

Watt's Happening?

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My Solar: part 2

In the last Watt's Happening we had a close look at a stand-alone solar power system at my rural home near Dawson Creek, which has been going strong for about the last 30 years. Those old solar panels are still working just fine, and show every sign of producing electricity from sunlight roughly forever. Solar power isn't new; it's just come way, way down in price and way, way up in quality.

Now lets have a look at a new state-of-the-art 5-kilowatt grid-tie solar system installed on my business building in Dawson Creek late last fall. How well is it doing, anyway?

GRID TIE WORKS

"Grid-tie" is the way most solar power systems are going these days. Since most buildings are already on the electrical grid, adding solar means that you have the option of feeding your excess solar power into the grid, and getting either money or credit from your power utility for the electricity you contribute.

This "greening of the grid" with roof-top solar is changing the world of electrical generation. Millions of homes around the world are now solar grid-tied. Its proven, its simple, and it works.



This 5-kilowatt grid-tied solar power system in Dawson Creek has been generating, through the spring and summer, five to 10 times more electricity than this building has been using. This extra power is "stored" as a credit in the grid, and will be used during the lean winter months, resulting in a net zero electrical bill.

This is a big, big change: we can make our own electricity now, more than enough to run the average home or business. You invest in the solar power system, have it installed on your roof or on a rack in your yard, grid-tie it, and watch it pay for itself over time, eventually making a profit. Simple.

Every province has a different policy and rate paid for grid-tied power, with Ontario paying the best rates (explaining why they now have a booming solar industry) and most other provinces slowly coming up to speed. BC gives a credit against your bill (at about 7 cents per kilowatt hour) and then pays 10

cents per kilowatt hour for excess above and beyond the power you have used, calculated at the end of each billing year.

These BC Hydro rates do not particularly encourage grid-tie, because the pay back on your investment is slow. Jurisdictions like Ontario, that actually WANT people to grid-tie, pay 3 or 4 times these rates for home-grown solar power. This reduces the pay back to a few years, and makes solar grid-tie a no-brainer way of making money by selling electricity.

So after a winter and then summer of feeding solar power into the BC Hydro grid, how is my new system performing?

SMART METERS ARE SMART

So-called smart meters have now been installed throughout most of BC. For generating your own renewable energy and feeding it into the grid, this is a good thing, because the smart meter tracks both how much power you pull out of the grid, and how much you put in, automatically. They're set up for it. Handy. So all of your power input and output numbers appear on your electrical bill, and you are only charged if you put in less power than you pull out.

Here are some numbers from my recent electrical bills. "Inflow" is how much power I used (in kilowatt hours) and "outflow" is how much solar power I fed into the grid.

Month	Inflow	Outflow
Jan.+ Feb.	618	67
March	139	409
April	166	486
May + June	145	1537

So in the dead of winter, when the panels were sometimes covered with snow and the hours of sunlight per day were low, I was using about 10 times more electricity than I was generating. This was expected.

The good news is that in the summer I have been generating 10 times MORE than I have been using! This surplus will be "stored" in the grid as a credit, and will build up for use during the winter. Averaged over the year, my net usage should be close to zero. Already, my power bills for March through September have already been zero. Yea. I like this.

The beauty of roof-top solar is that there is no maintenance. Once installed and grid-tied, the system is entirely automatic. There are no moving parts and nothing is used up (most solar panels have a 25 year guarantee). They just hang out on your roof, changing photons into electrons, and electrons into dollars and cents. Sweet.

Quick Facts:

RENEWABLES NOW MATCH GAS:

Power generation from wind, solar and hydro grew strongly last year says the International Energy Agency, reaching 22 percent of the global energy mix – roughly the same as natural gas.

REDUCING CARBON POLLUTION REDUCES HEALTH CARE COSTS:

A new MIT study has found that expected health care cost savings would more than cover the estimated \$14.5 billion price tag of a cap-and-trade climate program for the US. In fact, it would cover those costs ten times over!

Bear Mountain Wind Park near Dawson Creek, BC. At 100 megawatts, it produces enough electricity to power every home in the South Peace region.

