Solar roofs for homes:

Good for income and for the environment

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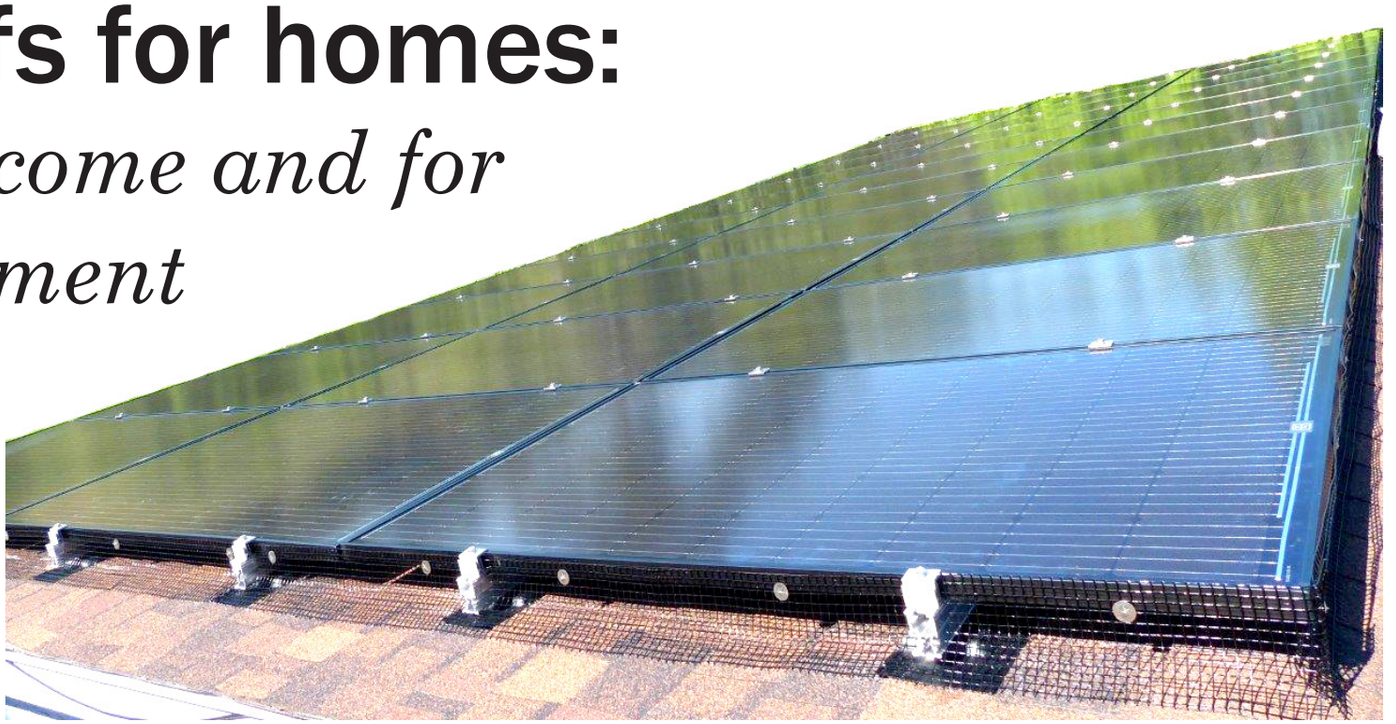

Josef Cihlar installed a 9.6 kW solar system on the roof of his home (pictured). The cost of solar technology has dropped dramatically in recent years giving small scale solar producers a 10% average return on their investment. Photo-Josef Cihlar.

In 2009, Ontario established a MicroFIT program to increase renewable energy production in the province. To encourage private investment in this area, Ontario offers to pay the producers as part of a 20- year contract. For rooftop solar, the 2017 prices range between $0.28 and $0.31/kWh, depending on the size on the installation. Since its establishment, the prices have decreased as more home owners have taken advantage of this investment opportunity. However, since the costs of solar technology has been decreasing dramatically, the return on investment has remained about the same (8.5 years based on a recent quote). This translates to a compound interest rate of about 10%, substantially higher than other investment options. The payment compensates for the initial investment, and allows a home owner to earn additional income over time. Through roof shading, solar panels also reduce the need for summer cooling.

The current solar panels (typical size 39 in x 65 in) produce close to 300W, so for a 10kW system 30+ panels are needed. Roof size—and structural integrity—are therefore important considerations. Roof slope is not critical: in eastern Ontario, 34 degrees is an optimal slope, but the panel efficiency is not dependent on the slope. Southern roof orientation and absence of shading are essential. No maintenance is required for the panels once installed. Snow clearing is not recommended because of potential damage, and because the power gain in winter is relatively small. The panels are guaranteed for 25 years but they continue to perform well beyond that.

Installation of a rooftop solar system entails placing of supporting racks (anchored to roof trusses), a cable connecting

the panels to a power inverter (DC to AC) box, and another box connecting all to the grid. All the power generated by the panels flows into the grid, and the home owner pays the usual rate for the energy used. However, s/he receives a monthly cheque for the energy produced. Based on the experience from existing installations, the actual annual production in this area by a 10kW system is around 12,000 KW hrs, or income of $3,500/year.

First, you have to determine if your local hydro station has a capacity to accept the energy you produce. If a capacity is available, the next important step is to find a reputable contractor. Besides providing a quote for the project, such a company can guide a home owner through the (quite bureaucratic) process of applying for the necessary approvals. Two approvals are required: one to accept the installation as part of the production system (by the Independent Electricity System Operator, IESO), and one to physically connect the setup to the grid (by Ontario Hydro). An engineering inspection of the roof is also mandatory. Once the approvals are obtained, the installation is fairly rapid. The whole process (application to completion) can be done in 2.5 months.

The MicroFIT program ends on December 28, 2017 so there is still time to join. In the future, a 'net metering' concept will be used. Under net metering, homeowners will only pay for the amount of electricity they were not able to produce themselves but they will not earn income.

The Government of Ontario has been (often unfairly) criticized for bad decisions on electricity supply. Unfortunately, climate change now underway is forcing countries and economies to shift to energy sources that do not produce greenhouse gases. Ontario has been the arguably the most successful North American jurisdiction in this transition process, and has also established a growing new industry. Through MicroFIT, home owners can become part of this process and earn an income as well.

Interested in taking advantage of this investment opportunity, here are some suggestions:

The MicroFIT program:
http://www.ieso.ca/en/get-involved/microfit/news-overview.

Does your local hydro station accept energy you produce?
Find out at:
http://www.hydroone.com/Generators/Pages/StationCapacityCalculator.aspx.

Renewable energy is the future of the electrical power supply system:
https://thinkprogress.org/watch-almost-everything-you-know-about-clean-energy-is-outdated-594cd2bfccdd.