

Solar 101 FAQ

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1. Solar Energy Basics

Q1: What is the annual average ‘equivalent full sunlight hours’ in Barrie?

- A1: The yearly average for equivalent full sunlight hours in Barrie is estimated to be around 2000 hours, similar to Peterborough, which has approximately 296 days of sunlight annually. The total sunshine hours for Barrie are around 2,509.63 hours per year. (Source: climate-data.org)

Q2: How many panels are usually needed for a 6 or 8 kW solar project?

- A2: A 6 kW system typically requires 12 panels, and an 8 kW system needs about 16 panels, assuming each panel has a capacity of 500 watts.

Q3: What about snow buildup on solar panels?

- A3: It’s generally advised to leave the snow as is and not attempt to brush it off or clean the solar panels. Snow guards can be installed to help manage buildup, and a system design that accounts for annual snowfall will help you estimate overall production. What you produce in the summer can often offset the lower production in snowy months.

2. Net Metering & Energy Plans

Q4: Does Alectra support Net Metering?

- A4: Yes, Alectra supports net metering. Under Ontario’s “net metering” initiative, you can send excess energy your solar system produces back to the grid and receive credits on your electricity bill. (Source: [Alectra-Take advantage of Ontario’s “net metering” initiative](#))

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Q5: Under Net Metering, can you still participate in the Ultra Low Overnight (ULO) rate plan, or must you move to the Tiered plan?

- A5: Yes, you can remain on a Time-of-Use (TOU) plan while participating in Net Metering. The Ontario Energy Board issued a bulletin confirming this on January 17, 2023. (Source: [Ontario Energy Board Bulletin issued Jan 17, 2023](#))

Q6: Is there still a limit to the number of homes that can move extra power to the grid?

- A6: Ontario regulations allow households to participate in net metering if their system is 10 kW or less. Changes made in 2022 now also allow for third-party ownership arrangements, such as leasing or power purchase agreements. For more information, visit [Hydro One's net metering page](#) or the [IESO site](#).

Q7: What provides the largest economic benefit for a resident of Barrie - Time-Based Control Load Shifting with the Ultra Low Overnight rate plan or Net Metering?

- A7: Net metering often provides a larger economic benefit because it allows you to generate your own energy and lock in costs for up to 30 years. Even with low rates, you're still paying what the utility charges, whereas with solar, your rates are locked in regardless of future changes.

3. Installation & Permitting

Q8: What are the permitting requirements in Barrie for solar installations and energy storage?

- A8 1: Solar – Grid-Tied:
 - **Permit Required:** Yes. Installing a grid-tied solar photovoltaic (PV) system generally requires a building permit. You'll need to submit detailed plans for your solar panel installation, including structural and electrical details.
 - **Approval Process:** The process involves reviewing the structural integrity of your roof, electrical safety, and ensuring the installation complies with local building codes and Ontario Building Code requirements.
 - **Additional Considerations:** You must also coordinate with your utility provider to connect to the grid. This involves ensuring compliance with the Ontario Energy Board's rules and regulations.

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- A8 2: Energy Storage / Backup – Grid-Tied:
 - **Permit Required:** Yes. Installing a grid-tied energy storage system (such as batteries) typically requires a permit as well. This is to ensure that the system is safely integrated with your electrical system and adheres to safety codes.
 - **Approval Process:** Similar to solar installations, you'll need to provide detailed plans and ensure that the installation meets electrical and safety standards.

- A8 3: Solar & Energy Storage – Grid-Tied with/without Net Metering:
 - **Permit Required:** Yes. Both solar PV and energy storage systems will generally require permits. Whether or not you have net metering does not usually change the basic permit requirements.
 - **Net Metering Considerations:** If you are applying for net metering, you will need to work with your utility provider to ensure your system is compliant with net metering agreements and regulations. This involves additional paperwork and approval from the utility company to ensure proper billing and energy credits.
 - [\(City of Barrie: Solar Installation\)](#)

Q9: How many days does it take (approx) to install A) Solar – grid tied with net metering B) Just Energy Storage / Backup – grid tied & C) Solar & Energy Storage – grid tied with and without net metering?

- A9 1: Smaller systems (4-5 kW): 1 day.
- A9 2: Average systems (7-10 kW): 1-2 days.
- A9 3: Larger systems (12-18 kW): 2-4 days.
 - If the site is pre-wired, the installation can take 1-2 days. If not, it may take 3-4 days.
 - Solar is often installed first, and batteries are added later as they arrive.
 - Net-metering is its own timeline as each region varies. There are two net-metering/self-generation applications, one before install and one after install and inspection reports are passed.

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Q10: Prior to installing a solar system, should the roof be replaced?

- A10: It's recommended to replace your roof before going solar if it's nearing the end of its life. Solar systems last 30+ years, so a roof replacement before installation can save costs down the line.

Q11: How much does it typically cost to remove and reinstall solar panels when the roof needs to be replaced?

- A11: It typically costs 10%-15% of the initial installation cost to remove and reinstall solar panels for roof replacement.

4. Technical Considerations

Q12: There are trees shading part of our south-facing roof. How can we ensure solar panels will be effective?

- A12: Proper design and assessment, including the height of trees and shading patterns, are essential to determine if solar panels will be effective on your roof. Consider consulting with a solar installer for a site-specific evaluation.

Q13: For the Ultra Low Overnight rate plan, the Peak period is from 4:00 pm to 9:00 pm. Can I use a battery to support Time-Based Control - Load Shifting by charging via solar and the ULO Off-Peak period, then discharging during the Peak period?

- A13: Yes, this is known as load shifting, and it's one of the benefits of having solar with battery storage. You can control your energy production and use it during peak periods.

Q14: Tesla Powerwalls. What is recommended when adding a battery—micro-inverters or optimizers?

- A14: Optimizers are recommended as they reduce the number of DC/AC/DC conversions, which improves efficiency. The Tesla Powerwall 3 also addresses this issue. Note that Tesla Powerwalls can take six months to a year to arrive.

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Q15: Generally, with grid-tied solar, when the grid goes down, the panels are stopped from producing. Is that correct?

- A15: Yes, this is a safety feature to prevent feeding power into the grid, which could endanger utility workers during an outage. If you have batteries, they will kick in to provide power during outages.

ADDITIONAL RESOURCES

- [Installing 5.6kW Grid-tie solar system. YouTube_step by step.](#)
- [EnergyHub](#)

**Living Green thanks Shift Community Manager
Chris Palliser for presenting Solar 101**



*A copy of this presentation will be made available on the [Living Green Barrie Website](#)
August Climate Action- Power Down.*