

## Small Solar Installations for Ontario Farmers

Ontario needs power and farmers need income. The Ontario Federation of Agriculture (OFA) favours solar power on buildings, in fencerows, in small plots yards or gardens, in otherwise vacant hydro corridors or roadsides. Yes, the power is expensive until the solar cells are paid for; but once a project is amortized, rates can become reasonable. And they are quiet and generally unobtrusive.

However, OFA is concerned that large scale solar development on good farm land is ill-suited to Ontario. In temperate farming areas OFA believes solar will cause erosion, bake the soil, disrupt carbon and nitrogen fixing, create habitat for noxious weeds, destroy habitat for many native creatures on farms including worms and frogs and needlessly remove good land from production. Ontario is blessed with great amounts of land, but less than 15% of the total is well suited for farming. If large land based solar installations are needed in Ontario, there are vast areas of land that are not particularly useful for farming or recreation, forestry or wildlife that could be used for solar farms. There is no need to sacrifice other potentials to have solar in Ontario. There are tens of thousands of kilometers of suitable power line, the sun shines for between 2,200 and 3,000 hours each year in all parts of Ontario varying with cloud cover and the price offered is more than sufficient to enable solar development on all but the most inhospitable sites. Accordingly, Ontario has opted to protect good farmland and not use it for solar power. This is a sound policy.

### Small Scale Solar

Micro solar projects are those under 10 kW in capacity. Ontario pays 80.2 cents per kWh for power from these projects. Typically they take about 200 sq. ft. on a roof top or in a garden. They cost approximately \$12,000 for the first kW of capacity and about \$9,000 for each subsequent kW. \$90,000 for a 10 kW system with quality components, a good

installer and a five year guarantee from a firm that will be there for the whole five years appears to be a reasonable price. In a good sunlight location, an installation will earn more than a 7% rate of return.

Buyers should deal with established firms and experienced installers. 10 kW in solar panels can vary in size, price and durability. Typically smaller, lighter panels with the same power output will cost less than large thicker panels. But larger, thicker panels may be more durable. Whether a site takes 180 sq. feet or 200, or 240 is not of much consequence on most farms, so durability is preferred to smaller size.

Three kind of offers for small scale solar are being made in Ontario in late 2009 and going forward.

- Buy a fully installed system, pay approx. \$90,000 cash
- Buy a fully installed system, borrow  $\frac{1}{4}$  to  $\frac{3}{4}$ 's from the vendor
- The vendor installs and owns the system and pays the customer a modest annual rent for the site

In either of the first two cases, the customer owns the system and collects the 80 cents per kWh. (Approximately \$15,000 per year depending on size and cloud cover.) The third case should have a somewhat higher rate of return if the interest rates are reasonable. In the third case the site owner would collect \$500 to \$1000 per year, but would not have the initial cost.

In general, the small rent is not worth the inconvenience. Contracts are for 20 years, so customers would have a tenant in their garden or on their roof for 20 years and would have limited ability to change the roof or garden or wiring that could disrupt the tenant even temporarily without compensating the tenant.

# Fact Sheet

Small scale solar can be excellent, but if you are interested it would be to your benefit to own it.

There are several precautions to keep in mind with solar installations under 10 kW.

## **Property tax**

There will be a very small increase to assessment because of the solar panels, but some land may be designated industrial and the assessment on that land will rise and not be eligible for farm tax benefits.

## **Insurance**

Learn what will happen to your insurance premiums and the risks the panels are covered for. If the panels are ground mounted vehicle accidents may be a risk. Lightning can hit the panels wherever they are, so full coverage is needed.

## **Appearance**

Whether roof or ground mounted, sloppy appearance or appearing to be out of place will affect the value of your property. If the panels make a poor impression because of poor layout, they will detract from your property value.

## **Security**

Apparently theft of solar panels occurs in Europe and the USA. It may start here. Roof mounted is likely more secure. Ground mounting may require secure fencing and/or screening by trees.

## **Durability**

Other things being equal, equipment that stands up to Canadian winters and which has a low cell failure rate over time will be a better purchase than equipment that produces more power per square meter. It is an easy thing to buy an extra sq. meter of panel, but costly to replace panels that wear out a few cells at a time.

## **Shop around**

A 10 kW system will vary in quality according to quality of the components, their durability, efficiency and skill of the installers. Prices at the low end will be \$75,000 and \$100,000 plus at the high end. The first kW will cost about \$12,000 or more. Subsequent kW's of capacity will cost in the range of \$7,000 to \$9,000.

## **Leases**

If you sign a lease be aware that the panels will take up their 200 square meters for 20 years either near your home or on your roof. If it's on the roof you will have to maintain the roof for those 20 years. If it's on the ground you will not be able to change your garden or field or yard configuration in a way that would change the panels or expose them to vehicle or other risks for the 20 years. Twenty years is a long time and the rents may not be enough to justify that commitment.

*If your payments are based on square feet, remember that although one acre is 43,265 sq. ft, a 10 kW installation (which is the maximum under the micro fit regulations) is typically 250 to 320 sq. ft. of panels plus walk around room. Your payment will depend on how much land is actually under panels.*

## **In summary**

Micro solar under 10 kW can provide a useful income supplement under the FIT program. Costs are in the same price range as other farm equipment so it is useful to compare how an investment in a solar system compares with a similar investment in alternatives.