

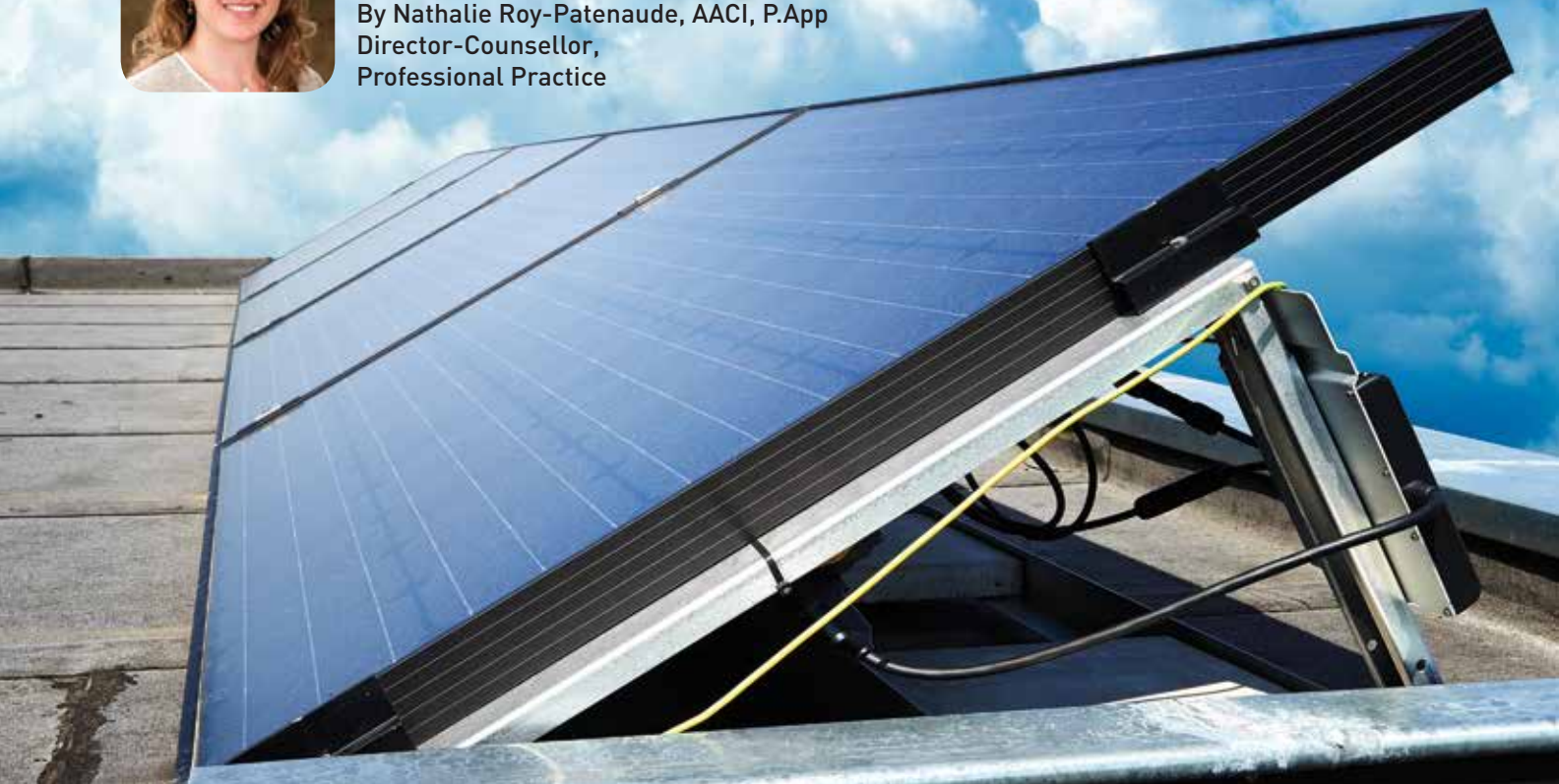
# Valuing

# SOLAR ENERGY

PART 1



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**E**ngaging individuals, property owners and communities in generating clean energy to sell to the grid is a win-win for everyone. Cleaner energy, contributing to the greenness of the planet and getting paid to do it – it does not get much better than this. Drawing from the microFIT and FIT programs in Ontario, this article discusses the program participants' obligations, how solar panel improvements under the program are financed and assessed, and the challenges in valuing long-term photovoltaic

(PV)/solar contracts on residential and non-residential properties.

In Canada, the solar electricity sector is growing rapidly and Ontario is one of the top 20 solar electricity markets in the world, according to the Canadian Solar Industries Association. In 2009, Ontario launched the microFIT and FIT (Feed-in Tariff) programs, with the objective of providing participants with the opportunity to install renewable electricity generation projects on their properties. The microFIT program allows for small or 'micro' projects producing 10 kilowatts (kW) or less; the FIT program

allows for medium projects producing from 10 kW to 500 kW, and larger projects producing more than 500kW. MicroFIT programs are typically geared to residential use properties; FIT programs apply to any non-residential property (e.g., industrial, commercial, industrial, institutional – vacant land or improved).

Under the programs, participants are paid a guaranteed contract rate over a 20-year term for all the electricity produced and delivered to the province's electricity grid.

Eligible program applicants include, but are not limited to, individual

property owners; farmers and farm co-operatives; renewable energy co-operatives; aboriginal communities; universities, schools or colleges; hospitals and long-term care facilities; municipal and public sector entities; social and affordable housing; and faith-based organizations.

### Participant's obligations

The program contract is between the property owner or lessee and Independent Electricity System Operation (formerly known as Ontario Power Authority) and is tied to the participant, not the property. As with any improvement, the property owner must obtain all required permits, including municipal building permits and approvals, if required; Electrical Safety Authority approval; etc. Zoning and land use restrictions may impact or limit the installation of PV projects and, in some cases, zoning changes or amendments may be required (i.e., from agricultural to industrial).

The participant is responsible for:

- researching the solar installation that will produce the best renewable energy system for them, while ensuring that what is purchased meets the minimum Canadian (or domestic) product content (i.e., 79% of Ontario content for Ontario participants);
- purchasing and having the renewable energy system installed;
- ensuring that all applicable safety standards are met, including arranging and paying for the inspection of the project by the Electrical Safety Authority;
- working with the local electricity distribution company (LDC) to connect the project to the electricity grid and pay for all connection-related costs;
- having a separate meter from the property's main meter for separate data and payment calculation that is specific to the electricity generated under the terms of the contract (the electricity cannot be for personal use);
- paying the LDC for account charges and metering/generation fees; and
- paying any associated property insurance costs, as well as professional fees for legal and tax advice.

The programs have specific eligibility requirements such as, and not limited to, the following:

- for the microFIT program, the property must maintain its status as a principal residence;
- a ground-mounted solar system cannot be located on a property with residential use or abut another property with residential use; and
- a ground-mounted system on a property with commercial or industrial use cannot be the primary use of the property; ground mount pivots have tracker models that move with the sun for optimal production and have a tilt and inverters; ground mount fixed are in fixed position (with a southerly exposure) to save on cost and maintenance.

A participant can be a lessee leasing space (rooftop or ground-mounted) from a property owner to mount a PV system. As this is an income-producing improvement, there are tax implications for the participant and the Canada Revenue Agency's website has specific references on this topic.

While not limited to, the participant can also be:

- a purchaser of a new property installing a solar system;
- a purchaser of an existing property with an existing system or adding a new one;
- a lessee installing a ground or roof-mounted system; or
- an existing property owner installing a system.

According to the program participants that I interviewed, most chose to participate in this initiative because their longer term plan is to stay in their home, they are not looking to sell, they like the appeal of contributing to the greenness of the planet, and they are driven by the return on their equity. The initial up-front cost of an average-size microFIT system can range from \$35,000-\$50,000 (depending on size and quality of panels), but industry data shows that the cost can be recovered within 6-8 years, generating a net return of approximately \$45,000 over the 20-year period of the contract.

### About the panels

According to industry experts, the life expectancy of the panels is estimated to

be 20 years, which means that, over time, they depreciate and lose efficiency in their producing capacity. There is little to no maintenance required, although weather conditions may limit solar production. From an insurability perspective, many property insurance companies will insure them, subject to some conditions.

### The U.S. experience and research

In January 2015, the Lawrence Berkeley National Laboratory published the findings of a comprehensive study that spanned from 2002-2013. The study analyzed 22,822 homes, of which 3,951 had photovoltaic systems, and it examined the transactions in eight states. The study found that homebuyers across various states, housing and photovoltaic markets, and home types (new and existing) were consistently willing to pay a premium for residential properties with a contractual PV system, and that the premium varied by market. The average premium was reported to be approximately \$4/W, or \$15,000 for an average-sized 3.6-kW (residential) PV system. Interestingly, the study revealed that the market appeared to depreciate the value of the PV system in its first 10 years at a rate that exceeded the rate of the panels' efficiency loss and straight-line depreciation of their useful life.

Solar PV systems have been in place in the U.S. since 2006. According to the study, as of Q2 2014, more than half a million homes in the U.S. had solar systems, with more than 42,000 systems installed in Q2 alone (four times the number installed in Q2 2010). The market has seen a compound annual rate of 76% in solar installations since 2006 (compared to 30% in Canada (CMHC)). Without a doubt, this has resulted in significant job creation in the solar industry in the U.S.

Several factors can be attributed to the take-up in the U.S.:

- decreased installation costs as a result of demand and increased competition;
- an increase in financing and leasing options; and
- federal incentives in the form of investment tax credits of 30% of the gross installation cost, which reduces the up-front cost considerably.

In Canada, the cost for micro systems has decreased by close to 50% since 2009 and

several financing alternatives are available to the participants, however, they remain limited compared to those available in the U.S.

At the core of the success of this initiative is market acceptance. The study:

- confirms that the market recognizes energy efficient improvements, and homeowners who install solar systems on their property often have made energy efficient improvements or have invested in the condition of their property, making it difficult to extract the contributory value of the solar PV system;
- shows that market awareness and acceptance is reflected in the premium paid and that the difference in premium is nominal when looking at new versus existing homes; and
- shows that the PV premium has remained relatively consistent during varying market conditions during spans from 2002-2013.

Appraisers are reminded to use the research data with care. The study demonstrates market acceptance, but with some limitations. The market will pay a premium for a system that is within its first 10 years, but that premium declines rapidly thereafter, in light of the rapid depreciation of the panels. In Canada, and more specifically in Ontario, where the microFIT and FIT programs are prevalent, market acceptance remains unproven, and residential and non-residential market data from a resale perspective remains limited in many markets.

### How they are assessed in Ontario

In an effort to encourage residential take-up, the *Assessment Act* was amended

to ensure that residential property owners installing microFIT systems are not assessed (and taxed) for the PV improvements. From the perspective of the Municipal Assessment Property Corporation (MCAP) and the *Act*, a 10 kW or less (microFIT) is not considered a corporate producer, therefore, the property is not assessed for the solar PV improvements. For medium-sized facilities producing 10kW-500 kW, the property's tax class/rate does not change and the value of the land is assessed based on its regular assessment rate (and no change in classification is required). Larger facilities producing more than 500kW are considered corporate producers and the land classification for the area covered by the PV system is changed to industrial. For example, for a 100-acre agriculturally-zoned property of which 25 acres is used (or leased) for a PV system, 75 acres would be assessed under the relevant farm rate, and the portion with the PV system, that being 25 acres, would be assessed at the industrial rate. Depending on the original property classification, the change in tax class/rate for the solar portion may have a significant impact.

Rooftop PV systems will not result in a change in the assessment, if they are ancillary to the original building and its use. Also of note is that the assessment is not based on the income production of the PV system, but rather the size and footprint of the system.

### How they are financed

Participants have different options when it comes to financing PV systems. Solar system suppliers and financial institutions offer a variety of options and

financial products. Some lenders will consider the additional income as part of the borrower's income and qualifying requirements; others consider it as auxiliary income that is not included. Most will not consider or roll the cost of the solar improvement as part of the mortgage, opting instead to have it financed through a separate product (i.e., HELOC, LOC, other type of loan) and not as a lien with the mortgage.

**To learn more about how these systems are valued and what the practitioner's obligations are under *CUSPAP*, read PART II: Valuing Solar Energy in the June issue (Book 2, 2016) of *Canadian Property Valuation*.**

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