Peace Energy Renewable Energy Cooperative
1204-103rd Ave.
Dawson Creek, British Columbia, Canada V1G 2G9
250-782-3882
admin@peaceenergy.ca
www.peaceenergy.ca

Grid-Tied Solar FAQ

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What is Grid-Tie in BC?

- 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 electricity into grid-ready AC electricity.
- Your solar array powers your home or business first, then feeds any excess power into the grid.
- 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.
- Any excess solar electricity you generate and feed into the grid is tracked as a credit on your BC Hydro account. This credit will be used any time you need it, such as at night and throughout the winter months.

The BC Hydro grid-tie system is designed to allow you to produce only as much power as you actually need over a one-year billing cycle. **This program is NOT intended to allow people to build solar power systems larger than they need for the purpose of generating income.** If your power needs increase (such as buying an electric vehicle and charging it at home off your solar array) BC Hydro WILL allow you to increase the size of your solar array to meet that new power requirement.

A solar power system mounted on your roof can produce some, most or all of the electricity consumed in your home. If you produce all of your power needs over a one-year billing cycle with solar, **you are then "Net Zero" which means zero electrical bills**. Most Canadian houses use between 5,000 kwh (low usage) and 13,000 kwh (high usage) per year. Northern BC, Alberta and the Yukon all have a very good solar resource.

When you are grid-tied, the grid acts as a "virtual 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, (about 90% of our solar resource) but not so good in the winter (about 10% of our solar resource) 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 then use up during your winter billing cycles.

How does the system attach to my roof?

Peace Energy recommends using a professional solar mounting system to secure the solar panel to the roof. 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 expe-

rienced 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.

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. **The financial return on your investment is better than any bank, and increases over time as grid electrical rates continue to go up. Solar electric panels feature a 25 year output warranty and will likely last for 30 to 40 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, helping to green-up the grid, a benefit to everyone.

How do I know what my system is producing?

Your regular bill from your utility will show not just how much power you have used from the grid ("Inflow") and 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 most solar power systems, providing monitoring and data recording of your power output, with detailed graphical analysis of system performance accessed from your home computer or mobile device. These inexpensive monitoring systems are free to use once installed and commissioned.

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. Any excess power your solar array produces during the summer is "stored" in the grid as a credit, which is withdrawn when needed in the winter.

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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 Co-op sells only high output, best quality crystalline silicon solar panels produced by reputable manufacturers.**

What do I need to start?

First you need a suitable location for solar panel placement – ideally a steep-sloped South facing roof, but other roof orientations will work just fine: we have installed many Net-Zero solar systems that face due east or west. 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 Co-op rep will help you evaluate your site.

Peace Energy offers two solar evaluation packages, a Basic Package (which will provide a price estimate and an estimate of the solar potential of your location) and an Advanced Package that will give you exact information about payback, return on your investment, solar power output and a price quotation for the equipment and installation.

Finally, you will need a budget to purchase the system, or qualify for a home renovation or equity loan from your bank or credit union. Your Peace Energy sales rep will then provide all of the required solar equipment and a professional installation. We also have follow-up system performance and maintenance options.

Peace Energy Co-op makes going grid-tie solar easy!

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Grid-tie Solar Demonstration House

Peace Energy Cooperative has installed a grid-tie solar demonstration system at their Dawson Creek, BC offices. Commissioned in November 2013, the building achieved net-zero energy usage after its first full year of operation, and has continued to produce more electricity each year than it uses: no electricity bills for six years straight!

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 produces more electricity each year than the building uses!*** Common-sense energy efficiency measures, like installing LED light bulbs, helped achieve this goal.

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

- **System designed and supplied by Peace Energy Cooperative, installed by Moch Electric Ltd.**
- **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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