



Solar Water Heating FAQ's

Residential and Commercial Solar Energy Systems

1. SOLAR HOT WATER APPLICATIONS

What is the difference between solar thermal and solar photovoltaic?

Solar thermal systems generate heat via solar radiation using the sun's UV and near infrared rays to generate tremendous amounts of heat for in-ground and above-ground pools, hot tubs, domestic hot water, radiant in-floor and space heating. A solar photovoltaic (PV) system uses solar radiation to generate electricity to run household lighting and appliances.

Can I heat my pool with solar thermal systems?

Absolutely! Our high-efficiency VTC evacuated tube systems are specifically designed for heating swimming pools and hot tubs. Our rule of thumb is one twenty tube collector can heat about 10,000 litres of water. So generally most pools only need two or three VTC collectors, depending on frequency of use, whether you regularly use a pool cover, and specific sun and wind exposure of your pool.

How many tubes per person are needed to heat a domestic hot water system?

The average Canadian household uses between 70 -100 litres (15-22 Imp. Gal.) of hot water per person a day. Our rule of thumb is one tube heats about 10 litres of hot water per day, so each person needs about 10 tubes on average. A household with two to four people would need two to four collectors, depending on total hot water applications, usage, and how many teenagers are living at home.

What are the environmental benefits?

The average Canadian household spends 20% of its energy on domestic water heating. This jumps to 80% when you also add energy for heating and cooling the home. A typical solar domestic hot water system can

reduce your annual carbon footprint by up to 1 tonne. (www.icbe.com/carbondatabase/reductions.asp)

2. INSTALLATION

Where can I install a solar thermal system?

Your solar system can be mounted nearly any-where there is a southern exposure as it offers the most sunlight hours. This can be on a sloping roof, vertical wall, fence, pergola, pool cabana, or garage. It's a good idea to confirm local bylaws and building codes regarding solar installations as there are wide regional variations. South-West and South-East exposures will also see significant heat gains. If your best roof surface faces North, we suggest ground-mounting the solar collectors on angled racks close to the pool.

Do I have to get a new hot water tank?

Most of our clients do not require a new water tank. However, there are always outliers. Typically all that is required is a heat exchanger. If a new tank is required, we have a wide selection of water tanks built specifically for solar thermal applications.

Are building permits required to install a system?

Most Ontario municipalities do not have restrictions if the collector size is 5m² or less in size. However, each municipality has different requirements so we suggest that you learn all the facts regarding the installation of your solar system beforehand.

3. OPERATION

Can a solar thermal system be used to replace natural gas or electric heating systems?

Typically, solar collectors are used to minimize your use of electricity, natural gas, and other fuels rather than completely off-set them. A typical solar system will produce 70% of your domestic hot water.



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1-866-300-8224 / 416-840-3324

sales@powerofthesun2solar.com

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Do solar thermal systems produce hot water on a cloudy/overcast day?

Our systems work by absorbing UVA, UVB, and near infrared rays. Even on overcast days, these rays will still generate heat in the collectors.

Do solar systems produce hot water in the winter?

Our systems are designed for year round use, even in cold Canadian winters. However, the efficiency will drop slightly in the winter as compared to summer. Most light snow will fall off between the tubes.

What happens during a power outage?

In our pressurized PHS, PHAS, HPC, and SPS systems, electrical power is still needed to run the pump and circulate the water up through the solar collectors.

Without water circulation from the pump, there is no heat transfer, and the tubes will reach extremely high temperatures in your solar loop. If your area is prone to temporary black-outs, we highly recommend installing a back-up solar pump.

4. FINANCIAL PAYBACK

How much does a solar system cost?

The cost of our solar heating system is typically between \$6,000 to \$8,000 for an average size pool. However, the operating costs are virtually zero versus \$1,000 to \$1,500 for a gas pool heater every year.

Each solar system is designed to achieve the highest thermal efficiency with the lowest capital and maintenance costs over its twenty year operating life. A lot of that can depend on your location, sun orientation, roof space, and how many months your pool will be used. It's best if we do an onsite solar evaluation to

provide an accurate proposal. Please contact us for details.

What is the payback of a system?

A solar pool heating system will usually be paid back in three years. Domestic hot water systems are usually paid back in 3-5 years, with the average home owner saving between \$25 and \$100 a month. There are many variables to consider, such as your current fuel source, location, solar system, and hot water consumption.

5. MAINTENANCE

Do solar heating systems require any maintenance?

The non-pressurized vacuum systems (such as LS or VTC systems) are virtually maintenance free, and need only to be thoroughly drained as winter approaches.

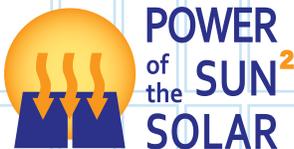
Every 3 years, the pressurized SPS and HPC systems will require replacing the glycol, replacing the sacrificial rod in your water tank (if one is present), and re-pressurizing the solar loop.

What is the lifespan of the solar collector systems?

The average lifespan of a system is 20+ years, based on data from collectors built in the 80's and 90's. The manufacturing process has been greatly improved since then, so we can expect today's collectors to perform well beyond this life expectancy.

What happens if one of the solar tubes is broken?

Each tube can withstand 134 kg (295 lbs.) of force, and hail 25 mm (1") in diameter travelling at 100 km (62 miles) per hour. If a tube was damaged from a heavy branch or falling object, they can be replaced independently while the remaining tubes are still in operation.



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POWER of the Sun² SOLAR

1 Whitmore Road, Unit #4
Woodbridge, ON L4L 8G4