The magazine of the Canadian Solar Industries Association Spring/Summer 2013

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Ontario at the Turning Point

CANSIA PROPOSES AN EVOLUTION TOWARDS CHANGE

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»» VISION

CanSIA actively represents the Canadian solar industry by promoting the unique economic, environmental and technology benefits of solar energy in Canada. Our goal is to be the source of trustworthy information about solar energy and its growing importance to Canadian energy consumers.

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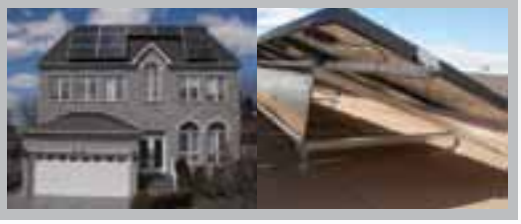

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ONTARIO AT THE TURNING

CANSIA PROPOSES AN EVOLUTION TOWARDS CHANGE

CanSIA IS RECOMMENDING FUNDAMENTAL changes to Ontario's FIT program in a policy position document delivered to the province's major political parties. **CanSIA President John Gorman**, who recently returned from representing the Canadian solar industry abroad at the International Energy Agency (IEA), believes that the timing is right from both an international and domestic perspective. "Ontario is globally recognized as a solar market you want to be doing business in," says Gorman. "The issue now is, with some years under our belts and momentum, we have an opportunity to make some changes, to improve on what we have."

CanSIA's recommendations orbit three central ideas: Establish a more streamlined and predictable framework for procurement, Encourage early and binding engagement between municipalities and developers on large projects, and Promote a more active role for local distribution companies (LDCs). "More engagement with the municipalities and LDCs is something our members want," says Gorman. "Especially if it comes with a less burdensome process at the provincial level. Solar shines in its ability to empower the community, commercial and residential sectors in a way that no other technology can match."

Solar a unique proposition

Whether large, small or micro, CanSIA is not proposing a one-size-fits-all renewable energy policy plan. It is advocating that future renewable energy procurements should be designed on a technology-by-technology basis. Solar generation has very distinctive characteristics, explains Gorman, which separate it from the other technologies. "We have a very unique proposition that we're focusing on, and for that reason we're not finding we have many shared issues with other technologies," he says.

"We are the only energy source that can be distributed right down to calculators, knapsacks or home rooftops. We are talking about a technology that really can be delivered precisely where generation is needed, at load. That separates us from the others."

At the distribution level, **Jared Donald, CanSIA Chair of the Board of Directors and Conergy (Canada) President,** points out PV can't really be compared to other forms of generation, renewable and non-renewable.

"Distributed generation could be gas generation, but in terms of homeowners and their ease of access, and the fact that there is no fuel cost associated with it, it's a really easy, predictable solution for customers," he says. "In terms of generation, PV is certainly one of the most accepted and easily deployed."

In fact, in terms of generation, says **Michelle Chislett, past CanSIA Chair and GDF Suez Canada Vice-President of Solar Development**, CanSIA research indicates solar is the most accepted.

The policy paper promotes a survey commissioned by CanSIA, showing solar energy enjoys the strongest and most widespread backing of any electricity generation source, with 98 per cent of Ontarians supporting the technology. The survey found 70 per cent strongly support and 28 per cent somewhat support solar.

The survey also found that if given the choice about the kind of electricity that could be purchased at home, 55 per cent of Ontario consumers would prefer to buy solar powered electricity.

When asked about their preferred purchase method, 40 per cent would choose to purchase electricity chosen and delivered by a local

POINT

distribution company, 37 per cent would like to install their own solar panels, and 23 per cent would prefer to buy solar electricity from a neighbourhood solar field.

"I think there's a populist side to this that empowers individuals, businesses and communities in a way that only solar can with its very distributed qualities," says Gorman. "In a sense, it gives power to the people, and it has very, very strong environmental underpinnings."

For the sake of Ontarians, whether they are electricity consumers or solar industry participants, Gorman hopes the government will act on CanSIA's policy recommendations. The small and microFIT changes, with greater LDC involvement, he believes, could begin to be implemented with little delay.

Working with industry partners

Ontario is clearly interested in advancing its electricity system. A vast majority of customers – residential and small business – are now equipped with smart meters, which track electricity consumption and time of use. Also, LDCs have begun switching customers over to time-of-use pricing. With electricity costs escalating, and with time-of-use becoming an economic factor, products and services that enable demand management are inevitable.

In fact, demand management is already part of a provincial government initiative to create a culture of energy conservation. Reducing expensive electricity consumption at peak hours through the installation of a rooftop PV system, therefore, makes a lot of sense. And peak shaving with PV offers benefits beyond a single customer to the province's entire customer base.

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The Benefits of Solar to Ontario

Solar PV provides significant benefits to Ontario and justifies further investment in Ontario.

Empowered Consumers: Distributed solar is a core component of the smart grid and smart home future that is being enabled by Ontario's investment in smart meters. As the electricity consumers of tomorrow will be able to interactively manage their electricity consumption through smart grid and smart home technologies, they will also have choices to 'self-supply' their energy needs by installing solar systems.

Municipalities as Willing Hosts: Solar is easily integrated into communities, both urban and rural. It is scalable and can be located close to electricity consumers. As an embedded resource, solar can be developed in strategic locations to help meet local needs, similar to strategic implementation of distributed generation and conservation demand management (CDM) programs which provide longer term stability to the grid. Solar can be deployed quickly due to short permitting and construction schedules.

Greenest Form of Energy: Solar has the lowest environmental footprint of any electricity resource. It has zero airborne emissions, zero hazardous waste emissions, almost zero noise. Further, it is inexpensive to decommission and land can be returned to previous use.

Decreasing Costs: Unlike all other forms of generation, solar electricity has and continues to decline in cost. The fact that the fuel source is free ensures that input costs will never rise.

Peak Shaving Capabilities: Solar is peak load shaving and reduces the occurrence and cost of extreme summer peak prices. Energy production from solar is highly correlated with the peak times of energy consumption, therefore effectively reducing peak demand.

Deferred Transmission & Distribution Investments: Distributed solar, like other sources of CDM measures, helps to defer capital outlay for transmission and distribution infrastructure expansion and therefore resulting in overall cost savings for consumers. The Ontario Energy Board's Regional Planning for Electricity Infrastructure is expected to address how utilities can best capture this benefit.

Price Hedge and Predictability: The development of solar in the near term can help to mitigate delays with the commencement of nuclear refurbishment and/or nuclear new build. Since solar is a front loaded capital investment, resulting in predictable long-term cost, it is integral in the energy supply mix as a hedge against other long-term fuel costs.

Employment and Solar: Solar supports more jobs than any other energy source. The distributed nature of solar generation ensures that it produces high-quality local jobs such as engineering, design and installation.

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> "The political reality is there's a new administration of the Liberal party in Ontario, and an election coming where opposition parties will have a chance to voice their opinions about renewable energy. "This creates an opportunity, and an exciting one, for the solar industry in particular to make improvements to the program now."
>
> – CanSIA President John Gorman

"Distributed solar, like other sources of distributed generation and conservation-demand-management measures, helps to defer capital outlay for transmission and distribution infrastructure expansion and therefore results in overall cost savings for consumers," says the paper.

CanSIA's Ontario PV Caucus Chair, Sarah Simmons sees the benefits of empowering consumers and notes it will help spur demand-side energy management and movement towards smart technologies.

"Everything CanSIA has been doing in terms of its policy development has all been with an eye to customers, and what customers want," she says. "Empowering them with options so they can have solar on the grid and self-supply their own energy needs."

This approach would see the LDCs working with the solar industry as a partner, explains Gorman. The LDC would be able to promote the benefit of adding solar to their infrastructure – they are the link to the consumer.

"I think this type of change – which could see LDCs change their business model to one that enables true energy management – could bring the Ontario renewable energy market and electricity system closer to the front of the pack globally in terms of a progressive electricity system," said Gorman.

"We want them to get on the bus and cater to the future world of energy consumption in Ontario, which is highly distributed generation, where people are able to control their appliances and feed energy back onto the grid and use their smart meters to make informed decisions about how they're using and managing electricity."

A number of LDCs are "breaking away from the pack," he says, but this type of change is turning out to be an evolution, not a revolution.

"A number of people will tell you, some LDCs are reticent to fully embrace the program in terms of hooking projects up and embracing a future where consumers are really empowered and receiving value-added services."

Grid parity closer than commonly understood

Gorman notes the soft cost of an Ontario PV installation, from red tape and paperwork, has never been higher. By squeezing administrative costs out of the FIT program, the price of solar electricity will be reduced.

"There's too much process," he says. "For the first time in Ontario's history, the hard costs of installing a solar project are now lower than the soft costs. As we drive to be competitive globally with other aggressive markets, we need to cut out the red tape in the process."

In the drive to compete globally, says the policy paper, reducing regulatory costs will help Ontario PV generation achieve "investment grid parity."

"The customer will make the decision," says Simmons, explaining investment grid parity. There will come a time, she says, when Ontario customers will feel compelled to look at a PV investment, projecting electricity costs over the life of the investment and calculating the potential return from the offset utility charges.

That point in time, says Chislett, who led a committee overseeing the third-party research on which the association's recommendations are based, is in the 2018-2019 timeframe.

The association has taken a fact-based approach to its recommendations, quantifying the province's future energy

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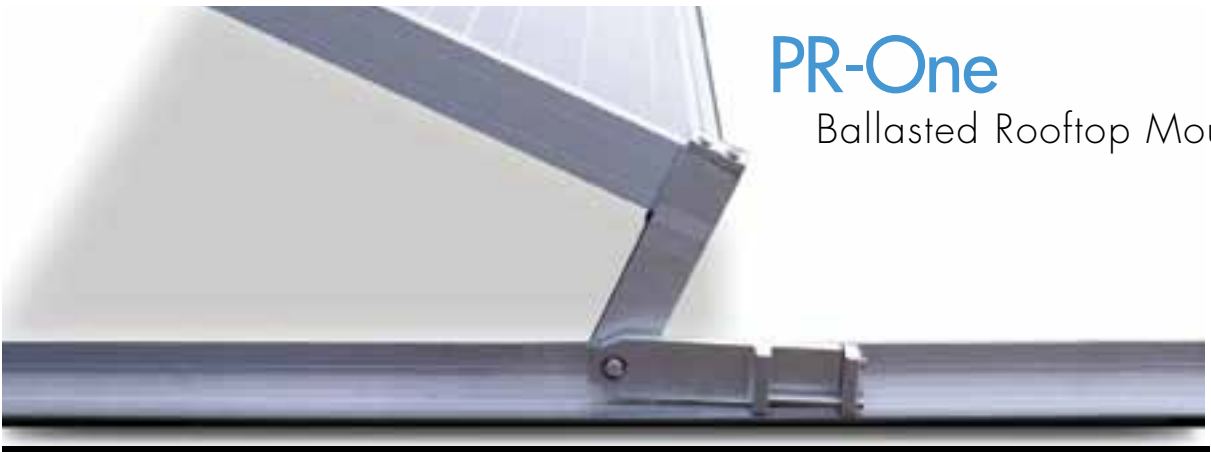

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> "Ratepayer concerns are top of mind for government," says Donald. "Ratepayers are also top of mind for CanSIA because if customers are not willing to pay for renewable energy, and solar energy, then we simply are not going to have a program."
> – Jared Donald, CanSIA Chair and Conergy (Canada) President

needs as well as producing the cost-benefit analysis of meeting a portion of that need with PV. Solar energy, she says, should be among those at the top of the list for procurement.

"There is a need for new generation in the short and medium terms, solar costs are decreasing and we're the only technology where installation costs are decreasing, and we will hit investment grid parity much sooner than is commonly understood," she says.

In addition to identifying a reasonable expectation of grid parity in Ontario, Chislett says the research has valued the specific benefits of solar: peak-load matching, transmission offsetting and distribution system benefits. And if all these benefits are recognized, she says, grid parity may even come sooner.

"The endgame for solar is the retail market," says Chislett. "We'd love to have it so anyone can install solar on the roof and not need to apply to any incentive program."

To reach this endgame, says Chislett, Ontario has to maintain its investment in solar energy.

"One of the things that the program has been successful in doing is attracting a lot of interest and investment in Ontario, whether from manufacturers honouring the domestic content aspect of the program or just developers doing their best to come up with projects that qualify. There has been a lot of investment, and that means jobs. We owe it to ourselves to find a way to have a program that continues successfully."

CanSIA research indicates, from an electricity system management point of view, a provincial investment in PV now and through the middle of this decade will not only retain solar industry jobs but also help mitigate the risk of a near- and medium-term generation deficiency.

Projecting provincial load growth and scheduling new generation to satisfy

forecasted demand is a complex task. In Ontario, this task is substantially dependent on understanding nuclear generation: with plant retirement, extended operations, refurbishment and new build all factors. Research shows the vagaries of projecting load growth and managing the nuclear fleet exposes Ontario to a peak-supply deficiency as early as 2015, says CanSIA. PV, explains the policy paper, compliments base-load nuclear generation by providing electricity during peak periods of demand.

"Solar PV can be deployed rapidly and distributed at the locations where there is the highest and most urgent demand," says the document. "Having already invested in the solar PV sector, Ontario can leverage this investment to help meet near term generation requirements."

Five-year solar procurement target recommended

In order to maintain investment in an Ontario solar supply chain, the policy paper recommends a provincial PV procurement target of 500 MW per year for the next five years.

Gorman says these numbers reflect not only careful consideration of how PV will benefit the electricity system "and the province from a green point of view," but will also support the critical mass of the Ontario solar industry. The installation targets and time period are vital, he says, to bridge the gap from today's need to maintain investment in solar jobs and grid parity.

"Those are really the two drivers behind making sure Ontario has a very predictable program with concrete numbers attached to an annual target. We need that predictability to be able to attract, build and retain an industry base and drive costs down."

CanSIA does not specify small and microFIT rates in its policy paper, but it does suggest that a price digression model should be built into the program's design.

"A portion of the procurement targets should be allocated to larger-scale solar projects," says CanSIA, "recognizing that the length of time required to develop larger ground-mounted projects results in projects coming into service further into the medium term when electricity supply will be needed."

What's clear from the history of the large FIT program, says Gorman, is some market entrants have obtained contracts without sufficient experience to build and commission them. The result has been a delay in some the best projects coming forward.

"There has to be recognition that if you're going to do a large project, which can cost millions of dollars and require very significant expertise in design and build-out, and include an environmental protection point of view, you need a lot of experience on board," says Gorman. "The contracting process for large FIT contracts – under the existing FIT or through any other mechanism – needs to reflect this reality."

Gorman stresses that competitive procurement is not necessarily better than the FIT mechanism for large projects, "but competitive procurement can deliver, and it has demonstrated it can deliver."

If the provincial government moves towards competitive procurement for large projects, it could be introduced through an auction mechanism or a request for proposals. It could include aspects the government deems important, like community participation,

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project location or municipal acceptance. These are all things that need to be worked out with the government if it chooses to go down the path of competitive procurement.

Gorman believes the competitive model can select projects at an appropriate price based on ratepayer affordability, instead of prioritizing projects based on any other criteria and awarding them all the same price, which may be too high or too low.

"Ratepayer concerns are top of mind for government," adds Donald. "Ratepayers are also top of mind for CanSIA because if customers are not willing to pay for renewable energy, and solar energy, then we simply are not going to have a program."

The beginning of Evolution

As it awaits evolution, CanSIA is participating in all three levels of the FIT price review. And the next tranche of microFIT could move forward with another 50 MW this year. Gorman reiterates Ontario's existing renewable energy program is good. While it could be better, he says, there have been improvements and it is working.

"Obviously we would like to see improvements happen as quickly as possible, but any change, whether it requires legislative approval or not, has to consider the interim period. What I mean by that is that industries cannot move ahead in the midst of stops and starts."

During the development of a new framework for solar procurement, says the policy document, CanSIA recommends Ontario continue with the current microFIT and FIT programs by directing the Ontario Power Authority to procure an additional 50 MW under microFIT and announcing another small FIT application window for 200 MW later in 2013.

The timing of a change in policy is also reflected in the paper's political palatability. It is studiously non-partisan, says Gorman. "This represents both change to the existing system and puts emphasis on the small and microFIT installations, and then we deal with larger projects on a separate track. We know this appeals across party lines," he says.

"The political reality is there's a new administration of the Liberal party in Ontario, and an election coming where opposition parties will have a chance to voice their opinions about renewable energy," he says. "This creates an opportunity, and an exciting one, for the solar industry in particular to make improvements to the program now."

ALBERTA: A PROMISING LAND

RENEWABLE POLICY CONTINUES TO MOVE FORWARD

By Drew McKibben

CanSIA REPRESENTATIVES CONSULTING WITH

Alberta Government are increasingly optimistic the province will yield a solar breakthrough.

Alberta, facing increasing global concern over greenhouse gas emissions from the development of its petroleum resources, is trying to construct renewable energy policy, dubbed the alternative and renewable energy policy framework. It started in 2011 with government soliciting industry input, and although progress has been slow, **CanSIA Board Chair Jared Donald** says he is very encouraged by the government's heightened interest in the solar industry.

"Recently, there has been a lot more momentum. Every meeting we go to in Edmonton, whether with the Ministry of Environment or Energy, we're expecting six people and end up with 12. From the level of questioning and interaction, and the thought that goes into it, we sense this is real now. There are real discussions and real engagement. It feels different than in the past," says Donald, president of Alberta-based Conergy Canada, a provider of photovoltaic systems and services.

Donald says the Alberta Government is "very clearly" communicating a desire to understand how solar energy might fit into the province's energy mix, and through an Alberta working group, CanSIA is formulating a recommendation.

"We've been told 'Solar is great, let's look at ways we can do solar, but don't come asking for tax dollars to make it work.' We need to help them find a way to bring in money to fund a program," says Donald.

Spokesperson Kimberly Budd at the **Alberta Ministry of Energy** says, subject to government approval, formal public consultation may occur later in the year. In the meantime, she says the ministry is looking at the province's solar potential through on-going discussions with stakeholders.

"The province is planning to look at renewing its climate change strategy, and further work on the alternative and renewable policy framework will likely come out of this," says Budd.

Alberta's renewable policy aspirations grew out of provincial energy and climate change strategies. Both published in 2008, they spell out the province's long-term CO_2 reduction targets and promise to consider incentives for expanding the use of renewable and alternative energy sources.

Bob Savage is Director of Alberta's Climate Change Secretariat, under the jurisdiction of the Ministry of Environment. At a March 2013 conference of Alberta power producers, operating in an electricity system 80 per cent reliant on carbon-fuelled generation predominantly powered by coal, he acknowledged Alberta is not on track to meet its GHG commitments.

He said, however, the provincial energy and climate change strategies initiated an important change in provincial policy.

These five-year-old planning documents, together with the 2007 specified gas emitters regulation, require industry sources with more than 100,000 tonnes of CO_2 per year to reduce their emissions intensity 12 per cent below 2003-2005 baselines. Emitters were told they can meet their requirements by purchasing offsets, and the parameters of Alberta's carbon market were established.

One of the most significant parameters—the price of carbon—was

and remains capped by a government-created offset opportunity. Investing in a fund managed by the Climate Change and Emissions Management Corporation (CCEMC), emitters can buy carbon offsets at $15/tonne. This is problematic for renewable energy generators that produce offsets when supplying the coal-heavy Alberta grid—they are forced to compete with the CCEMC price in the province's carbon market.

"The regulatory system at 12 per cent and $15 per tonne was never designed to get us to our 2020, 2050 targets," Savage told Alberta generators.

"If we're going to hit our 2020 targets the price signal has to be higher to encourage these sorts of investment choices and technology development that we're going to need to bring that emissions curve down in the long term," he said.

Social Licence Drives Need For Change

While it seems likely a 2013 revamp of the Alberta climate change strategy is going to change the economic factors balancing renewable and fossil-fuelled generation in the province, Savage made it clear a more significant engine of the economy is pushing GHG emissions objectives. California and the European Union have implemented low-carbon fuel standards that exclude oil sands products, affecting the market for Alberta resources. "These policies are all symptoms of a concern around confidence we're going to tackle our greenhouse gas emissions," said Savage. "What we're seeing right now is our social licence and our ability to produce and get oil to market, to tidewater, in question."

This is why the solar industry is observing increased attention from the Alberta government, says **CanSIA President John Gorman**. "There is a dynamic at play here that is creating an opportunity for a really meaningful renewable energy framework to be produced," he says.

"While the Alberta government appears to have given a lot of thought to renewable energy policies in the past, I think we are now seeing a greater commitment to really formalizing that and bringing it into the public sphere for consultation and comment."

While Gorman says it is premature to elaborate on CanSIA's Alberta solar vision, he believes the association's recommendation is heading toward a clean energy standard, or CES. This approach, which coincidentally is being considered by the Alberta component of the Canadian wind industry, would create a maximum GHG emissions intensity level on electricity sold in the province. The government could set the standard and time frame for reduction, establishing a predictable market signal for investors. Electricity retailers could ensure their supply portfolios are compliant by contracting with developers of clean energy projects. Ultimately, all consumers would share the cost.

> "Albertans are entrepreneurial. They recognize the value of energy independence, and of course distributed generation from solar is an ideal way to achieve that sort of independence on an almost individual level. Solar is a key way to do that."
> – John A. Gorman, CanSIA President

A CES is market-based and can be technology-neutral, which are critical aspects for compatibility with Alberta's deregulated, competitive electricity sector. Potentially, it is a cost-effective solution that minimizes government intervention in the market.

It may work for larger-scale projects, but Donald says it cannot be recommended for smaller installations. And at this point, he adds, the Alberta government is more comfortable with the idea of smaller-scale, distributed rooftop PV.

Gorman says he met with **Energy Minister Ken Hughes** at a February 2013 conference of the Alberta Energy Efficiency Alliance, where they were both invited to speak. They sat down after, he says, and discussed how Albertans might benefit from the province's premium solar resources.

"Some of the things that really appealed to him were, first of all, the notion that Alberta has a population that understands what an energy resource means," says Gorman. "And Albertans are entrepreneurial. They recognize the value of energy independence, and of course distributed generation from solar is an ideal way to achieve that sort of independence on an almost individual level. I'm thinking of farmers as well as residents and business owners. Solar is a key way to do that."

Minister Hughes and other Alberta government officials, in fact, have experience with rooftop PV through the province's micro-generation regulation, implemented in 2008. The CanSIA working group, says Donald, believes it makes sense to build on this regulation to formulate the association's recommendation for small PV.

The regulation allows grid-connected power producers up to 1 MW to receive financial credit with their electricity retailer when exporting power to the distribution system. Installed capacity is not permitted to exceed a site's anticipated load requirement, but any outstanding credits are paid out annually at retail rates. Between its start and February 2013, according to the Alberta Electric System Operator, the program has led to nearly 3.2 MW of installed capacity, and about 98 per cent of the 658 sites are PV.

"Micro-generation does allow for a lot of flexibility with funding mechanisms, and we believe there are a lot of different ways this can be done," says Donald. "And I believe a standard-offer program is saleable, especially if we can prove the cost of electricity. Most Albertans think they pay nine cents per kilowatt-hour, not realizing the total variable cost is closer to 15 or 16 cents. So I think there's some education needed."

A potential funding source for small-scale PV, offers Donald, is another existing Alberta mechanism—the CCEMC. As previously mentioned, low-cost carbon reductions available through payments into the corporation's fund are problematic for renewable energy producers, but payments from the fund can be supportive. The CCEMC's stated mission is "to achieve actual and substantial reductions in greenhouse gas emissions and facilitate climate change adaptation by stimulating transformative change through investments

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in climate change knowledge, clean technology development and operational deployment." A number of solar projects have already qualified for support.

Alberta Industry Driving Solar Growth, Says Homebuilder

Perhaps one of the most interesting CCEMC solar projects, according to Donald, is small-scale in nature. In October 2012, the fund awarded just less than a half-million dollars to Edmonton-based Landmark Homes. The production homebuilder, operating in Edmonton, Red Deer and Calgary, is working on a demonstration project that will build and market a number of solar powered, net-zero-energy homes, which essentially produce as much energy as they consume.

For the past five years Landmark has focused on building energy-efficient houses, and it has developed a prefabrication process that makes its offering relatively affordable. It also offers solar options to customers: from a small PV system, typically 3 kW, right up to a net-zero home, which might have as much as 12 kW. It also offers prospective home buyers solar readiness, which simplifies a PV retrofit, at no extra charge.

> "Homebuilders haven't all been brought up to speed on the changes in the global solar industry, making solar more and more affordable. But they're sensing it, and they're also sensing it will go quickly when it's ready."
>
> – Kyle Kasawski, PV Manager, Landmark Homes

The company's full-time **PV Manager, Kyle Kasawski**, says Landmark built 1,000 homes in 2012: 16 had grid-connected PV power; one was net-zero. In 2013, Kasawski predicts 10 per cent of Landmark Homes (100 houses) will have PV and 16, with CCEMC's help, will be net-zero. By the end of 2013, Landmark expects every house it builds will be solar ready.

"We're not the only company selling solar-ready homes," says Kasawski. "There are a handful that added a sentence to their literature that says they'll put a conduit in a home for the future use of solar. And when you talk to homebuilders they say they know solar is coming. But the perception of cost is not really accurate anymore because the industry changes so quickly. I feel like every three months there is a new market dynamic I have to be aware of."

Not surprisingly, Kasawski, an Albertan who has been part of the province's solar industry for more than a decade, has a clear understanding of solar technology. It is not surprising either that homebuilders are for the most part only dimly aware. Customers, though, are almost in the dark. Landmark's customers are mostly first-time suburban home buyers looking for safety, comfort, status, resale value and, in the Alberta new-home market, a monthly mortgage payment they can afford. "Unless we tap into those

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things we're not going to hit what wins it for them," says Kasawski.

"It's almost the last thing they ask: 'What kind of insulation is in the walls; are there solar panels on the roof?' We have to bring the conversation up with them," says Kasawski. "That's the sales and marketing effort we're undertaking. It's not top-of-mind for customers."

Kasawski says he is cognizant of Alberta policy developments through CanSIA but, interestingly, explains Landmark is projecting 2013 growth in PV-system sales regardless of what the government does. In fact Landmark's plan, established in 2010, is to offer homebuyers a net-zero-energy, PV-powered home at the same price of an equivalent home in the Alberta new-build market by 2015.

NetZero show home in Calgary. Photo courtesy of Landmark Homes (Calgary) Inc.

A rendering of the soon to be completed Emerald II, Landmark's Net Zero Townhome project in the community of Larch Park in Edmonton. Image courtesy of Landmark Group of Builders.

"I've always expected industry to drive this," says Kasawski. "Now, lately, it's really exciting to see the industry really does drive this."

That said, Kasawski is, of course, keenly aware of the CCEMC fund and the micro-generation regulation. Also, he has observed and has experience with unstable policy and programs in other jurisdictions that too often challenge the solar industry: fluctuating and unpredictable levels of support combined with stop-start programs have created notoriously difficult business environments across the country. When Alberta introduced the micro-generation regulation, Kasawski recalls being dismissive. In hindsight, though, he says, "It is very robust policy. It's open to a lot of possibilities."

One possibility, he explains, which parallels Donald's thoughts, is to use this existing mechanism to facilitate a provincial offering for PV set slightly above the retail electricity rate.

"Micro-generation allows the retailer to pay a generator an agreed-upon price. It can be the retail price, minimally, but there's nothing to stop a retailer from paying a bit more," says Kasawski.

"It's so interesting to see how politics play out," he adds. "Even from my perspective, I recognize Alberta has to fall in step with the United States' desire to address climate change. We will green up our energy grid in order to get a pipeline built. That might be an oversimplification, but that's probably what's going to happen."

As uncertain as Kasawski is about the direction of Alberta renewable energy policy, he is confident of the acceleration of the provincial PV market. Landmark will draw the attention of its competitors, he says, and this will help the solar industry move forward. "That's part of our strategy," he says, explaining Landmark is willing to accept some risk now in order to be a market leader.

"Homebuilders haven't all been brought up to speed on the changes in the global solar industry, making solar more and more affordable. But they're sensing it, and they're also sensing it will go quickly when it's ready. I talk with very conservative business people, and they all expect it's coming. They just think it's off in the future little bit. Landmark has said 'Let's invest now,' and feels 2015 is an accurate date. I think it might even be sooner."

Unfortunately, at this point, solar thermal technologies are not part of Landmark's plan, although Kasawski says the company did evaluate its possibilities.

While the PV market has grown in Alberta, solar industry development has made a definite shift away from ST technologies because of low natural gas prices and subsequent heating costs, and the disappearance of the Federal ecoENERGY support program. Donald says, though, CanSIA is working on an Alberta solar thermal recommendation, and he is confident ST will remain part of the dialogue with the government.

"We're a little bit further behind on the thermal side because our membership has become more PV focused over the last couple of years," he says. "A lot of the feedback we're getting from members in Alberta has been around PV."

Donald says CanSIA can prove the value of ST as a GHG reduction opportunity, and ST has a distinct advantage when formulating a policy recommendation—it does not have to mesh with the complex workings of the competitive Alberta electricity system.

"It will be a very different policy mechanism for solar thermal. Thermal can be a direct offset to any kind of natural gas, but natural gas does have significantly lower emissions intensity than coal."

In sum, Donald believes Alberta is at a point where policy that encourages a level playing field for energy production, and a market that provides fair return for the environmental attributes of solar energy, will not only help Alberta accomplish its GHG targets but accelerate the industry.

"Until we see consistent policy mechanisms that will stand for more than a six-month period, the Alberta market is going to remain quite small. But with some type of policy incentive we'll see things open up very quickly."

SOLAR INDUSTRY YOUTH CHARGED TO TAKE THE LEAD

EMERGING LEADERS IN SOLAR ENERGY PROGRAM GIVES TOMORROW'S LEADERS A CHANCE TO SHINE

By Julia Ferrabee

THE SOLAR ENERGY INDUSTRY is on the edge of many exciting new changes and massive growth in the upcoming year, and CanSIA is doing all it can to support a new era. One of its main initiatives includes the Emerging Leaders in Solar Energy (ELSE) program.

In 2012, in celebration of its 20th anniversary, CanSIA founded this exciting new program designed to bring together and empower Canadian students and young professionals between the ages of 18 and 30 who are passionate about solar energy, sustainability and the environment. ELSE allows youth to become further involved in the Canadian solar energy sector by providing them with industry-related skills and knowledge and opportunities for personal and professional development, as well as facilitating networking events within the solar industry and meetings with all levels of government. Through this program the emerging leaders have the opportunity to become involved in running advocacy campaigns that aim to strengthen the pro-solar voices heard by government officials and raise public awareness about the benefits and importance of solar energy in Canada.

"Having youth involved in our mission to make solar a leading source of world energy is so important; particularly during this momentous time with so much uncertainty, we need their support more than ever. ELSE members are doing a great thing for solar and a great thing for the world," said **John Gorman, CanSIA President**.

ELSE had its first official meeting at the Solar Canada 2012 Conference held in Toronto, Ontario in December of last year. More than 50 young people gathered for the two-day event full of learning and networking. Participants in the inaugural meeting were able to listen to presentations and panel discussions and get involved in roundtable discussions.

ELSE is comprised of two membership levels: the greater membership, or Solar Ambassadors, and the elected Emerging Leaders Executive Committee. To date, membership has grown to include more than 120 Solar Ambassadors plus an 11-person Emerging Leaders Executive Committee. This committee consists of volunteers who serve a one-calendar-year term in their elected roles. There were more than 60 very enthusiastic and qualified youth who applied to be on the 2013 Executive. **David Berliner** and **Inês Ribeiro** were elected as this year's **Executive Committee Co-chairs**.

David Berliner completed an MPA with a focus on Environmental Science and Policy from Columbia University's School of International and Public Affairs (SIPA) and a B.Sc. from the University of Toronto in environmental science and human biology. He is currently an Associate at Inerjys, where he focuses on investor relations and business development. He also identifies and evaluates prospective investment opportunities in clean energy projects and technologies. He manages the firm's relationships at global events such as the Clinton Global Initiative, World Economic Forum and Rio+20.

He notes he is involved with ELSE to demand a future that includes solar. "Solar is an especially important industry for

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More than 50 young people gathered for the first official ELSE meeting during the Solar Canada 2012 Conference for two days full of learning and networking. Participants in the inaugural meeting were able to listen to presentations and panel discussions and get involved in roundtable discussions. Photo credit: Greg Paupst.

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students and emerging professionals who are seeking good green jobs, who want a clean energy future and who see solar as a crucial component of a low-cost and reliable energy mix" said Berliner. He adds he is excited to be working with ELSE to harness the support of students and young professionals across Canada to ensure policymakers continue their support for solar.

Inês Ribeiro holds an Honours B.A. in Environment and Development with a Minor in French from McGill University as well as a Masters in Environmental Management and Policy at Lund University (at the IIIEE-International Institute for Industrial Environmental Economics) in Sweden. She is currently the Environmental Assessment Coordinator at Mainstream Renewable Power, where she co-ordinates environmental approvals for large-scale solar and wind projects and supports project managers in permitting various projects in Ontario and Alberta. When asked, Inês said she joined ELSE "with the aim of making solar energy a bipartisan issue that is top of mind for Canadians."

The rest of the Executive Committee is made up of:

- Vice-Chair, Campaigns: Grace Russell – Business Operations Manager, Hanwha Solar Canada Inc.
- Vice-Chair, Internal: Jay Wilmot – Articled Clerk, Osler, Hoskin, and Harcourt LLP
- Vice-Chair, Research and Communications: Jonathan Frank – Technical Sales Manager, RESCo Energy Inc.
- Public Outreach Representative, Campaigns: David Hampson – Solar PV Design Consultant, Hampson Consulting
- Public Outreach Representative, Research: Lia Van Baalen – Marketing Assistant, Fronius Canada
- Policy Representative, Campaigns: Jeff Smalley – Field Engineer, PCL Renewables
- Policy Representative, Research: Noel McDonald – Associate, Great Circle Solar Management Corporation
- Business Community Liaison: Nick Basedow – Supply Chain Manager, GM Canada
- Professional Development Lead: Gil Amdurski – Sustainable Technologies Monitoring Technician, Toronto and Region Conservation Authority

Details for each representative are available at www.cansia.ca/else.

Over the next year, ELSE will be working on public outreach initiatives and targeted policymaker campaigns and providing a professional development program for students and young professionals interested in solar. ELSE will begin its focus in Ontario, then expand nationally later in 2013.

"I feel proud to be involved in the ELSE program with this group of incredibly capable, enthusiastic and devoted young people," said Gorman. "I am very excited to see what the future holds for ELSE as they move forward with their plans, it is obvious that great things are coming for solar in 2013."

If you are interested in getting involved with ELSE, please email **Sam Likely, CanSIA Outreach Coordinator**, at slikely@cansia.ca to be added to the mailing list. You can also "Like" ELSE on Facebook, follow us on Twitter or join the ELSE LinkedIn Discussion Group!

PARTNERSHIP COULD ENSURE QUALITY CERTIFICATION PROGRAM

CANSIA LOOKS TO WORK WITH NABCEP

By Nick Gustav

SOLAR ENERGY IS REINVENTING the way many Canadians get electricity, but not everything the industry does has to start from scratch.

Last year, CanSIA took the first steps toward developing a Canadian certification program for professional installers of solar PV and thermal systems. Such a program would help ensure that solar installations are performed correctly, enhancing the level of safety for both the workers on rooftops and their customers.

By focusing on best practices and professionalism, the solar industry can drive consumer confidence through the roof, which, after all, is exactly where solar panels are supposed to go.

"We are an industry that is growing and maturing quite quickly, so we definitely want to take the steps that are necessary to enhance the image and credibility of the industry," said **Wes Johnston, Vice President of CanSIA**. "We want to ensure the quality of installations throughout Canada."

CanSIA hired Ottawa-based consultancy Totem Hill to explore the creation of a certification program, and all ideas were welcome. The association is still weighing its options and inviting input from solar professionals, but with the help of Totem Hill, it has identified a possible solution.

Johnston said CanSIA is exploring a partnership with the North American Board of Certified Energy Practitioners (NABCEP) on a certification program that would largely build on that organization's existing program.

NABCEP, based in Clifton Park, N.Y., bills itself as the "gold standard" for PV and solar heating installation and PV technical sales certification and is dedicated to raising industry standards and promoting consumer confidence, according to its website. It offers certification and certificate programs to renewable-energy professionals throughout North America.

Under a possible partnership with NABCEP, solar installation professionals would first pass a NABCEP certification exam, then take an additional certification module focusing on Canada. That module is necessary because there are some differences when it comes installing solar equipment in the United States and Canada, including the two countries' electrical codes.

"Rather than setting up a whole new process, we said, 'How do we leverage off of work that NABCEP has already done?'" said **Justin Ferrabee, Managing Partner at Totem Hill**. "How do we allow people to get certified in Canada and have their certification work in the U.S. so they have some labour mobility? What we concluded is that almost everything that can be tested is the same between the two countries, with the exception of the electrical code."

"We need a test that's reliable and valid," Ferrabee said. "It's not a simple matter. We need to make sure it covers the material that we need it to cover."

In order to take NABCEP's solar PV installer exam, a candidate must complete at least 58 hours of advanced PV training.

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The candidate also must complete a minimum of 10 hours of U.S. Occupational Safety & Health Administration construction training. Such training can be obtained from a variety of accredited bodies, including universities, community colleges, employers and private-sector training companies.

In addition, candidates must provide documentation for solar installations where they have acted in the role of contractor, lead installer, foreman, supervisor or journeyman. Candidates must provide system information, permits and inspections for these installation projects.

NABCEP has similar requirements for candidates seeking to take its solar heating installer certification exam. The organization also offers a certification program of solar PV technical sales professionals.

After meeting those requirements, candidates need only pass the written exam to become certified.

"It's quite comprehensive," Ferrabee said of NABCEP's certification program. "We're going for a very high bar when it comes to certification, recognizing that not every installer is going to want to be certified or even need to be certified, but maybe each project will have a certified installer on site, so you're ensuring that that knowledge exists within at least one person on site."

Last year, Ferrabee conducted lengthy interviews with about 50 solar industry stakeholders from across Canada, including manufacturers, installers and distributors of solar equipment; sales professionals; industry consultants; officials in the Ministry of Labour and government-funding agencies; and the directors of renewable-energy programs at public and private colleges.

The goal was to learn what elements were essential for a certification program. Combined with extensive industry research, the interviews allowed CanSIA and Totem Hill to propose a basic framework for a certification program, and Ferrabee presented the idea to CanSIA members at the association's Solar Canada 2012 conference in Toronto on Dec. 4.

Ferrabee also conducted a webinar in December to outline the proposal for CanSIA members who weren't able to attend the conference. The two presentations allowed CanSIA members and other attendees to offer feedback that could then be incorporated into any final proposal between CanSIA and NABCEP.

In the presentations, Ferrabee said his research showed there was the equivalent of 1,500 to 2,500 full-time solar installation jobs in Canada in 2011, and the industry could expect that figure to swell by about 10 per cent annually. Such rapid growth makes it important for the industry to develop a certification program to ensure that best practices are being taught and followed.

NABCEP requires installation professionals to undergo 18 hours of continuing education every three years to maintain certification. Under a joint proposal between CanSIA and NABCEP, that continuing education could take many forms, including educational conferences and seminars offered by CanSIA as well as courses offered by schools and the private sector.

"Continuing education would be required to make sure people are staying current on changes in the industry," Ferrabee said. "It's just to ensure that people are taking their profession seriously and are looking to learn."

Johnston and Ferrabee said reaction to the two presentations was largely positive, and the feedback from attendees would be incorporated into any future proposal. If the two organizations reach an agreement, the certification program could be launched as early as April 2014, though there was no firm timetable, Ferrabee said.

The Solar Canada 2012 presentation also featured NABCEP's co-founder and

then-executive director, Ezra Auerbach, who would announce the following month that he was retiring from his long-time post. NABCEP replaced him with Richard Lawrence, who had been the organization's director of operations.

That change in leadership hit the pause button on talks between CanSIA and NABCEP while Lawrence transitioned to his new role. But Johnston said in late March that discussions had resumed between the two organizations on a joint proposal that could lead to a memorandum of understanding.

"We do have a relationship with NABCEP, so there is a familiarity there," Johnston said. "NABCEP is very credible and well known throughout North America, and that's important because we want a program that is credible. They have a system in place that is very rigorous, and that was appealing to us because we want to set the bar high while also supporting the individuals who are going through this program."

Though NABCEP does offer its certification exams at testing locations in Canada, Johnston said a joint proposal would have to ensure that the exam becomes increasingly accessible to Canadians and is available in both English and French.

The two organizations also are exploring a funding mechanism for the certification program, including possible government funding, support from the industry and funding from program participants. Though the details had yet to be finalized by late March, Ferrabee estimated that it might cost a solar installation professional a total of $200 to $350 to take the two tests.

"We want this program to be financially sustainable moving forward—that's the overall objective," Johnston said. "It's been a very open, collaborative discussion with NABCEP."

Though the process toward a certification program has been long and fluid, Johnston said the end result will be extremely beneficial to Canada's growing solar industry.

"We've received a number of comments in recent years about how this is important to the industry, so this is a discussion that's been evolving over a number of years," he said. "CanSIA is taking a leadership role in this initiative to create a certification program that will be recognized nationally and give the industry additional credibility moving forward."

ON THE ROAD TO A BETTER CODE

CANSIA EXPLORES CHANGING NATIONAL BUILDING CODE TO PROMOTE SOLAR-READY BUILDINGS

By Nick Gustav

IF SOLAR INDUSTRY STAKEHOLDERS want the environmentally friendly and cost-saving technology to be accessible to as many building owners as possible, then they'll have to crack an important, complex code—the National Building Code of Canada, that is.

In late March, CanSIA began what it expects could be a lengthy process to have the national building code changed to encourage all new industrial, commercial and institutional buildings to be built solar-ready. With just a few adjustments during the construction phase, contractors can make it much easier for building owners to adopt solar energy, saving them money and time during the installation process.

Carlo Di Gioacchino, Chair of CanSIA's Rooftop Working Group of the Ontario PV Caucus, said the association was planning talks with the Canadian Standards Association to explore having the national building code changed.

The CSA would be instrumental in bringing about change because it is an accredited, consensus-building third party that Canada's National Research Council, which is in charge of the national building code, could turn to for guidance. The CSA has addressed solar industry issues previously, including the development of the F900 Photovoltaic Rooftop Installation Best Practices guideline.

The association would seek to have the National building code changed to recommend that all new ICI construction be built solar-ready, and that change may then be adopted by individual provinces in their own building codes.

As a result of simple changes, the solar industry would see its potential customer base increase dramatically, said Di Gioacchino, President and Chief Executive of Vaughan, Ontario-based NorthGrid Solar Inc., which specializes in installing commercial solar systems.

"Very few ICI buildings in Canada are solar-ready today, so this would make the addressable market for the solar industry in Canada orders of magnitude larger," Di Gioacchino said.

He said the process of making a building solar-ready during construction is quite simple and generally requires only three simple adjustments.

First, the building's rooftop has to have enough structural support to bear the weight of the solar installation. Second, the building needs a dedicated conduit running from the roof deck down to the electrical room. Third, the electrical room has to be large enough to have a metering cabinet mounted on the wall.

It's also helpful if there's room for an inverter, which converts DC power generated by solar panels into useable AC power, in or near the electrical room. An inverter, which varies in size according to the individual solar system, typically can be the size of a closet, Di Gioacchino said.

"If those three things are done when the building is constructed, solar is much more accessible than if you try to retrofit a building," Di Gioacchino said. "Retrofitting is being done all over the world today, but it certainly makes it a lot easier and cheaper if you have these three things done in advance.

"We find that there are a lot of people who would be willing to participate in the feed-in-tariff program in Ontario but don't because they feel that there isn't enough structural integrity in their building to support solar, so they don't pursue it any further. That's a big concern that leads some projects to fall by the wayside."

Paul Luukkonen, CanSIA's Policy and Research Adviser, said the association also must engage with Canada's construction industry to ensure that it buys into the proposed changes.

"The building community has to be doing it properly," he said. "We want to make sure that we have buy-in from them because any time a builder is adding cost to a project, that's a big deal for them. If it's a non-mandatory reference in the code, then it could do nothing without buy-in from the builders."

Prior efforts to change building codes have seen mixed results. In April 2011, a proposed change to the Ontario Building Code that would have required at least one conduit to facilitate the future installation of a photovoltaic system or a solar domestic hot-water system in new residential units, effective Jan. 1, 2017, was rejected by the province.

But last June, the California Energy Commission unanimously approved a new set of energy efficiency standards for new homes and commercial buildings that, among other things, requires residential and commercial buildings to have solar-ready roofs so owners can install PV systems in the future.

To avoid possible backlash over a new solar-ready requirement, CanSIA stresses

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that the proposed changes could be criteria based, and buildings that do not have a south-facing roof or have shading issues wouldn't be expected to be built solar-ready, Luukkonen said.

"We're not going to ask someone to spend the extra money if they're not going to benefit from it," Luukkonen said. "But if we get the national building code changed, it would likely follow that every provincial jurisdiction will adopt the guideline."

Di Gioacchino said this initiative is especially important to CanSIA because grid parity—the point at which the cost of generating solar energy and the cost of purchasing electricity from the power company are equal—is only five to 10 years away. When that happens, the solar industry is likely to see its rapid growth accelerate even more, so having ICI buildings solar-ready is essential.

Retrofitting buildings is not only more expensive but can disrupt operations at commercial buildings such as manufacturing plants, leaving some building owners wary of adopting solar.

In addition to cost savings for the solar installation, the proposed changes would facilitate the sale of clean electricity back to the grid through feed-in-tariff programs or to meet the building's electrical requirements with excess production exported to the grid and credited to the owner's account through net metering.

Di Gioacchino and Luukkonen said proposed meetings with the CSA are just the first step in what could be a long process to get the national building code changed, but if successful, the effort would pay big dividends to the industry.

"We need to meet with the CSA and the building industry to see if there is broad support for this kind of initiative," Di Gioacchino said. "If there is, then we'd look to the CSA for guidance on how to move forward. Ultimately, we'd like to see this adopted right across Canada."

WHAT CanSIA DOES FOR YOUR ORGANIZATION

The Canadian Solar Industries Association (CanSIA) is a national trade association that represents more than 650 solar energy companies throughout Canada. Since 1992, CanSIA has worked to develop a strong, efficient, ethical and professional Canadian solar energy industry with capacity to provide innovative solar energy solutions and to play a major role in the global transition to a sustainable, clean-energy future. The services that CanSIA provides to the Canadian solar industry include:

Government Relations

CanSIA engages its member base, government and industry stakeholders collaboratively to develop and expand solar markets and industry capacity. CanSIA regularly represents the industry to the federal government and its standing committees and maintains close contact with all key bodies and agencies. CanSIA is intimately involved in the on-going development of Ontario's Feed-In Tariff program and with provincial governments and municipalities across Canada. CanSIA also works in a network with the Canadian Hydropower, Wind Energy and Geothermal trade associations to collaboratively pursue and improve renewable energy policy in Canada.

Public Awareness, Advocacy & Consumer Support

CanSIA's publications, external communications and advocacy campaigns educate the public, press and politicians about the truths, benefits and possibilities for solar energy.

Media Relations & Marketing

CanSIA is a valuable contact for the media. CanSIA also assists members to release their news items through its database of media connections. Through CanSIA, each and every member also has the means to communicate directly to potential customers and other stakeholders via the *SOLutions* magazine, bi-monthly *Solar Beat* e-newsletter, annual *Canadian Solar Industry Directory*, solar brochures and fact sheets and CanSIA's website.

Standards, Codes & Regulations Development

CanSIA represents the industry for the development of solar standards, codes and regulations.

Education & Training

CanSIA has worked with the Association of Canadian Community Colleges (ACCC) to develop solar college curricula that are now freely available to all community colleges across Canada. CanSIA is currently analyzing and exploring options with solar industry members and various stakeholders to improve solar installer certification programs in Canada.

Events

CanSIA's events are highly popular and successful in showcasing members and giving exposure to the industry: Solar Canada, the Annual Conference and Exposition; Solar Ontario; and the Summer Solstice industry celebration and Solar Drinks networking events along with other opportunities.

Additional Benefits to CanSIA Members

- Hundreds of public and industry inquiries received each month are referred to the member base.
- Business and employee benefit insurance program options.
- TD Canada Trust consumer financing.
- Discounts on merchandise and event attendance.

For further information on CanSIA membership and how to apply, visit www.cansia.ca or contact Patrick Bateman, Director of Business Development & Member Relations, at 613-736-9077 ext. 227 or pbateman@cansia.ca.

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