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Photovoltaics and Snow in BC

Summary: Snowfall has only a small affect on photovoltaic (solar energy) production in BC. It would generally be less than 8% loss of production annually.

In northern climates where snow accumulation is more significant, seasonal variability of solar production is also higher. Everywhere on the planet receives the same potential amount of sun hours. But in northern climates the amount received in the summer months is significantly higher than in the winter months. This means any loss of energy due to snow cover is also less significant annually the further north the system is located.

In BC we can store excess energy behind dams which means that any excess energy produced during the summer months is not wasted. And the net-metering programs offered by the utilities, allows customers to bank credits seasonally. So there is also no financial loss for excess generation during the summer. The credits from that generation can be applied to consumption during the winter months.

If a photovoltaic panel is completely covered in thick snow it will stop producing power. However, there are few important things to keep in mind about snow on solar panels:

- the solar panels have a smooth surface that snow easily slides off of – especially if they are at an angle
- if there is thin layer of snow some light gets through and the photovoltaic modules can start producing power
- once the panel starts producing power it also generates some heat which helps melt the snow faster
- once the panels are clear the albedo affect of surrounding snow covered surface will actually increase solar production

A study done in Ontario found that snow had less than a 7% affect on solar production annually (see: http://www.academia.edu/1991659/Prediction_of_Energy_Effects_on_Photovoltaic_Systems_due_to_Snowfall_Events)

An extensive study done at BCIT in Edmonton in 2016 found that the loss of production was less than 5% (see: <https://www.nait.ca/nait/about/newsroom/2018/solar-panels-shine-despite-winters-blast-nait-st>).