You have permission to give this Ebook to your family, friends and colleagues. You can print it onto paper or send it by email or post it on your website. The only restrictions are that you do not alter it in anyway and that no money is charged for it and that you are not taking credit for creating this ebook.

1.Top 10 Benefits of Solar Energy in your company

The market for solar in the US grew at 76% in the year 2012, before 2012 it was not available at quantum in American households. There were indeed some advantages that the homeowners felt.

Listed below are those advantages:

Saves numerous dollars- According to One Block off the Grid, addition of solar panels to your home can indeed bring in numerous savings well above $100 in many states. **In Hawaii, residents save on average $64,000 the first couple of decades.**

Start saving from the first day- **Solar purchase power agreements (PPAs) and solar leasing, has made things possible that homeowners do not have to pay for anything more. Numerous homeowners choose to finance their solar panels with one of the pay as you go financing options.**

It means the third party company owns the solar system and takes care of installation along with maintenance and repairing work. As of June 2013, 75% of all American homes have access to pay-as-you-go solar

Low payback period- If you are choosing to pay in cash, the payback period in numerous cases is less than one decade. In Hawaii, it takes homeowners on average 5 years, before the monthly savings meets the entire cost of the solar system.

It increases the values of your home- Purchasing a home with a solar panel installed in it, would increase the value of your home while you resale it. **A study conducted by National Renewable Energy Laboratory (NREL) concluded that homes with solar panels sell 20% faster and for 17% more money.**

A study conducted by National Renewable Energy Laboratory (NREL) is of the opinion that homes with solar panels sell 20% faster and for 17% more money. U.S. Department of Energy's (DOE) Lawrence Berkeley National Laboratory is of the opinion that sales price of the average home increased $17,000 with solar panels.

Taking advantages of incentives- As of 2009, the $2,000 cap on the Federal Solar Tax Credit is lifted. As an individual you will be getting 30% of total system costs back. It means you should save $7,500 on a solar system worth $25,000. If you are adding this up with state and localized rebate and Solar Renewable Energy Credits (SRECs), what you will witness is that the prices have been cut to half.

Solar is indeed a secure investment- With solar panels one can calculate, how much electricity would be generated, and at what price. It can be estimated for the coming couple decades.

Creates energy independence- A day will come when we would run out of natural resource. In order to save the earth it is being advised to install solar panels. At the same time it helps towards saving money, as there will be less import on crude oil.

Solar is easy to get- In our research it has been estimated that the sun's energy will remain for ages and will not perish. Thereby it is easy to get. On the other hand renewable energy of nature can be saved. Our team of independent solar consultants will help you sort through your options.

2.What's Involved and What to Expect?

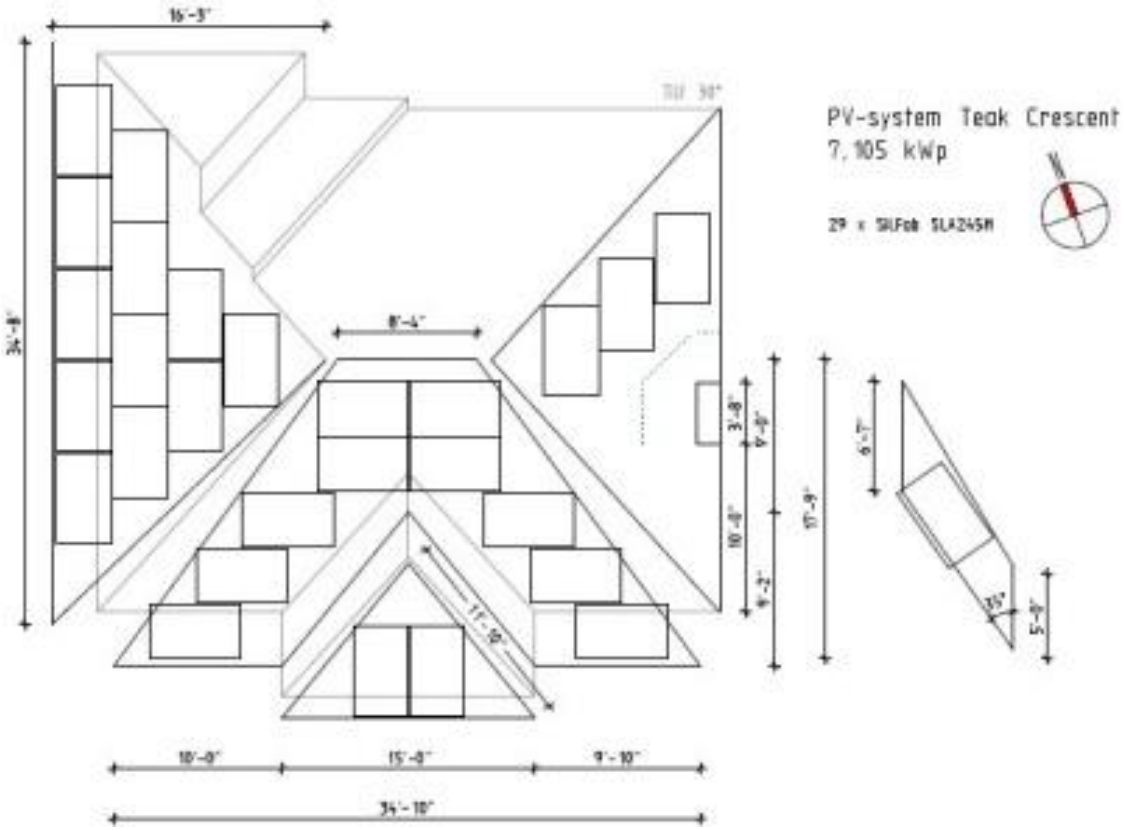
Get some solar quotes

Simply fill out a **request form**, provide details about your solar project, and request FREE solar quotes from professional solar installers in your area! Here's how it works:

Initial consultation and solar site assessment

Solar site assessment- During this particular stage, the solar panel installer would be visiting your property and identify the areas and roof segment which would be suitable for installation. They would be determining the exact azimuth and tilt angles of the proposed solar panels array. In the final steps he would be assessing the shading from tress or neighboring buildings and take some roof measurements.

Review System Design, Quote, Purchasing Agreement



Rooftop Solar Module Layout- Roof measurements are the basis for a solid engineered design and equipment specifications. Your solar panels installer should present a detailed module layout showing you exactly where solar panels are going to be installed. Before you sign on the dotted line, be sure to review details of the Solar Quotation, Financial Analysis, and Purchasing Agreement. Some of the solar contractors may present very attractive numbers to you.

Sign Agreement. Submit your microFIT/Net Metering application.

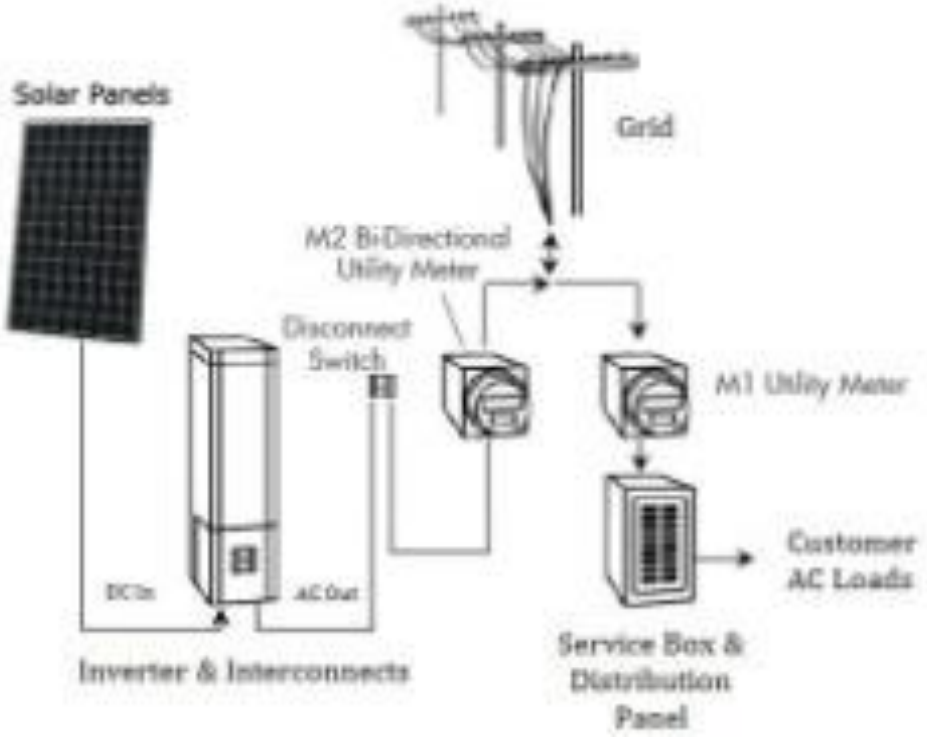
As you are comfortable with the respective price of the turn key system, quality of the components, and qualification of your solar installer, sign the Installation Agreement, and ask for their help in submitting your application for the Solar Energy Incentives program. Maximum of the solar organization in Ontario provide the services absolutely for free. You should obtain the concerned documents and then apply for solar panel incentive program in a quick manner.

All you need to do is, contact the local company and apply for building permit- At this particular stage; you will definitely need help from your solar panels installer. All you need to do is submit a form C to the local distribution organization. All you need to do is specify the type of equipment

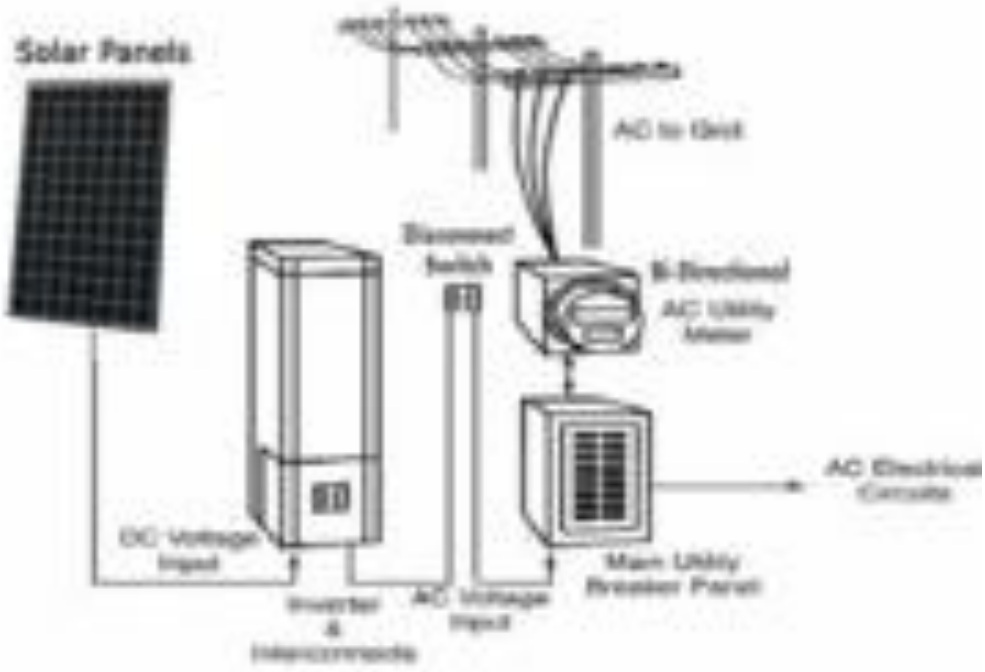
that you would be using and provide module layout and so on. Another pivotal step is applying for a building permit in order to install the solar panel system. This is while an inspection along with report from a licensed professional Engineer in Ontario is going to required helping you out.

Installation of your Solar Panels System

In case of the microFIT program, you will be having 180 days from the data LDC for approving your request in order to install and connect the solar panel system. It will be including Mechanical Integration and Electrical Connection. Make sure it that it is being done by professionals.



MicroFIT – Typical Connection Diagram



Net Metering – Typical Connection Diagram

Electrical Safety Authority

For inquiries:
TOLL FREE TEL: 1-877-372-7233 TOLL FREE FAX: 1-800-667-4278

www.esasafe.com

Connection Information:

Connection Type: STANDARD
Voltage Phase: 120/240 1PH 3 WIRE
Ampere Rating: 60
Metering Description: S-BASE
Service Details: < 10 KW SOLAR
40 PANELS,10 KW

Connection Authorization is only **Valid for 6 months** following the Notice Date.
After 6 months, **Re-inspection & NEW Connection Authorization are Required.**

ESA Inspection Certificate- The ESA inspectors, will be visiting, your property and they will be confirming the system is being installed as per local electrical code. It includes inspection of the equipments along with wiring, conduits, grounding, system disconnects, etc. As the ESA approval is received, the electric utility will install generation meter and connect your system to the grid. Notice for grid connection will be send by your utility the OPA (IESO).

Choosing the building permit and Accept your microFIT/Net Metering Contract- Depending on the municipality, the building inspector might not be visiting your property. It will be inspecting your solar inspection and review the roof connection details. It will be providing sign-off in closing your building permit. Once the OPA (IESO) receives a green signal from the LDC confirming your solar system is connected, they will be sending you contract to review and accept.

Start receiving payments or credits towards your energy bills- You will commence to receive maximum on your bills. In order to find out how much you can make by selling electricity back to the grid, check out our solar panels calculator for energy and income right from here.

3.Different types of solar panels:

Polycrystalline Silicon Solar Cells- The first solar panels based on polycrystalline silicon, which also is known as polysilicon (p-Si) and multi-crystalline silicon (mc-Si). These were introduced in the market in the year 1981. It is not like monocrystalline-based solar panels, it is something that is not in requirement of Czochralski process. Here raw silicon is being melted and poured into a square mold. This is cooled and cut perfectly in square wafers.

Advantages of this approach-

- The process of making is much easy. The amount of wasted silicon is quite less.
- They have slightly lower heat tolerance, in technical terms it performs slightly worse than that of monocrystalline solar panels in high temperatures. However this effect is not much.

Disadvantages of these approaches-

- The efficiency of polycrystalline-based solar panels is typically 13-16%. It is because it has lower silicon purity.
- The space efficiency is quite low. You generally need to cover larger surface

String Ribbon Solar Cells- These are also being made from polycrystalline silicon. String Ribbon is the name of a manufacturing technology that has the tenacity of producing some form of polycrystalline silicon. The temperature resistant wires are being pulled through molten silicon. This results in thin silicon ribbons. The solar panels made with this technology looks familiar to traditional polycrystalline solar panels.

Evergreen Solar was the main manufacturer of solar panels using the String Ribbon technology. The company is now defunct due to bankruptcy.

Advantages of this approach-

- They only use half the amount of silicon.

Disadvantages of this particular approach-

- They are more energy extensive and more costly.
- According to research the efficiency of these solar panels have frequently dropped down.
- Low space efficiency of the main type of crystalline-based solar panels.

Thin-Film Solar Cells (TFSC)- Deposition of one or several thin layers of photovoltaic material onto a substrate is the basic idea on how thin-film solar cells are being manufactured. They are also known as being defined as thin-film photovoltaic cells (TFPV). The different types of thin-film solar cells can be classified by which photovoltaic material is put down onto the substrate.

The photovoltaic material is deposited onto the substrate:

- *Amorphous silicon (a-Si)*
- *Cadmium telluride (CdTe)*
- *Copper indium gallium selenide (CIS/CIGS)*
- *Organic photovoltaic cells (OPC)*

As days went by these thin-films module prototypes have reached the level of efficiency between 7–13% and production modules operate at about 9%. Further the efficiency is about to climb up to 10–16%.

The market for thin-film PV rose at a 60% annual rate from 2002 to 2007. In 2011, it was about 5% of U.S. photovoltaic module shipments to the residential sector were based on the thin films.

Advantages of this particular approach-

- Mass production is quite simple. It makes them quite modest to manufacture than crystalline-based solar cells.
- It makes them look more attractive.
- It is quite flexible.
- High temperatures and shading does have less impact.
- If space is not really an issue it can work wonders.

Disadvantages of this particular approach-

- Not quite useful in residential purpose.
- Requires lot of space.
- Low space-efficiency also means that the costs of PV-equipment will rise up.
- It has the tendency to degrade.

Amorphous Silicon (a-Si) Solar Cells- As the output of electrical power is low, solar cells based on amorphous silicon have traditionally only been used for small -scale applications. As for instance, in case of pocket calculations it is being used in tandem. However current innovations have made them more appealing even for large scale applications. With a manufacturing technique called “stacking”, several layers of amorphous silicon solar cells can be conglomerated. This results in higher efficiency. Only 1% of the silicon used in crystalline silicon solar cells is required in amorphous silicon solar cells.

Cadmium Telluride (CdTe) Solar Cells- It is only thin film solar panels that have surpassed the

cost efficiency of crystalline silicon solar panels in a significant portion in the market. The efficiency is such that it can operate at a rate which ranges from 9-11%. First Solar has installed over 5 gig watts (GW) of cadmium telluride thin-film solar panels worldwide. The same company holds the world record for CdTe PV module efficiency of 14.4%.

Copper Indium Gallium Selenide (CIS/CIGS) Solar Cells- Compared to the other thin-film technologies above, CIGS solar cells have showed the most potential in terms of efficiency. These solar cells contain less amounts of the toxic material cadmium that is found in CdTe solar cells.

Commercial production of flexible CIGS solar panels was started in Germany in 2011.As compared to other thin-film technologies, CIGS solar cells have been one of the most potential in terms of energy. They contain less toxic materials. It is to be noted that CdTe solar cells. Commercial production of flexible CIGS solar panels was started in Germany in 2011. Many of the thin film solar cell types are still in the state of research. Some does have enormous potentials.

Building-Integrated Photovoltaic's (BIPV)- Building integrated photovoltaics have several subtypes, which can be based on both crystalline-based and thin-film solar cells. It is used in façade, roofs and windows, walls and so on. But it is quite expensive. If you are having extra money and is in want to integrate photovoltaics in the entire home, you should look for building integrated photovoltaics.

4.Net Metering Ontario Program

Net Metering is yet another type of renewable energy protocol in the location of Ontario that helps the customers in decreasing their hydro bills, through the export of generated electricity back to the utility grid. It is being done for the credit energy that is being consumed. Listed below are the approaches of how it works:

Solar Net Metering Program explained below

<h1 class="message">An error occurred.</h1> Try watching this video on www.youtube.com, or enable JavaScript if it is disabled in your browser.

It is to be noted that the commercial Net Metering carries out its approaches the very same way as a residential program operates. The approach allows the commercial entities towards installing solar panels on the rooftop of their production facilities. At the same time the panels are being installed right at the office, warehouse, and industrial shops. It helps in generating electricity through on site purpose for their house.

Commercial Solar Net Metering System

Any surplus electricity is being sent in a direct manner to the grid. Here the customers are only being charged for the difference between their total energy production and consumption that is being carried out over the course of the billing period. If in any given month the output of energy is greater than the consumption, a KWH credit is being created and is carried out over for up to 12 months until the process expires.

Who is eligible to participate in the Net Metering program?

Listed below are the criteria that are to be kept in mind for participating in Net Monitoring Program:

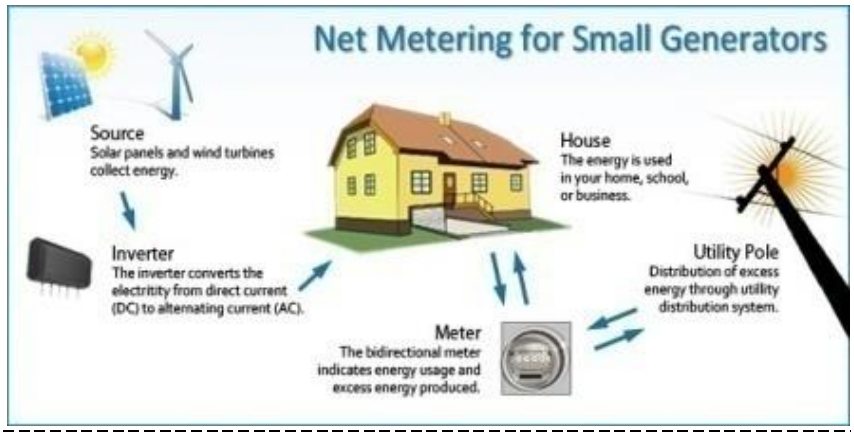
- If you are planning to generate electricity primarily for self use.
- If you are using renewable solar energy like that off solar wind and hydro.
- Maximum size of the system is less than 500 KW.
- The electricity that is being generated is being covered to the consumption point without any such hold hydro company's distribution category.

How will it be calculated on my hydro bill?

The total value of the amount of eligible electricity being generated and then returned into a local utility

company's grid will be deducted from the value of the amount of electricity that you consumed from the particular system.

If the desired result is positive, you would be receiving an alteration on result your monthly (or bi-monthly) hydro bill. But if the result is a negative you will be receiving a credit that will be carried over into your next billing period. The excess energy credit from previous billing cycle can be carried over up to a maximum of twelve months.



How to apply for the Net Metering program?

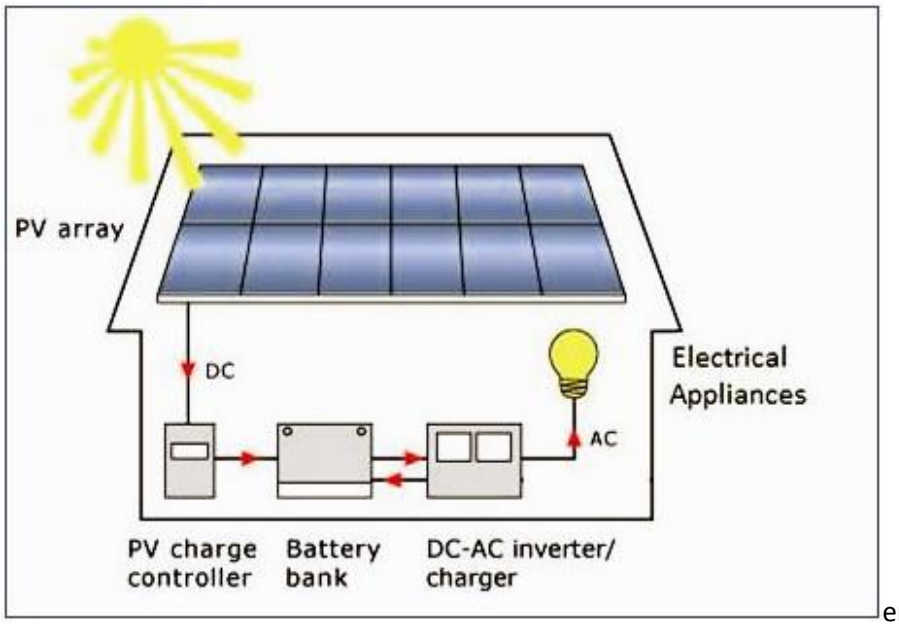
In order to find out what exactly is being required in order to participate in Net Metering program and then connect the system to the grid, as professionals we strongly recommend and encourage you towards contacting the local solar panel installer. The qualified electrical contractor would be able to consult you on the solar panels. The sizes along with the costs are to be taken into consideration. The required documentation and approvals are to be submitted to the authorities.

Click here to get you connected to your local solar panels installer, and get multiple quotes for FREE within 24 hours!

Solar Net Metering Calculator

You can easily calculate your Net-Metering benefits on your website.

Going off Grid: Off Grid Solar System- It is to be noted that an off grid solar system is nothing, but one of the pivotal approaches, which carries, out its mode of operation through solar photovoltaic system. At the same time it operates in an autonomous manner. If you own a cottage or if you are living in a remote area with no electric poles around it, then installing an off grid system is the only way out of bringing power.



er.

Typical Off Grid System Components:

A stand-alone solar panel system usually consists of the following:

- Solar panel arrays
- PV charge controller
- Charging Voltage
- Battery Bank
- Inverter
- Loads

Click here to get you connected to your local solar panels installer, and get multiple quotes for FREE within 24 hours!

5.Micro FIT Ontario program

The location of Ontario is a buzzing lucrative financial incentive for solar energy called Feed-In-Tariff program or FIT/micro FIT. If you have planned to install solar panels in your roof or piece of land, you can surely earn extra income and allow several individual to live in a sustainable ambience. Click on the link below and watch the video to find out how it works: *Source: Ontario*

Power authority- If you are a homeowner or a farmer or a small business owner, you will be having the opportunity towards development of small and micro renewable electricity generation project (10 kilowatts or less in size) on your property. The micro FIT Program will be including the following:

- You will be paid a fixed price for all the electricity your project produces for at least couple of decades.
- You will be helped towards replacement of coal fired generation across the entire province and decrease greenhouse gases and other such pollutants.
- You will be helping to create new local business and green jobs in the location of Ontario.

How much will the solar system costs? In order to find out how much solar panel generally costs what you need to do is submit an online application and then you can receive permits and approvals. Just simply fill out a Request Form in less than a minute. We would be more than happy to provide you a three minutes quote from professional solar panel installers.

***Updates of micro FIT*:**

January 10, 2017 New Year, new rates, new microFIT version 4.1

On January 4, 2017 the IESO started accepting new applications for microFIT program version 4.1. If you are planning to submit yours through the online portal, please make sure you are using the latest versions of the prescribed forms, otherwise it will be rejected. Once again, here's a look at the new 2017 microFIT rates:

On January the 4th, 2017 the IESO commenced to accept latest application from microFIT program version 4.1. If you are planning to submit your application through the online pedestal, all you need to make sure is use the latest version of the prescribed forms. If it is being not done so, it will be rejected. Once gain you can have a look at the latest 2017 microFIT rates.

FIT/microFIT PRICE SCHEDULE (January 1, 2017)

Renewable Fuel	Project Size Tranche*	Price (¢/kWh)	Percentage Escalated**
Solar (PV) (Rooftop)	≤ 6 kW	31.1	0%
	> 6 kW ≤ 10 kW	28.8	0%
	> 10 kW ≤ 100 kW	22.3	0%
	> 100 kW ≤ 500 kW	20.7	0%
Solar (PV) (Non-Rooftop)	≤ 10 kW	21.0	0%
	> 10 kW ≤ 500 kW	19.2	0%

The microFIT procurement target for the year 2017 stays at 50 MW. Keep it in mind 2018 will be the last year of the government solar incentives under 50 MW. After this the solar Net Monitoring will become the primary source of installing that is being distributed for solar generation in Ontario.

December 12, 2016 microFIT solar version 4.1

On January 1st, 2017 new prices for residential microFIT solar panels projects will kick in. No other changes have been implemented at this time.

If you still have not received your microFIT Application Approval Notice from your local utility company, it is time that you speed up. All you need to do is call and ask them to report your offer in connecting to the solar panels to IESO no later than 12:00 PM on December 23rd. If it is not being done so the application will stand pending. It will be subjected to microFIT version 4.1 and 2017 FIT/microFIT pricing schedule.

November 11, 2016 Applications for FIT projects are now being accepted:

The procurement target for the commercial solar FIT 5 program is only 150MW. So if you are looking ahead towards installing a miniature FIT project, now is really a good time towards submitting your application to the IESO. The window closes on November 25, 2016 at 12PM. If you miss it, the one and only other available option would be commercial solar Net Metering.

Please read carefully and review the updated version of the program and documents and rules. You would also be required towards delivering a hard copy of application materials along with payments to the IESO's office within five business days after the submission of the electronic Application Form. It is to be noted that the applications cannot be revised after they have been submitted. Please make sure your request is complete and accurate before you submit it.

Contact us for further details!

November 9, 2016 Updates on microFIT application process

The current application procedure time is approximately couple of months. This is due to the current back-log. It is bit more complicated and time consuming. It is aimed at protecting the consumers. So you need to be ware. There were few organizations that were filling up the application on your behalf. They would receive an application from the government and show that you are completely approved.

This is the reason why IESO and your local utility are always after in making sure that you completely understand the entire approach. You also need to get the contact details and login id and password information to your microFIT home page to yourself

Even if it takes a little bit longer than anticipated, please do not give up. You are carrying out something, that is not only good for you but for your house and the entire environment. Indeed thanks for going solar.

September 1, 2016 New microFIT/FIT 5 rates

On August 31st 2016, the IESO (former OPA) posted the new microFIT and FIT rates effective January 1, 2017. This time, they have consulted with the public interest groups and received project cost and pricing data from external consultants. They have also gathered information from basic international reports and research materials. It was brought to the understanding that cot deductions for microFIT projects have not been as fast as for larger system sizes. The prices for microFIT projects remained almost and roughly the same

The comparison table is cited below:

2016 vs 2017 Price Comparison

Feed-in-Tariff Program Pricing (¢/kWh)			
	Project size	**June 21, 2016 Current price**	**Jan. 1, 2017 Pricing**
Solar PV Rooftop	**≤ 6 kW**	**31.3**	**31.1**
	> 6 kW ≤ 10 kW	**29.4**	**28.8**
	> 10 kW ≤ 100 kW	**24.2**	**22.3**
	> 100 kW ≤ 500 kW	**22.5**	**20.7**
Solar PV Non-Rooftop	**≤ 10 kW**	**21.4**	**21**
	> 10 kW ≤ 500 kW	**20.9**	**19.2**

If you really want to qualify for micro fit 5 rates, than your solar panel system would have to be completely installed no later than Mid-2018 or nearly in an about 2019.

July 8, 2016 New applications are now being accepted under the new micro FIT 4.0- The IESO (former OPA) is readily planning to commence a process of review process of current micro Fit and FIT programs. This ensures that both the rate payers are valued and a reasonable return on investment is specified. If you are interested towards providing some valued feedback to the IESO relating to the current solar panels, you are welcomed to carry it out. You can drop mail at microfit@ieso.ca.

June 21, 2016 New applications are now being accepted under the new micro FIT 4.0- To be honest the micro FIT program is up and running again. The IESO has commenced to accept the latest application for solar panel installation under the latest micro FIT 4.0 rules. One of the massive changes for the solar panel installation under latest micro FIT 4.0 rules is the introduction of the latest tranche, for solar panel project size.

It is to be noted that if you are planning to install 6.0 kW (or less) of solar panels on your roof, you would be getting highest price that is being available currently. It is time to call your solar panels installer and submit your application before 50 MW procurement target for 2016 runs out.

April 25, 2016 micro FIT program is suspended until July 2016.

Well, it took less than a few weeks to hear back from the IESO. Today they announced a temporary suspension of the micro FIT program. As stated "it has been initiated due to irregularities within the application process that suggest Applicants and third-party representatives are not following proper procedure when making legal declarations.".

In order to address this IESO, will be making changes to the stipulated rules in order to include the requirements. This is being done towards having Applicant Declaration Prescribed Form be notarized before it is being submitted. This and some other changes are going to be discussed in details during Solar Ontario 2016 on May 16&17, 2016 in Niagara Falls.

The IESO is all ready to implement the revised micro FIT in July 2016. This is being done at which point the micro FIT program will again re-open in order to accept the latest applications. If you are planning to participate, we are here to encourage you towards choosing your solar panel installer and finalize your system design. After all the necessary work you need to begin working on the necessary submission package.

April 10, 2016 New micro FIT program rules, version 4.0 -

The IESO (former OPA) is currently working on the new micro FIT 4.0 rules, which are set to boot in mid-2016. Some of the major changes would include:

Introduction of the latest size tier for micro Fit projects that are 6W or smaller, if you want quality for the latest rate, you would have to wait and apply under micro Fit 4.0 rules. If you are still planning towards

installing between 6kW and 10kW, you would be getting the same rate that is currently set up for 2016.

It will allow you to connect your micro FIT project in series with the meter. If your local distribution company generally approves your request for connect (from C)

In order to know more you need to understand micro FIT rules, and have Internet access to log-in into your micro FIT account

6. Five easy steps to get Solar Panels for your business

10kW micro FIT system, Parry Sound In operation since October 2010. - "The solar production continues to amaze me. I chose to sell the generated hydro back to the grid at .80 cents per kilowatt. The first three months have generated between $750 – $850 per month.

Expected pay back on the loan is around 6 1/2 to 7 years with the remaining income from the 20 year contract going to me. The layout covers my entire garage roof and has generated many second looks and inquiries. The sun is shining today and the panels are making money. To not make use of free clean energy seems like such a waste and I would encourage anyone interested to simply contact www.ontario-solar-installers.ca and ask about going solar. THAT'S HOW IT ALL STARTED FOR ME"- Lewis M., Parry Sound, ON.

10.78 kW microFIT system, Oakville, ON. In operation since Dec. 2011.- I am very glad I used www.ontario-solar-installers.ca to find my installer. Solar contractor performed an absolutely amazing install last Saturday. The workmanship is of the highest caliber, the panels are as straight as can be and the attachment method used to secure the rails to the roof is of the highest quality. The arrays are very neat and evenly spaced. It was quite an achievement when you consider that they all worked a 13-14 hour day with temperatures hitting 35 degrees and the humid exceeding hitting 45 degrees.

David N., Oakville, ON

6.86 kW microFIT system, Baden, ON. In operation since July 2012. - We have found our solar panel installer through www.ontario-solar-installers.ca website. Contractor did a great job with our solar panel sales and installation. Our many project questions were answered promptly and thoroughly. The installation was completed quickly and professionally. We have been earning the predicted amount so far with our 6.86kWh roof top mounted system. We highly recommend visiting www.ontario-solar-installers.ca website and obtaining several quotes before you install your solar project.

Sherilyn and Michael, Baden, ON

10.00 kW microFIT system, Oakville, ON. In operation since Sept. 2012. Now in the 4th year, solar income is in line to what was sold, so I am very satisfied. It feels good to know that I am doing my bit to green world, and at the same time, I will make investment return. Thank you, OSI team (ontario-solar-installers.ca) for recommending a reputable installer!

Antonio S, Oakville, ON.

5.4 kW microFIT system, Mississauga In operation since May 2013. "We were very interested in solar technology when we learned about Ontario's micro FIT Program. Installing solar panels was a high priority for us in order to contribute to the "Green" cause and helping the environment, while at the same time securing a stable return on investment. It has been one of the best investments for our house. We received a few quotes through www.ontario-solar-installers.ca website, and found a reputable solar contractor who provided exceptional knowledge and service from start to finish. Throughout the installation, we were pleased with their professionalism, experience and dedication to their work. Thank you for the excellent Solar PV System design, installation and service."

Arshad I., Mississauga, ON

10.0 kW micro FIT system, Mississauga In operation since April 2013-

Here are the pictures of the 10 kW system installed and also a snap shot of the energy production in the last 3 years. In terms of presentation my house is not situated ideally towards South. When the solar array was commissioned in May 15, 2013, the original calculations for energy generation were at 70% of the ideal forecasted values (when it's facing true south at a 33 deg. roof angle). Now take a look at the numbers from Tigo and the PDF file generated from the application PVWatts and do the comparison.

You will see that in 2014 it was 82.4% and in 2015 was 86.7% and finally this year I'm expecting 11 MWh production and that gives us 90.4%. These numbers are amazing! Thanks, guys, for beating my expectations!

Ahmed M., Mississauga, ON

10.0 kW microFIT system, Whitby In operation since April 2013. "It will be this biggest generating year so far – we have already surpassed last year – which was biggest. People ask me all the time: "Does it makes sense?" Well, my quick response is: "I would do it again – without any hesitation". In fact – I wish I would have done it earlier. It is extra income for those rainy days – It basically pays my taxes for me." ***Ron P., Whitby, ON***

9.8 kW microFIT system, Kitchener. In operation since July 2014.- Thanks to the efforts of OSI, I am now entering my fourth month of solar production. Solar panel installer I found was extremely helpful in completing the required paperwork, contracts and arranging the financing.

The engineer attended my site and evaluated the location and a proposed layout was provided and agreed upon. Installers showed up to mount the panels as scheduled and followed through on the project until the system was fully operational, A very professional and organized process that works extremely well.

Contact has continued to ensure the system is functioning as planned. Thank you www.ontario-solar-installers.ca team for helping me find a professional solar installation company. I would definitely recommend this web source for all your solar needs.

Nicoleta H., Kitchener, ON

10 kW microFIT system, Hamilton, ON. In operation since Jun. 2015 The best investment I've ever made! This will pay the tuition fees for my children once they start going off to university. I filled out a request form on www.ontario-solar-installers.ca website, and got estimates from 3 different companies. Went with the one that had more experience, i.e. more than 350 solar installations. They took care of everything from start to finish, and so far our system is running better than calculated. Below are our production numbers for 2015:

- June: 1,682.63kWh
- July: 1,767.27 kWh
- August: 1'463.22 kWh
- September: 1'238.26 kWh
- October: 795.83 kWh
- November: 798.13 kWh
- December: 512.68 kWh
- January 2016: 607.01 kWh

Andrew Z., Hamilton, ON

10.29 kW microFIT system, Woodbridge, ON. In operation since Dec. 2015.- Purchasing and installing solar panels can seem intimidating, but with the right guidance and help it was simple and quick. I would recommend visiting www.ontario-solar-installers.ca website to anyone looking to install a solar power generating system.- *Steve V., Woodbridge, ON* -

7.What you need to ask the concerned installer?

Though we are pre-qualified solar panel organization, it is quiet important for you to get accustomed with each of the installer all by yourself. A particular organization will be carrying out a valued research on the particular site assessment and shading analysis. It would be providing you with a particular solar modules layout and quote and financial analysis of the solar investment.

Listed below are few questions that you need to be asking:

- Do you have professional and experienced installing solar panel system in Ontario? What is the number of system you have installed in Ontario?
- Can you provide a list of past customers who would be willing to provide reference?
- Are the particular installers qualified to install the project? Are they potent enough in meeting all the safety standards? Do they meet the licensing and certification parameters?
- Is the business being registered with Better Business Bureau?
- Do you have any such warranties on the particular product?
- Do you have any such general liabilities towards covering the property

damage or injury?

- Do you have any pending or active legal judgment against the company
- Will you be assessing my property in order to ensure that the particular system is being installed at any given location? As for instances, will you ensure that the particular solar panel system is not a shaded location.
- Will you be ordering all the required equipments for this project? What is the entire cost of the total installation?
- Are there any such fees that are not being included on the quote?
- What are the ongoing operations and maintenance cost that I can expect and who are the persons who will be responsible for them?
- Are there any such free quotes included?
- Will be arranging all the necessary approvals and permits? This usually includes
-

  (a) Building Permit(s)
  (b) Offer to Connect from the Local Distribution Company (LDC)
  (c) Authorization to Connect from the Electrical Safety Authority (ESA)
  (d) Renewable Energy Approval, if required

- Will you be working with the local Distribution Company to arrange for connection to the grid? This includes the following:
  - preparing the connection configuration diagrams
  - arranging for payment of the connection costs
  - helping prepare the connection agreement with the local distribution company
  - Arranging for installation and testing of the meter.
- Will you be helping me towards preparation of my microFIT Program application

Next steps

Now you know what to inquire from a solar panel company. To get in touch with leading solar panel installers in Ontario, fill out the request for quotes and proposals.

8.Frequently Asked Questions

Will my property go up in value if I install rooftop solar panels?

Though no such data is being available from the Canadian Real Estate Association, One of the most recent researches on into homes sale prices in 6 US States (California, Florida, Maryland, Oregon, North Carolina, and Pennsylvania) have brought out that the solar panel system might be very significant for residential properties. It was found out those 4'000 recent real estate transactions from May 2010 till October 2014, have used solar panels and solar panels were sold at almost 4% premium compared to the average selling price on the market.

For example, if a typical house next door is being sold for $500,000 your own property with solar panel system should be appraised higher by min $20,000. This is off course would also be appraised higher by a minimum of $20,000. This also depends on the age of the solar panel.

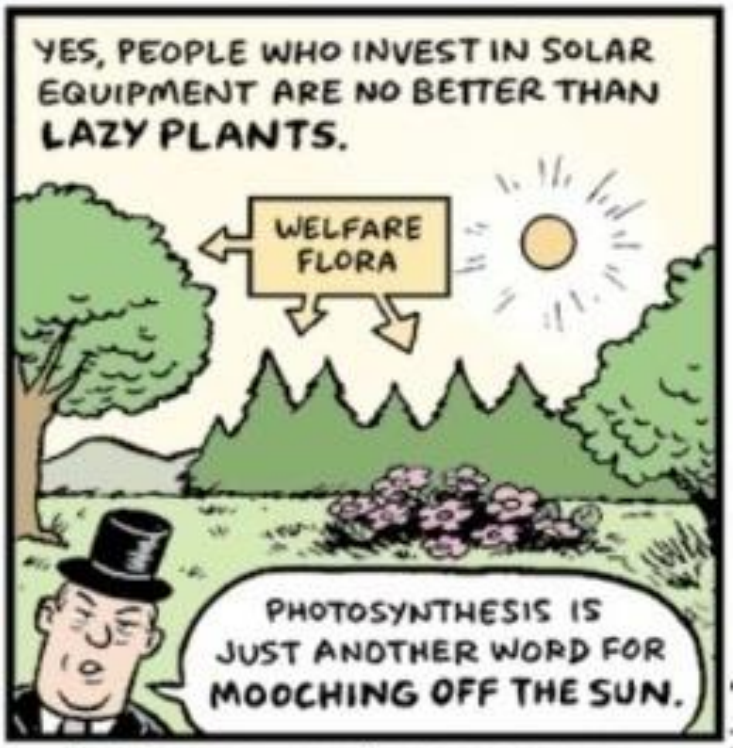
Can I recover HST paid on the purchase of solar panel system?

Yes, if the solar panel system is being connected to the grid and is being used exclusively to sell of electricity to the IESO (former OPA. Maximum participants in the microFIT program are considered as miniature suppliers for the HST purposes.

If you are voluntarily registering for the HST number, you are then required towards collecting the remit HST on your taxable sales of electricity to your local hydro company.

As per as the laws Canada Revenue Agency GST/HST info sheet GI-122 dated September 2011, if a person is a GST/HST registrant, you are completely eligible towards full claim and full input tax credits for the total costs being associated with the individuals purchasing and installing your solar panel system. All you need to do is make sure that you provide proper and authentic documentations.

Will my property taxes increase if I install solar panels?



If you are installing your solar panel system concerning any such size on the rooftops on your property, the particular assessment and tax classification will not be changing as per Ontario Regulation 282/98 under the Assessment Act dated January 4, 2012. The very same rule applies towards the ground mount solar panel installation. But as the size is being limited towards 10kW, if you go with a medium sized system, your solar panel system generation facility will be absolutely tax based on the adjacent land used rate. As for example residential, commercial, farm, etc.

How much solar does Ontario actually get?

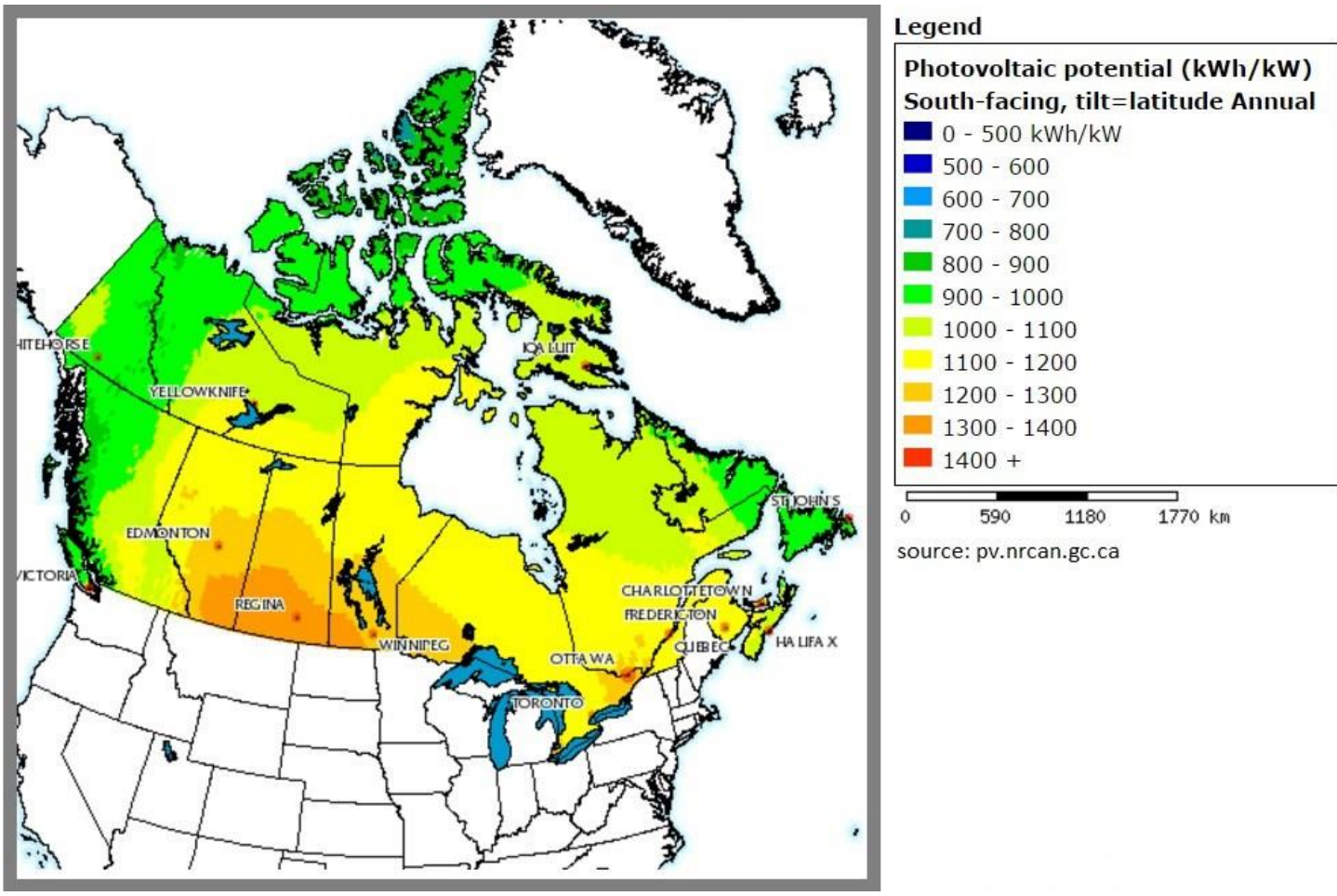
As it is known to all that the winters can really be harsh at times, but we are fortunate enough for the amount of energy we derive from the sun. The amount of solar energy that is being received on a flat

surface each and every year is the pivotal piece of information. It is being needed as according to size and estimate performance of the solar panel system. This is the base for all the your future Solar Energy Generation and Income calculations

The natural resource Canada has been counting the records Solar Energy/Isolation and other parameters from 144 meteorological stations in and around the states of Canada for more than four decade. This would result towards accurate and informative tables and maps are available for you to use here: www.pv.nrcan.gc.ca

As for example Solar Photovoltaic potential for the City of Toronto is 1163 kWh/kW, This estimates that every 1000W (1kW) of DC power (for example, 4 solar panels of 250W each) can generate 1163 kWh of AC electricity every year. If you are installing a 10kW solar panel system, it will be producing 1163kWh/kW x 10kW=11'630 kWh per year on average.

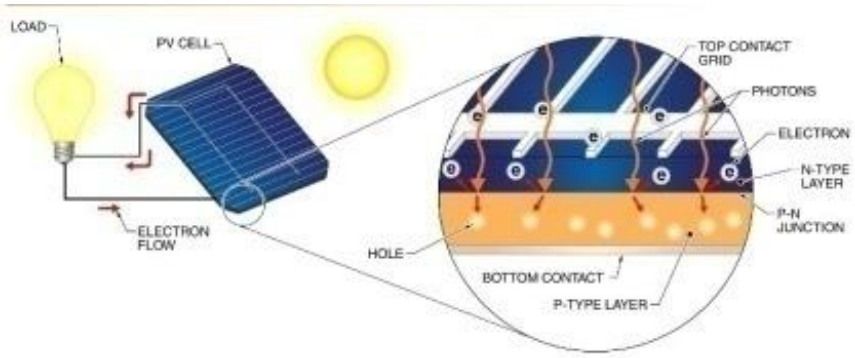
The City of Vancouver gets 1007 kWh/kW, Calgary – 1291 kWh/kW, Halifax – 1073 kWh/kW. If you compare these numbers with the rest of the world like London, England (728 kWh/kW), Berlin, Germany (848 kWh/kW), Beijing, China (1148 kWh/kW), you can see that Canada has an amazing solar photovoltaic potential.



Photovoltaic Map of Canada

How do solar panels work?

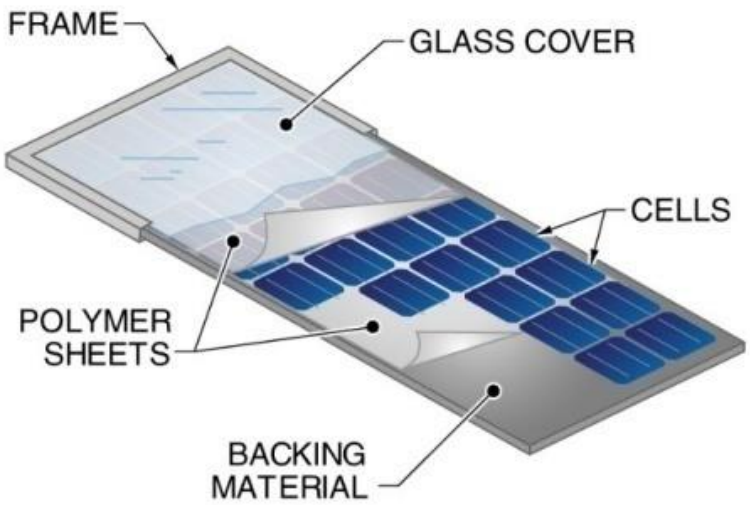
The solar panel generally consists of numerous cells that generally captures the sunlight and then convert it into electrical energy. It is to be noted once a solar cell is being exposed to sunlight; the energy of the suns is gradually transformed to electrons towards the material surface. The added energy allows electrons towards escaping from the atoms and commence to move, thus it produces electric current. The movement of electrons is also called a photovoltaic effect (PV).



What materials are used to make a solar panel?

The solar cells are usually being made of polysilicone, this a product refined from quartz and silica sands. The various grades are being used to fabricate solar cells of varied qualities and crystalline silicone is currently the superlative in terms of efficiency and costs.

The numerous solar cells are then being laminated within a plastic substrate in order to hold forth them in place and protect the electrical connection. In the final stages the solar panels are being sealed in between a sheet of tempered glass on the top along with the backing material. It is being framed with aluminium channels in and around. A junction box with all the electrical connections is mounted on the back of a solar panel.



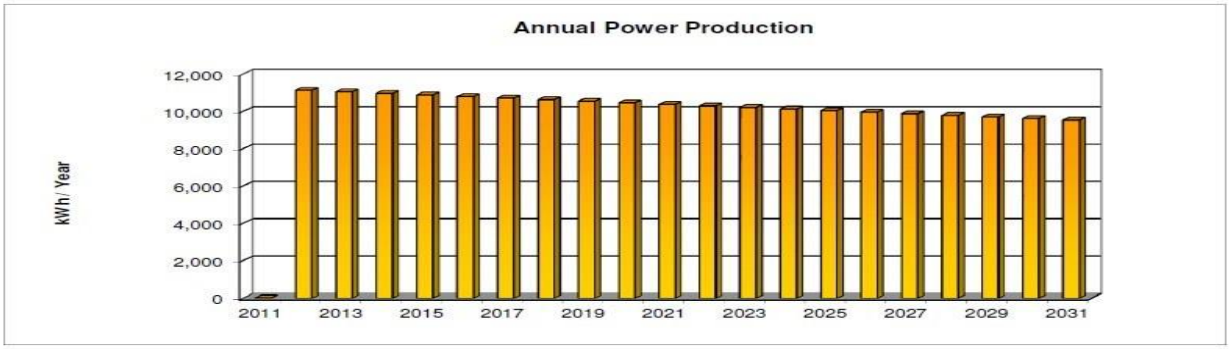
JUNCTION BOX

What long do solar panels last?

The solar panels lose in and around 0.5% to 0.75% in power output every year due to solar cells degradation and other factors. So if you were to install solar panel today, couple of decades down the line they would still be producing around 85% nominal power. This particular decrease in output must always be factored in while calculating annual power production and micro FIT Income. All you need to do is make

sure quotes and financial analysis you are getting from solar panels installers do reflect that.

The chart given below shows reduction of annual power output (in kWh) of a typical 10kWp micro FIT system over the course of 20 years.



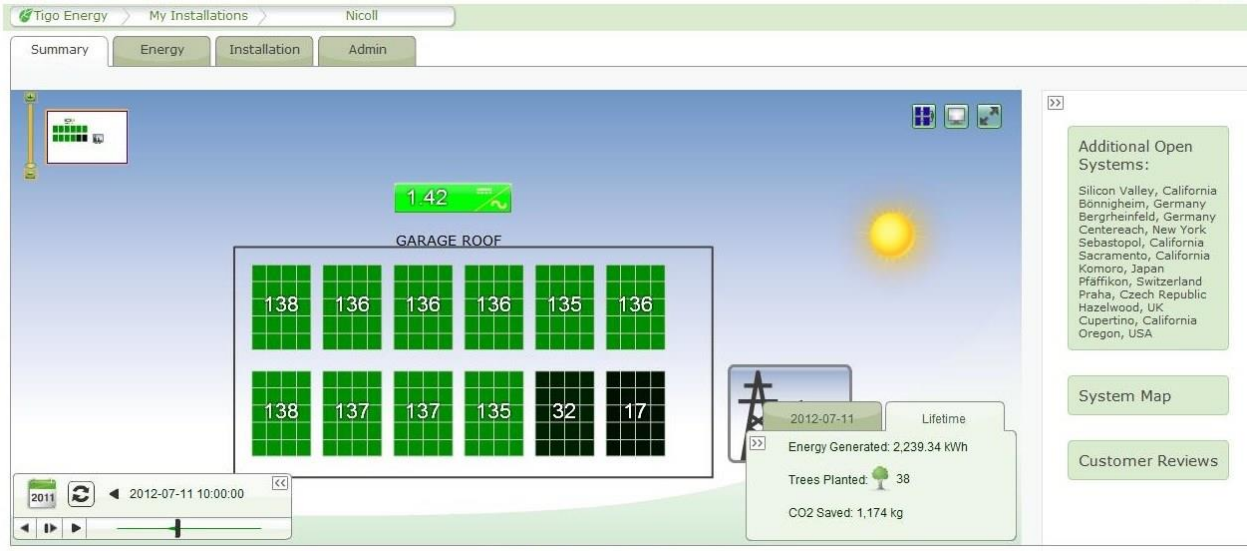
How do micro-inverters work?

Demonstrates in detail how micro-inverters work. This video provided by Enecsys, one of the leading micro-inverter manufacturers.

https://www.youtube.com/watch?v=lXlWdjFXcp0

Why do I need Solar Monitoring?

Once the solar panel is being installed, it is not enough to flip the switch. Commence to make power and just walk away. You would probably want to be able to monitor your system and make sure that everything is running in tandem. At the same time check the energy production and income numbers at an occasional basis. Having a reliable monitoring approach with a chromatic graphical interface would make all and sundry to easily understand.



Tigo monitoring system showing issues with 2 solar panels at the bottom right corner

Till a year ago, most inverters had an LCD display right on the unit that was used to initialize the system, monitor production and do troubleshooting. They did a good job they were not good to look at. It did not have any such aesthetic appeal.

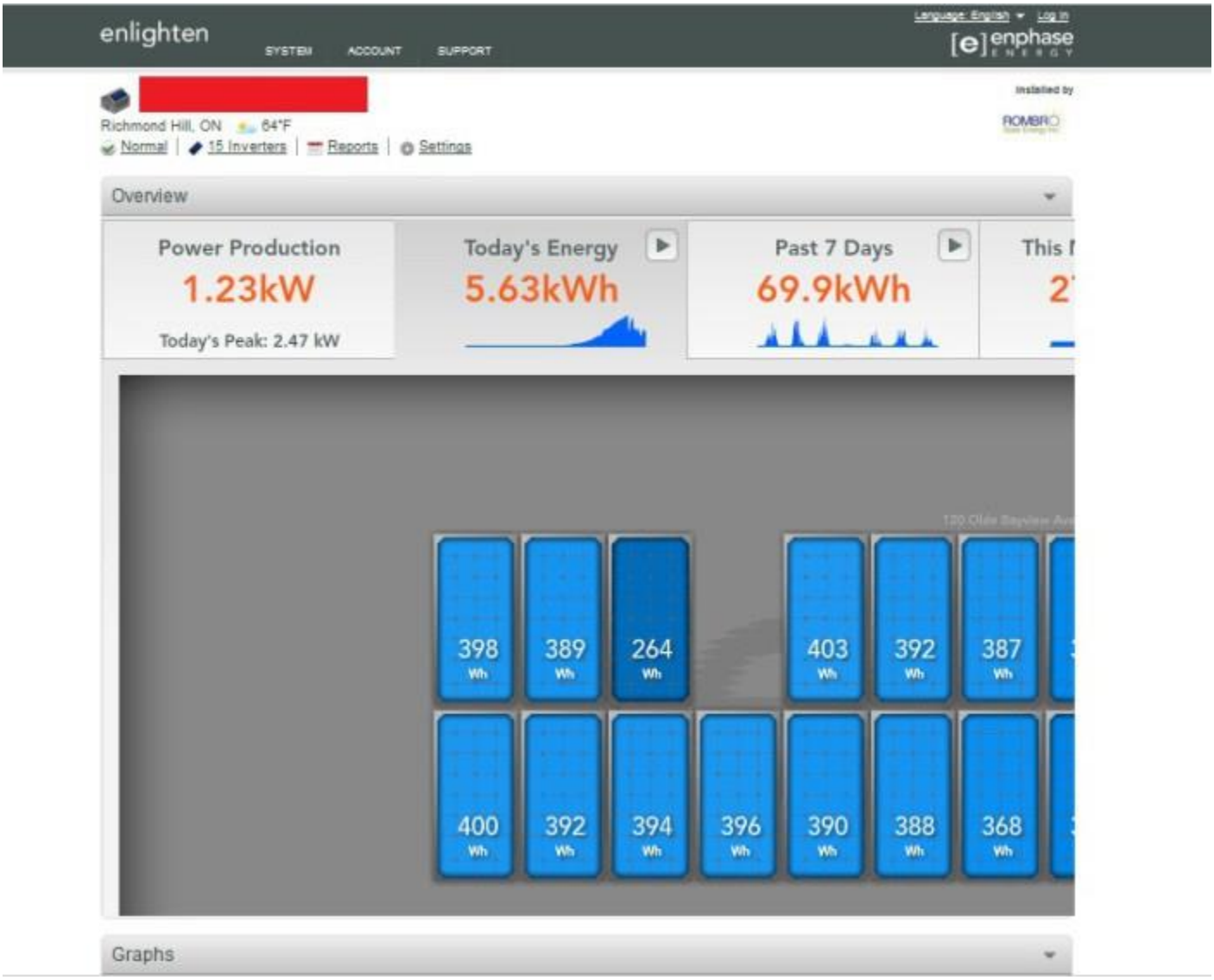
After this approach numerous third party, monitoring system cropped up. These third parties provided Ethernet connections to a PC and output data as a spreadsheet. Times have flown by and monitoring systems have leaded the way in the era of the “internet of things”. Now all individuals can get real-time information from your PV system whenever you want. Listed below are few characteristics to look out for while considering on how you want to interact with the PV system.

There are basically three parts to a monitoring system:

- Data Logger, which gathers the data
- Communications Gateway- It delivers the information via Ethernet or radio
- Web Portal- It gathers graphical interface for you and look at the data.

The varied levels of details are being available that generally depends on if you are using string inverters that manages a group of solar panels. For the string inverter system, through which you can get basic production numbers for the numerous daily and weekly, monthly, yearly DC and AC voltage.

For and hat is power optimizer systems, the data is more in-debt. It is because you can witness what is going on and what not. This is quite helpful while trouble shooting a problem. The web portal will show you a “map” of the panels in the system, and you can see exactly where a broken panel or micro inverter is.



Enphase monitors energy production at each individual solar panel

Maximum inverter manufactures off late now include some sort of data collection either as part of the package or as an extra add-on. Fronius, Power-One, SMA, Enphase and others have a good looking and easy to use web based monitoring system. There are also third party monitoring systems for all sorts of special applications if you are not a follower of what the specified manufacture has to offer.

Some are being designed only for simplicity and for non technical residential usage. At the same time some are being designed for commercial usage. Some are quite sophisticated products like OWL Intuition-PV. They not only monitor your solar but the entire usage of production profile. This can surely be a great benefit that you are pining for. It maximises energy efficiency and charging capacity.

Why do I need Solar Monitoring?

Drones & Solar: High Tech Cross-Over →

Can you install solar panels yourself?

Solar equipment has got more and more standard it is more like "plug and play" equipment. You should be able to save a lots and lot of money by installation of a solar project all by yourself. But this is not really a smart move. Listed below are few reasons why you need to hire a professional solar installer in the location of Ontario.

- You would be getting warranty- Any of the reputable solar installer will be offering an warranty on workmanship. If anything goes wrong due to improper installation, the installer is on the hook to fix it up. If you are carrying it all by yourself, you only have to blame yourself and none else. If an expensive piece of equipment is damaged then it is only because it was not at all installed in a proper manner.

- Furthermore maximum of the solar equipment manufacturers will not be honoring their warranty in this particular case.
- The paper works are to be done with tandem. There are lots of paper works that needs to be carried out for installation of micro FIT or Net Metering solar project in Ontario. Applications, Request for Connection forms, ESA approvals, specs submittals, codes, permitting, connection agreements, wiring diagrams, solar rebate application forms, etc, are something that some of the experienced installation company will make you aware off.
- In order to qualify for interconnection or rebate a professional installer would help you out.
- At times it is understood that you can carry out the task all by yourself, but you do not really have the time, so thereby you need to get in touch with a professional.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