Solar Energy in Canada

Solar energy can meet three distinct applications: **heating water, heating air,** and **generation of electricity** in any residential or commercial setting. In most cases, solar energy provides the lowest lifecycle cost, and the lowest environmental impact from the release of greenhouse gases (GHG).

Solar Energy for your Cottage

Many people are wondering how energy deregulation will affect them and their energy supply at their cottage, and the trend toward deregulation in Canada holds no guarantees for the future price or availability of energy.

Regardless of the future, the current cost to purchase energy from your local utility is still inexpensive, compared to the costs in other countries. Even with relatively cheap power in this country, there are still a number of applications where it makes economic sense to convert to solar energy for your supply, and cottages are one of these applications.

Cottages are typically remotely located, away from existing power sources. They often use little power, sometimes only on weekends and sometimes only on weekends in the summer. They often pay higher monthly service fees, even for the months when the cottage is not occupied. All of these factors position the cottage market to take advantage of solar power.

Solar Electric vs. Solar Thermal

To begin, it must be understood that there are two forms of solar technology to convert sunlight into energy: solar electric (or photovoltaic) which is the conversion of sunlight into electricity; and solar thermal which is the conversion of sunshine into heat.

Both forms has its own style of collector. A solar electric collector, generally called a solar module or solar panel, is usually only the thickness of a sheet of glass framed in aluminum. The electricity runs through wires in a solar electric module. A solar thermal collector is larger and thicker, often 3" to 4" thick. It is effectively a well-designed mini-greenhouse for capturing the sun's heat, and circulates water or glycol through absorption plates.

Four Scenarios for Solar

Solar Water Heating

Solar thermal collectors are usually a good investment for domestic hot water heating. With a good southern exposure and adequate space for a solar storage tank (about the same size as a 60 gallon water heater), a solar water heater will pay for itself in energy savings in 5 to 15 years under average energy costs. It will provide 75 to 100% of your summer hot water and 10 to 20% of your residential hot water demand in winter. If desired, an auxiliary water heater (using propane, oil, electric or wood) can act seamlessly as backup. With such good summer performance, a solar water heater is definitely worth investigating for cottages that are used primarily during that season. In many cases, it could entirely replace the need for any other form of water heater.

New Construction or Remote Locations

Solar electricity is definitely worth considering where electricity is needed more than the distance of an extension cord from the utility grid. It can be used either in conjunction with a combustion diesel generator, or it can eliminate the need for a generator. In new construction, the cost of extending the utility service must be compared with the cost of

installing a solar PV system. An obvious example is the cottage on an isolated island, but there are plenty of remote cottages using loud generators that would be better served by a small solar electric system. Solar is no slouch for powering loads such as power tools, toasters, water pumps and refrigerators.

As with any use of energy, conservation comes first. It is always cheaper to save power than it is to create power, and this is especially true of solar electricity. Large heating loads, like space and water heating are met better by other sources such as solar thermal, wood biomass or even oil or propane. System sizes are limited only by your budget.

Weekend Cottage

Solar carries an advantage for weekend cottage owners, who can reduce the number of modules to one-third the number required by owners of full-time cottage sites. With weekend use, the PV system has the whole week to capture energy that is sufficient for two or three days of consumption, so less collection capacity is required. However, this does demand more battery storage, to retain the power until it is needed. The reduction of PV modules works well for system costs, as the solar modules are usually the single most expensive component of the system. Systems that require weekend power for lights, TV, radio, kitchen appliances and a water pump can usually be installed for $3,000 to $8,000.

The Energy Conscious Cottager

The energy-conscious cottager has the most to gain from a solar electric system. This cottager uses very little power, perhaps just some lights and a radio, and maybe a cellular phone and a laptop computer. These systems often can be assembled for less than $2,000. If the connection service fee from the power utility is $40 per month, it would take less than four years for the solar system to pay for itself in cost savings.

Conclusion

We have described four scenarios where solar can have an economic advantage over utility-supplied energy, but it is important to note that economics are not the only reason to go solar. In fact, more people are turning to solar to gain independence from outside energy control over their lives and to reduce the environmental impact of their life on earth. Some choose solar for security reasons, especially in areas that are susceptible to blackouts or poor quality of the electricity supply. Others are simply fascinated by the technology and think of solar as a unique and productive hobby.

Potential consumers should examine energy consumption and motivation, and contact a professional solar energy company to obtain more information about solar technology.

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The **Canadian Solar Industries Association** (CanSIA), with assistance from **Natural Resources Canada**, has produced this series of bulletins to explain the feasible applications of solar energy in Canada. To demonstrate how you can put the sun to work for you, CanSIA has posted these bulletins on its internet homepage, with additional information on solar energy and a comprehensive directory of companies that are involved in the design, sale and installation of solar energy across Canada. Members of CanSIA comply with a Code of Ethics. Please go to **www.CanSIA.ca**, or contact our office:

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