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# Grid-Tied Solar FAQ

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## What is Grid-Tie?

- Your inspected and approved solar electric system feeds power into the grid through your existing power panel and an "inverter" that converts your solar DC current into grid-ready AC.
- Your Smart Meter tracks both the power you pull out of the grid and the power you feed in.
- You pay only for the difference = reduced electrical bills.
- If you put more power in than you take out over a one-year pay period, BC Hydro pays you for that excess at 10 cents/kwh.

Some provinces, like Ontario, pay much more (up to 80 cents/kwh) for home-produced solar power to encourage home owners and businesses to go solar. This higher, guaranteed rate is referred to as a "feed-in tariff."

A solar power system mounted on your roof can produce some, most or all of the electricity consumed in your home. Most Canadian houses use between 5,000 kwh (very efficient) and 13,000 kwh (not very efficient) per year.

When you are grid-tied, the grid acts as a huge battery where you can store excess solar power when you have too much, then draw it out again when you need it. In northern Canada this works very well: we have excellent solar power in the spring, summer and fall, but not so good in the winter with our short hours of sunlight and occasionally snow-covered panels. Being grid-tied means the large excess you are likely to generate in the summer months will be "stored" in the grid as a credit, which you can then use up as needed in the winter.

## How does the system attach to my roof?

Peace Energy recommends the Fast-Rack or Uni-Rack systems. These unique solar panel mounting systems secure the modules to the roof with low profile brackets covered with anodized trim pieces. They have special self-sealing roof attachments that make sure the panels are strongly attached but watertight. These attachment systems go together relatively easily (although an experienced solar installer is recommended), and they also disassemble easily so that if your roof needs replacing in the future, the system can be quickly removed and reinstalled after the roofers have completed their work.



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## Are solar panels a good investment?

Solar users like producing their own energy, and knowing its source is clean and renewable. Solar fixes your energy costs, avoiding utility rate increases. Some provinces like Ontario have a feed-in tariff that offers to purchase the power from your system, creating an income stream. In BC solar power is credited against your on-going electricity usage, and at the end of your billing period you are paid for any excess power you may have fed into the grid.

Solar electric panels feature a 25 year output warranty and will likely last for 30 years or more. This means the solar system you install today will produce low-cost and reliable electricity for decades. As an investment in your home, cottage or RV, your system will enhance its value while delivering clean, quiet, effortless energy. Even modest grid-tied solar power systems can significantly reduce your electrical bills, and larger well-designed systems can essentially make you and your family or business a net-zero electrical user, or even a clean energy producer, helping to green-up the grid, a benefit to everyone.

## How do I know what my system is producing?

The inverter has a display that shows the cumulative energy produced by the solar array. Also, your regular bill from your utility will now have not just how much power you have used from the grid ("Inflow") but also how much you have fed into the grid ("Outflow"). These numbers are useful for tracking your solar output from month to month over the year.

For more detailed tracking, internet-based monitoring apps and equipment are now readily available for some types of solar panels, providing panel-by-panel monitoring and data recording, with detailed graphical analysis of system performance accessed from your home computer or mobile device.

## What happens in winter?

Solar energy does vary throughout the year. In practice, roof-mounted grid-tie system owners don't usually worry about snow as winter months have low production, and low winter output is more than compensated for by very high production during the spring, summer and fall.



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## What happens during a power failure?

Grid-tie systems safely disconnect in the event of a power failure. We offer the option of a Secure Source battery backup that will run some selected loads like pumps, furnaces, freezers or lighting in the event of a blackout.

## I've heard about a new low cost solar panel...

There is lots of investment in solar technology development these days. The best producing solar panels for rooftops are crystalline silicon solar cells. These offer the highest efficiency, reducing the cost of mounting equipment and time to install. Low efficiency panels are less expensive per module, but will often result in higher system costs due to the larger array size. Peace Energy Coop sells only high output, best quality crystalline silicon solar panels.

## What do I need to start?

First you need a suitable location for solar panel placement – a flat or low-slope East-West facing roof, or ideally a steep-sloped South facing roof. A solar array can also be rack mounted on the ground in a sunny spot on your property, or mounted on a vertical south facing wall. The less shading from trees and nearby buildings the better. Your Coop rep can help you evaluate your site.

Second, you will need a budget to purchase the system, or qualify for a home renovation or equity loan from your bank or credit union. Then, contact Peace Energy Cooperative and one of our experienced salespersons will conduct a site visit/evaluation, and discuss the ideal package for you. Your Peace Energy sales rep will also help you contact a qualified installer and assist with grid-tie approval from your utility.

**Peace Energy Coop makes going grid-tie solar easy!**

**Call today!**

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[www.peaceenergy.ca](http://www.peaceenergy.ca)

# Peace Energy Renewable Energy Cooperative Grid-tie Demonstration House

## Dawson Creek, BC



Peace Energy Cooperative, in partnership with Peace Photographics Inc. and Moch Electric Ltd., has installed a grid-tie demonstration system at their Dawson Creek offices. Commissioned in November 2013, the building achieved net-zero energy usage after its first full year of operation.

This demonstration system showcases simple grid-tie solar power: the solar array feeds electricity to a 5000 watt inverter, which powers the building and stores excess power in the grid as a credit to be drawn out as needed at night and throughout the winter. This solar array produced more electricity than the building used over its first year of operation. The modest energy needs of the five offices within the building, plus common-sense energy conservation measures helped achieve this goal.

*Tours are available by appointment. Call or email Peace Energy Cooperative for a tour today!*

- **System design and equipment supplied by Peace Energy Cooperative, installed by Moch Electric**
- **23 Trina 240 watt polycrystalline solar modules = 5500 watt peak output**
- **Power-One 5 kw grid-tie inverter**
- **Unirac roof mounting system**

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