sunlight can penetrate the snow (within a couple inches) to accelerate the melting process and generate energy.
- The smoother surface also helps the snow to slide off on its own.
- Wind often helps remove snow as well.

Roof Mounted

- If your solar panels are on your roof, we strongly recommend that you DO NOT climb on your roof to clean them off.
- It is not worth the safety risk or the hassle for the minor increase in generation.

Ground Mounted

- If your array is on the ground and easy to access, you can brush the panels off with a soft brush.
- Do NOT use coarse brooms, wire brushes, or hockey sticks as they may scratch the tempered glass on the solar panel.

Added Bonus!

Winter has an advantage - cooler temperatures decrease resistance in the wiring, meaning more energy is converted into electricity. Solar panels are more efficient in the cold!



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In mid-February, solar really picks up again. That's when the skies are blue, the days are longer, and there's still a lot of snow, so more reflected sunlight, increasing solar generation.

Useful Links

Solar Panels Shine Despite Winter's Blast, Nait Study Finds, 2018 - Nait
<https://www.nait.ca/nait/about/newsroom/2018/solar-panels-shine-despite-winters-blast-nait-st>

Market Snapshot: Solar Power Generation In Canada Is Highly Seasonal, 2019-02-20 - Canada Energy Regulator
<https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2019/market-snapshot-solar-power-generation-in-canada-is-highly-seasonal.html>

How Solar Power Works In Yukon In Winter, 2019 - CBC News
<https://www.cbc.ca/news/canada/north/solar-panels-north-explainer-1.5383281>

Let It Snow: How Solar Panels Can Thrive In Winter Weather - US Department Of Energy
<https://www.energy.gov/eere/articles/let-it-snow-how-solar-panels-can-thrive-winter-weather>