

SOLutions

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GOVERNMENT BRINGS
CLEARER FOCUS FOR
PROVINCE'S SOLAR MARKET

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Work Ahead**
Heavy Lifting Required

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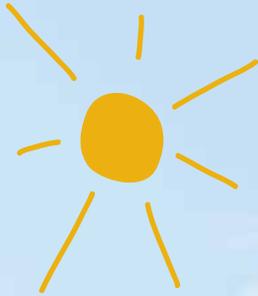
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»» ABOUT CanSIA



»» WHO WE ARE

The Canadian Solar Industries Association is a national trade association that represents the solar energy industry 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.

»» 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.

CANSIA PRESIDENT & CEO IS ONE OF CANADA'S 2015 CLEAN50



The Canadian Solar Industries Association's (CanSIA) President and CEO, John Gorman, was honoured in September by being named to Canada's 2015 Clean50 list.

"The Clean50 come from a broad array of backgrounds, such that only a few individuals are able to be recognized within any given category. To be one of them is truly indicative

of industry and personal leadership in that category," said Gavin Pitchford, Chief Talent Officer, Delta Management Group. "The process to narrow down to just 50 this year was extremely difficult. The individuals we chose for the Clean50 this year are true leaders, and should be an inspiration for all Canadians."

John was honoured for having transformed CanSIA into a member-focused, financially healthy organization and powerful advocate for solar energy, and creating a national network of more than 200 youth and emerging leader informed advocates for the cause. He returned the organization to sustained profitability, and delivered a national speaking series inspiring consumers to become producers of green energy. In the process, he secured a role for CanSIA as Canada's representative on the International Energy Agency and helped to develop solar markets in Ontario and Alberta.

Canada's Clean50 Awards — announced annually by Delta Management Group with the support of the Globe & Mail — recognizes those 50 individuals or small teams, from 16 different categories, who have done the most to advance the cause of sustainability and clean capitalism in Canada over the past two years.

"I am thrilled to be named to the Clean50 list and humbled to be part of such an outstanding group of people that make up this year's honourees," said CanSIA President and CEO, John Gorman. "Our team at CanSIA works diligently to promote the economic and social benefits of solar energy and to create an environment where consumers can become prosumers by producing the energy they consume."

For more on this year's Clean50 list, visit www.clean50.com.



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POLITICAL STABILITY IN ONTARIO INDUSTRY DELIGHTED

By Drew McKibben

THE ELECTION OF A majority Liberal government committed to the development of renewable energy provides Ontario's solar industry with much-needed stability as it moves to the mainstream of the province's electricity supply mix.

"The real impact of having a Liberal majority for the next four years, from the solar industry's perspective, is the stability and predictability and transparency that it brings to the solar market in Ontario," says **CanSIA President and CEO John Gorman**.

"They've issued a long-term energy plan, and they've committed to the amount and timing of solar electricity they're going to

procure in this province. We now know with almost complete certainty how much, and when, and where that electricity is going to be procured over the next four years."

That kind of certainty is what every industry craves, says Gorman.

"It allows both domestic and international companies to be investing in this province. It ensures we're going to be receiving the most competitive prices because the risk has been taken out of the development of solar projects, and that means the best possible value for consumers in Ontario."

The province's solar electricity sector is in the midst of a building boom that will see installed photovoltaic capacity rise from about 1.2 GW today to more than 2 GW by the end of the construction season next year, which positions Canada among the pack of leading nations in terms of installed solar PV capacity. The Liberal government kick-started that growth in 2009 when it unveiled its Green Energy Act, a policy framework designed to bring new sources of cleaner electricity onto the grid. At the same time, the province was phasing out a 6.3 GW fleet of coal-fired power plants.

Barely two years later, Ontarians went to the polls in an election and the Liberals were reduced to minority-government status. That created uncertainty in the electricity market right up until June 12 of this year, when Liberal leader Kathleen Wynne led her party to a surprise majority win.

"It was the best possible result for the industry," says **Fidel Reijerse, President of RESCo Energy and CanSIA's Ontario PV Caucus Chair**. "I'm not saying there wasn't an opportunity to build a political beachhead with some of the other parties and still see some solar progress under some other policy framework. But there would have been a substantial gap in the rethink and restart, and that would have done significant damage, even if solar managed to come out of it at the end of the day in a reasonably similar position."

Following the June election, the **Honourable Bob Chiarelli, Ontario Minister of Energy**, moved quickly to reaffirm the government's commitment to its 2013 Long-Term Energy Plan (LTEP) and its procurement targets. The province plans to buy another 280 MW of PV using a new competitive process for large-scale projects, with the first request for proposals (RFP) for 140 MW to be issued early next year and the second in 2016. It will also procure another 900 MW of PV by 2018 through feed-in tariff (FIT) contracts for projects between 10 kW and 500 kW and through MicroFIT installations under 10 kW, with annual purchase targets for each.



"We have worked to establish and maintain policies and procurement that not only positively impact our province, but also instil investor confidence and generate growth."

— The Honourable Bob Chiarelli,
Ontario Minister of Energy

The government's aim is to provide a predictable and sustainable procurement model for renewables that allows industry to plan more effectively, explains Chiarelli. "We have worked to establish and maintain policies and procurement that not only positively impact our province, but also instil investor confidence and generate growth."

Having a clear path forward is not just important for investors, notes Gorman. "It allows us as an industry association to start planning for and working towards what our permanent role is in the province," he explains.

"Our focus at CanSIA over the next four years is going to shift away from the politics, away from putting out fires, away from looking at short-term issues and toward the opportunity of entrenching solar in the Ontario electricity system, and all the benefits of distributed generation on the grid."

It provides the industry with an opportunity to be more proactive in communicating what it needs as opposed to commenting on government policy, adds Reijerse.

"I think the big opportunity we have is to move from an industry that has been reactive and scrambling, to one having a long-term dialogue about the role of solar in the energy mix with the government, our partner in this," he says.

Market still evolving, challenges ahead

Laying a long-term foundation for solar in Ontario is important because, despite the stability the election brings, it is still a market in transition. The province's procurement

targets fall short of the level of activity the market has experienced to date, reflecting the fact that the province currently has an electricity supply surplus and relatively flat load growth.

"Because of the slump in demand in Ontario, there is not a great volume of energy that needs to be procured. That is something the industry is having to contend with," says **Chris Benedetti, Principal at Sussex Strategy Group**.

Gorman believes the planned purchases will be sufficient to maintain a healthy industry. "It is more than enough business to satisfy the players who are already here, but not so much business that it's going to be attracting a whole raft of new players," he says.

To some degree, says Reijerse, the next four years are about sustaining what has been built in Ontario. "I think the growth comes in 2018 when you start to move price curves. I think right now it's about building a strong market with strong capacity, strong experience and strong certainty. It's about getting a good market," he says.

A smaller volume of projects is only one of the challenges facing the province's supply chain. The domestic content requirements that helped draw manufacturers to the market have been scrapped in the wake of a ruling by the World Trade Organization (WTO). The requirements contravened both the General Agreement on Tariffs and Trade and the WTO Agreement on Trade-Related Investment Measures.

"That is creating quite a bit of volatility on the supply chain that supports the

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development of projects," says Benedetti. Although that may drive some industry rationalization, through which companies must reorganize to increase efficiency, it may not be significant, he says.

"If we go back four years, there were a whole plethora of different organizations setting up shop to do all sorts of different components along the solar PV supply chain. Many of those entities have either been consolidated or rationalized into other operations, or they basically shut down. Much of that consolidation has already taken place," says Benedetti. "We might not see a whole lot of shrinkage, at least not to the extent we've seen over the last few years."

While the end of domestic content will expose Ontario manufacturers to outside competition, Benedetti believes they are in a good position to respond. "Particularly when it comes to the production side, one of the benefits we have in Ontario is it's a relatively new manufacturing base. Facilities here have the most state-of-the-art equipment, the most efficient equipment, the highest productivity. That makes them very competitive with supply coming out of other jurisdictions in North America," he says.

In fact, adds Gorman, many have been able to carve out a place in the global marketplace. "The companies we've attracted or developed here have turned out to be very high-quality panel manufacturers who are now finding opportunities to export their product to markets outside Ontario."

Gorman expects to see more selection in the market, creating a competitive tension that will help drive costs down.



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The shift to competitive procurement for utility-scale solar PV projects is likely to have a similar effect, he adds.

“We have a world-class market in Ontario and it has attracted world-class players, people who do business all over the world and are used to participating in competitive processes. There are also companies that have been grown here in Ontario because of this program that are now competing very successfully around the world,” says Gorman.

“It’s a very positive development, and I think we’re going to see some very aggressive pricing coming out this.”

Benedetti believes the shift to an RFP process not only provides greater price discovery, but a greater degree of certainty that projects will actually move forward. “The challenge sometimes with a standard offer style of program is that it is all gauged towards inclusion, and not necessarily the best projects to yield the best results. Now we have a system that is weighted towards the best projects at the best price in the most receptive communities. Arguably, I think that’s a good thing.”

Price parity ahead

The push for the best projects at the best prices is not just a goal on the utility-scale side of the business, says Gorman. “From residential and commercial rooftop to utility-scale, the companies in our industry want to get away from subsidies.”

And, adds Reijerse, they want to get there as quickly as possible. “The faster we drive down costs, and the faster we can squeeze even our own market, the faster we can move to a long-term, broad market opportunity.”

The cost of solar energy is a key criteria in how the government moves forward with implementing its energy policies, says Chiarelli. “Our first priority is to ask ourselves how every decision will impact electricity prices for consumers,” he says.

The solar industry has already seen dramatic declines on the cost front, with reductions of more than 50 per cent from 2009. With equipment costs expected to continue to fall, and the industry ready to sharpen its focus on

increasing efficiencies and removing red tape, grid parity is within reach, says Gorman. “By the end of four years, we hope to be cost-competitive with other generating technologies in Ontario. That’s our goal.”

Getting there will require the industry to tackle some important challenges, including issues with the government’s procurement plans. As the province consults on its large-scale RFPs, for example, there are questions around land-use and how solar will be compared

with other technologies. In MicroFIT, there are parts of the program stopping more cost-effective solutions from coming to the market and making it difficult to meet procurement targets. In Small FIT, the challenge is price visibility. Setting specific procurement windows for specific amounts of capacity is critical, says Reijerse, but the province needs to go one step further and provide the industry with the signals it needs to move away from subsidies along a transparent and predictable path.

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“The next step is about not just coming up with the next price tranche, but coming up with the long-term price digression plan and making that publicly available,” he says. “That’s what the industry needs in order to understand how to adjust itself.”

The challenge now, explains Reijerse, is that the industry is looking at a new price tranche for 2015 without the experience of actually executing projects under the current tariff. “We have only just received FIT 3 contracts, so the

market hasn’t had a chance to properly price them, to understand what the value of using non-domestic content is, or how to absorb the 39 per cent tariff drop that happened between FIT 2 and FIT 3.”

None of the issues the industry is facing are insurmountable, says Gorman, with CanSIA already working with the relevant agencies on solutions. The fact that all of these bodies are fully including solar in their planning decisions, he says, shows how important a role PV is playing in Ontario’s supply mix.

“It’s really made positive contributions to the province’s supply of energy and capacity,” says **Kim Warren, Chief Operating Officer and Vice-President of Operations at the Independent Electric System Operator (IESO)**. “It’s gone past the point of being noise. It is now a mainstream resource.”

Warren sees no significant issues with integrating the growing amounts of solar expected on both the distribution and transmission systems over the next few years. “We’ve invested in new tools and network models and forecasts to be able to manage solar,” he says.

CanSIA’s input was important in developing those mechanisms, Warren adds. “They were active within those discussions. That’s great, because we know what they’re thinking, we know their views, we know their challenges and we can incorporate that into some of our designs as we evolve.”

That kind of engagement needs to continue, he adds. “If and when the opportunities present themselves to expand solar in Ontario, that will be key.”

As the industry looks at where those opportunities lie and how to position itself to take advantage of them, says Benedetti, it is important to see the bigger picture.

“The biggest piece of advice I would have would be not to just think two-dimensionally about the application of a solar facility in providing electrons to the grid,” he says. “Look at what the system needs and what the system is going to need in the future. Adapting to meet those needs is really, really critical.”

The government has already signalled that in the second round of its large renewable procurement, it will be looking at measures to encourage the adoption of hybrid technologies that will marry renewables to things like storage. Those kinds of innovations open new possibilities for the sector, especially given solar can be sited close to load.

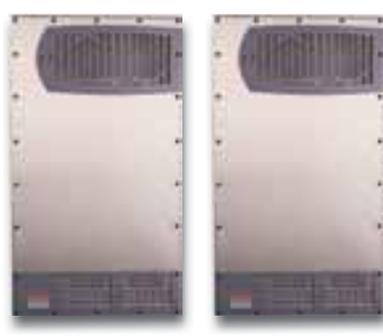
“As larger plants off in the distance become aged and need to be replaced, I think we’re in a position to start thinking about alternative solutions like solar and how they can arbitrage against other choices you have for future power supply,” says Benedetti. ●



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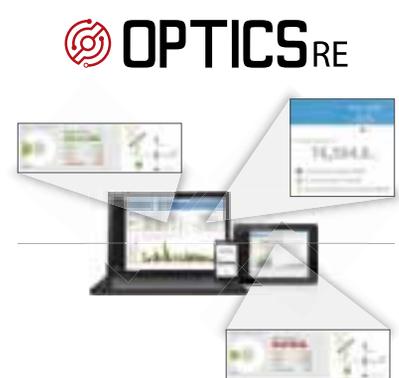
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ONTARIO REGULATORY WORK AHEAD

HEAVY LIFTING REQUIRED

By Drew McKibben

SOLAR ENERGY'S GROWING ROLE on Ontario's electricity grid and the shifting marketplace in which it operates is going to require CanSIA and its members to become more active in the regulatory arena.

"We've been given a bit of a hand up in terms of policy to help us get started here in Ontario, but now that we've arrived, we need to get more involved in the regulatory environment to ensure that, moving forward, we have an environment that is conducive to the deployment of solar. We need to make sure our voice is heard," says **Wes Johnston, CanSIA's Vice-President**.

"CanSIA is putting more resources into this area, whether it's people, money or time. We're also looking to bring in additional outside help, engaging experts and consultants who have experience in this area and adding them to our team."

The association is also looking for members to get involved, Johnston adds. "We are the conduit, but we still need members to provide input from their perspective on the ground."

I think as they move toward a new environment with fewer solar subsidies, understanding the regulatory world will become more important to them,” he explains. “We hope they have the foresight to be looking a little bit further down the road and see that they need to get involved now.”

The growing penetration of solar in Ontario is raising technical questions about how best to integrate it, says **Jason Chee-Aloy, Managing Director with the consulting firm Power Advisory LLC.** At the same time, he adds, a lot of the decision-making about how the market will operate and how future generation resources will be procured is moving from the Energy Minister office to agencies like the Independent Electric System Operator (IESO) and the Ontario Energy Board (OEB). Already, both have launched initiatives that could have a significant impact on solar generators.

“Things are changing for CanSIA and its members when it comes to new issues and how those new issues are addressed,” he says.

The migration of the rooftop solar market from one where the province hands out long-term purchase contracts towards net metering is a case in point. The government’s Long-Term Energy Plan acknowledges that the transition makes sense as the cost of solar comes down and electricity prices rise, but the nuts-and-bolts of how net metering will work will be decided by the regulator.

“It gets operationalized at the Ontario Energy Board through consultations they’ll need to have, and the proceedings they’ll need to have. And that is entirely different to dealing one-on-one with the government or Minister’s office,” says Chee-Aloy.

In fact, the OEB has already started laying the groundwork with its proposal for revenue decoupling for local distribution companies (LDCs). “It gets very technical and very difficult to see your way to a path to net metering. Revenue decoupling is one of the first steps on that path,” Chee-Aloy explains.

The way rates are structured now, LDCs earn much of their revenue based on how much power a customer uses. Anytime someone puts a solar panel on their roof and draws less power from the

grid, it makes it more difficult for a local utility to recover its infrastructure costs.

The OEB’s plan, unique in North America, would change the system so that everyone connected to the grid pays a fixed share of those costs, instead of a rate based on how much power they use. The idea is controversial, with consumer groups worried it will lead to higher bills and provide a disincentive for people to conserve electricity, but it is important for the solar sector.

“Generally speaking, we believe it helps create a model that encourages local distribution companies to connect distributed generation. And in the long run, that is positive for solar and Ontario electricity consumers,” says Johnston.

CanSIA has weighed in on the issue with a submission to the OEB and is now in the process of determining some of the other key areas where it needs to be involved. Both Johnston and Chee-Aloy agree — another area will be the IESO’s consultations on whether to implement a capacity market in Ontario.

A capacity market is an auction-based process in which generation resources compete to provide power at some point in the future, typically anywhere from one to three years ahead.

The impact on larger, grid-connected projects could be significant, says Chee-Aloy. The Ontario Power Authority, which has handled procurement through long-term power purchase agreements in recent years, will be rolled up into the IESO at the start of next year. Given Ontario’s supply surplus and rising electricity costs, he says, there is momentum for the IESO to try to do things differently when it comes to procuring generation.

The fact that the IESO is exploring the idea of a capacity market, though, raises questions about the role long-term PPAs will play in the future, says Chee-Aloy. “I have a hard time believing in a future where the IESO is going to continue to buy transmission-connected generation via long-term contracts and in parallel have a capacity market. The two are contradictory.”

Johnston says, “It will create an environment that all energy technologies will have to play within. We’re trying to get our heads around what the

implications are for the solar industry and how we make sure it has a place.”

CanSIA will also have to be at the table as Ontario shifts to a more regionally focused planning process for electricity. In Toronto, for example, planners will be weighing the costs and benefits of options to meet demand, ranging from upgrading transformers to building gas generation to installing more solar. The risk for solar is that it might be dismissed as too expensive, says Chee-Aloy.

“A lot of the planners that lead these processes, I think, are slaves to some of the traditional resources and ways of looking at things,” he says. “It would make a lot of sense for CanSIA and its members to take part in those regional planning processes because the costs and benefits of solar generation are, I think, really misunderstood.”

A clearer quantification of the benefits of solar — so regulators, LDCs and system planners understand what it brings to the grid — is going to be critical, agrees **Bob Waddell, General Manager of Centrosolar.** “You have to be able to make the case that the value of solar is more than the kW hours it produces. It’s when it produces and where it produces,” he says.

Also critical is the work CanSIA is doing, dealing with agencies and local utilities to drive down the so-called soft costs of solar by streamlining and standardizing the application, permitting and grid connection processes. It becomes increasingly important as feed-in tariffs decrease and hardware costs stabilize, says Waddell.

“We’re really at a point now where further reducing the cost of installations is getting much more difficult,” he says. “We will not continue to see the dramatic reductions in the cost of modules, for example, that we’ve seen in the last two years.”

The challenge in Ontario is that with 77 LDCs, adds Johnston, the market is very fragmented.

“One of the things we’re looking at, and we think the regulatory arena plays a role in here, is how we create an environment where solar is more quickly and easily connected to the system, and in a cost-effective way, while still ensuring the safety, reliability and security of the grid,” says Johnston. ●



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CanSIA CLARIFIES FEDERAL ROLE

WORK TO DO BEFORE 2015 ELECTION

By Drew McKibben

CanSIA HAS OFFERED THE federal government preliminary recommendations on changes to tax law, which would help the country add the benefit of solar thermal and photovoltaic development to its energy resource mix.

The simply titled five-page primer, *Solar Tax Treatment*, is not a final recommendation, says **CanSIA Board Member Jim MacDougall, President of Compass Renewable Energy Consulting**. Its suggestions, he explains, are designed to be considered in the course of the federal budget cycle.

MacDougall believes the federal government must soon do something about how its environmental performance is perceived. Clearly, it has picked up some baggage at the Alberta oil sands, not to mention slipping further away from meeting greenhouse gas reduction commitments, or inter-provincial and international tensions around pipelines and the export of petroleum products.

“To balance Canada’s reputation as a global energy leader, we’re trying to position solar as part of the solution,” says MacDougall. “We want to use the expansion of Canada’s energy export potential, and link that to expansion of Canada’s involvement in enhancing and further developing its domestic renewable energy.”

Greater federal government leadership is required, however, says CanSIA’s recommendations, “to realize the benefits solar energy can deliver to Canadians.”

Under classes 43.1 and 43.2 of federal tax regulations, some investments on systems that produce heat or electricity from renewable energy sources are eligible for special tax write-offs: accelerated capital cost allowances. In addition, the regulations allow some expenses incurred during the development and start-up of renewable energy projects to be immediately deducted: Canadian Renewable and Conservation Expenses (CRCE).

Small renewable energy companies, however, may have difficulty raising capital to finance development, or have insufficient income to take advantage of the special deductions. Consequently, companies generating energy using class 43.1 or 43.2 properties, or still in the development stage, are allowed to raise capital by issuing flow-through shares. This means the developer renounces the tax benefits, which are passed on to flow-through shareholders.

The wind energy industry has profited from CRCE; the mining industry thrives on flow-through shares. But the details written into Canadian tax regulations benefiting the renewable energy and natural resource sectors were not designed with solar energy in mind.

“CRCE doesn’t work very well for solar,” says **Lawyer Thomas L. Timmins, a renewable energy specialist at Gowlings**. He also chairs CanSIA’s Federal Caucus. He says the list of eligible CRCE expenses doesn’t fit the

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solar industry, and qualifying assets under classes 43.1 and 43.2 should be updated.

“We’ve made suggestions about how CRCE can be changed,” says Timmins. “We’ve made other suggestions about how other aspects of income tax, and how income tax is assessed, can be changed. CanSIA isn’t asking for special treatment, but put us on an equal playing field with the resource extraction industry, which has enjoyed fairly substantial tax support from the federal government since the 1950s.”

CanSIA is also recommending a three-year investment tax credit (ITC) for Canadian homeowners, whereby 30 per cent of the cost of purchasing and installing solar energy equipment would be tax deductible. The success of an ITC was demonstrated by the Home Renovation Tax Credit, says CanSIA’s recommendations. “The HRTC was claimed by over 3 million Canadians and resulted in the spending of \$4.3 billion into the economy within the one-year period.”

MacDougall says investment tax credits and favourable tax treatment make a lot of sense for the solar industry, as well as the federal government. In the United States, where a 30 per cent ITC has been available since 2006, the credit combined with net metering is sometimes enough incentive to encourage significant solar deployment, he explains.

“There is a reduction in immediate tax recovery, but the economic activity around an ITC should exceed the value of foregone revenue at the federal level,” says MacDougall.

At present, Timmins says the Federal Caucus is soliciting CanSIA’s membership for ideas and feedback, and he is optimistic that the government will find CanSIA’s preliminary recommendations engaging. He has found, beyond the Canada Revenue Agency, other government departments are already paying attention. The Department of Foreign Affairs, Trade and Development covers an area of federal jurisdiction that can benefit from the development of solar resources. So too does the Department of Aboriginal Affairs and Northern Development.

“I think the federal government will be responsive, and it has been responsive. I think they will see the logic of this”

Timmins says. “I think all parties will see the logic of this, and that’s just on the tax front.”

MacDougall says federal tax measures should form a backbone of support upon which the provinces can customize incremental incentives for solar energy. While CanSIA’s federal recommendations are not “fully baked at this point,” he says ongoing work with colleagues across the country is important.

“We’re refining our federal ask to go beyond the tax measures prepared

for the federal budget. We want a broader message and strategy around key priorities that we’d like to see each of the political parties respond to.”

MacDougall says CanSIA is preparing for a 2015 federal election, which must occur by the fall.

“We want to give all the parties an opportunity to ask questions or choose to endorse and support some of the mechanisms that we’ll be putting forward in early 2015, in anticipation of the election.” ●



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MicroFIT PROCUREMENT PROGRAM UNDERPERFORMING INDUSTRY DEBATES SOLUTIONS

By Drew McKibben

CanSIA AND MANY OF ITS MEMBERS believe Ontario needs to change the rules for its micro-scale renewable energy program, MicroFIT.

Following the 2014 MicroFIT review, the program's 2015 photovoltaic rates for qualifying installations will soon be in effect. It is the third review and fourth set of PV tariffs, which have been significantly reduced since 2009. MicroFIT now pays rooftop and ground-mount PV 39.6¢ and 29.1¢/kWh respectively for systems 10 kW and smaller. Rooftop rates had already been cut by more than 50 per cent in fewer than five years before the review.

"How quickly the price can come down, and the province still have a healthy industry, has to do with how efficient the market is," says **CanSIA President and CEO John Gorman**. "And the existing covenants in MicroFIT contracts are restricting the industry from operating efficiently."

The rules confine MicroFIT to homeowners, farmers, schools and other community applicants. Multiple contracts are not allowed and, with a few exceptions, only the owner of the property where the generation is installed can sign the contract.

At this point, if MicroFIT's success is measured by whether it accomplishes what it is designed to achieve, the program is an underachiever. There were 16.8 MW leftover from a 2013 procurement goal

of 30 MW – more than half – and this was rolled into a 2014 50-MW target. By fall 2014, the 65.3 MW sum still had 47.6 MW remaining. Now the Ontario Power Authority says what MicroFIT fails to accomplish will be given to another stream of renewable energy procurement.

There are a number of factors causing MicroFIT to be undersubscribed, says Gorman. "We are trying to address each of them, interconnection issues, technical barriers, and providing new diverse ownership models, providing more options and efficient financing, is a very important factor."

Gorman says CanSIA would like to see commercial aggregators allowed into MicroFIT. This would permit companies to lease land or rooftops from individuals, install and operate multiple third-party renewable energy projects, and sell the aggregate generation through individual MicroFIT contracts.

"It comes down to being able to offer a suite of options to residents," explains Gorman. "How do they want to have solar on the roof? Do they want to own it? Do they want to lease it, or do they want to lease the roof to a company that will own the generation and pay them a monthly fee? By creating this kind of flexibility for customers, we're going to be able to drive down the cost and increase market penetration significantly."

One Ontario-based company, Grasshopper Solar, has actually designed an aggregation program that works with MicroFIT's existing rules. A qualifying applicant with Grasshopper's Free Solar Program receives an upfront payment of \$3,000 to have a PV system installed on the roof of a detached home, and Grasshopper does all the work: regulatory, contractual, interconnection, installation and insurance. The 20-year payments on the MicroFIT contract, assigned to the property owner, go to Grasshopper. After 20 years, everyone walks away, and the homeowner keeps the PV.

Grasshopper Solar CEO Azeem Qureshi is not prepared to disclose the exact number of PV installations his company has completed for customers with MicroFIT contracts. He says Grasshopper has "processed" more than 2,500 MicroFIT applications and installed hundreds of systems, "many of them on the rooftops of Free Solar customers."

"The reason why the Free Solar Program came about is because when our sales guys are talking to customers, most

“What we need in the residential space is as much penetration as possible, and to get that we have to bring in the most cost-effective financing. We have to be able to bring in companies that can directly own contracts and expand the options available to customers, streamlining the process.”

— CanSIA President and CEO John Gorman

people don't have \$40,000 to spend. Statistically, only one out of 10 people qualify for financing,” says Qureshi.

“So we asked what are we going to do with these nine people who are interested in solar. That's where our program came from, how do we address those nine people.”

Grasshopper, of course, would benefit from the rule changes CanSIA is just beginning to formally articulate. And while Qureshi now speaks on behalf of Grasshopper, he recently became chair of CanSIA's MicroFIT Working Group. Soon, he will be working with the association and its members on this issue.

Not all members, however, wholeheartedly agree with the MicroFIT rule changes CanSIA is contemplating. **Isolara President Warren Abar** is a good example. Isolara is another Ontario-based company in the MicroFIT market.

The company started in 2003, and since the program was launched has

installed more than 300 systems for customers with contracts. Abar says he recalls the early days, when commercial third-party MicroFIT contracts were briefly allowed. He says a lot of unhappy consumers were left in the wake of solar service providers too focused on simply chalking up lease arrangements and getting contracts signed.

“Our only concern is it could go back to the early days when the name of the game was to sign people up without them fully understanding what they're getting involved in,” says Abar. “What was promised by some companies was not delivered and not all the terms and conditions were fully disclosed.”

Isolara works hard to maintain a high level of integrity, he says, adding that unhappy customers are not good for the industry. “The integrity part is important,” says Abar.

He is quick to agree with both Gorman and Qureshi that MicroFIT is in

trouble and something has to change. He would like to see commercial participants allowed and an increase in system size to 30 kW. He also supports multiple MicroFIT contracts if the properties and systems are all owned by the same entity. When it comes to supporting third-party ownership and aggregation, however, he is reluctant.

“I hope that if things are going to change, the government will put in the appropriate safeguards to protect consumers.”

Qureshi, on the other hand, emphasizes a need to light a fire under Ontario residential, rooftop PV. If aggregation is allowed, he says, “the results will speak for themselves.” There needs to be a shift, Qureshi believes, in the whole direction of the province's solar market.

“The reason we're supporting this is I believe it's the right thing for Ontario to do, to continue to support MicroFIT to the point where residential numbers are larger, in terms of megawatt volume, than ground mount or solar farms,” he says.

The **Ontario Power Authority's Mary Bernard** says Energy Minister Bob Chiarelli recently directed the corporation “to undertake focused stakeholder engagement to inform potential enhancements” to both FIT and MicroFIT. The OPA, says Bernard, will report its recommendations by the end of the year.

“We expect to consult with stakeholders this fall, and we will explore why the MicroFIT Program is not meeting its procurement target in this forum,” says Bernard.

The bottom line, says Gorman, is the Canadian solar industry wants to be in a competitive and unsubsidized market by 2020, with a supportive public policy framework. “If we want to get to an unsubsidized world, a net metering world, which we do, that means we're going to need greater penetration of solar.

“What we need in the residential space is as much penetration as possible, and to get that we have to bring in the most cost-effective financing. We have to be able to bring in companies that can directly own contracts and expand the options available to customers, streamlining the process.” ●

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SAFETY FIRST

CANSIA WORKS WITH FIRE CHIEFS TO DEVELOP TRAINING TOOL

By Nick Gustav

WHEN A FIRE BREAKS out in Ontario, firefighters show up with many assets to work with, including state-of-the-art fire trucks and equipment, years of experience putting out blazes and, of course, broad shoulders. But CanSIA wants to make sure they are armed with something just as important – a working knowledge of solar PV installations.

At the start of 2014, CanSIA formed its Solar PV Fire Safety Working Group, chaired by **Jen Aitchison, a partner with the insurance brokerage and consultancy firm Jones Brown** in Toronto. The working group has partnered with the Ontario Association of Fire Chiefs to develop a training tool to educate firefighters about solar PV installations, including best practices for putting out fires at buildings with solar PV equipment.

The CanSIA working group has developed a training manual for firefighters that it plans to unveil at the Solar Canada 2014 national conference Dec. 8-9 at the Metro Toronto Convention Centre. The manual will be made available to fire training officers throughout Ontario and eventually across the country.

“Solar PV is new to the public and new to a lot of first responders, so CanSIA is taking a proactive role to ensure that all stakeholders understand solar PV and know that if dealt with properly, solar PV certainly is a safe technology that is beneficial to the community in many ways, especially in terms of job creation and the environment,” said **Wes Johnston, CanSIA Vice President**.

“The Ontario Association of Fire Chiefs has been instrumental in this partnership.

They’re the subject-matter experts. We know solar, they know fires. Put it together, and we’ll create a great training tool.”

Mike Molloy, fire chief for Meaford, Ontario, and a board member for the Ontario Association of Fire Chiefs, has spearheaded his association’s efforts on the manual.

“The association that we have with CanSIA is very important,” Molloy said. “Solar photovoltaic is a relatively new energy source, and as it becomes more and more popular in the commercial, industrial and residential areas, the training of firefighters becomes increasingly important because up to this point, we’ve had very little training in that. It’s fantastic that we’re having this collaborative effort to get this training manual done.”

One challenge for first responders is that the rapid adoption of solar PV is outpacing firefighters’ ability to learn about the technology and keep track of which buildings are equipped with installations. Firehouses typically have a database of addresses in their jurisdiction that can be updated with information about buildings’ special characteristics that could affect firefighting efforts. But right now, firefighters often do not know that a building has solar panels until they arrive on scene.

The CanSIA working group is working with the Ontario Ministry of Energy and the Ontario Power Authority to determine how to best provide firefighters with a database of solar PV projects while adhering to the privacy safeguards in the province’s feed-in tariff program.

Several U.S. cities, such as San Francisco and San Diego, already are tracking solar PV installations in an effort

to provide useful information to first responders, according to a 2013 report by the Fire Protection Research Foundation, a research arm of the National Fire Protection Association.

The CanSIA working group is also compiling fire-safety concerns and tips from the Ontario fire chiefs to be incorporated into best practices for solar PV installation and maintenance.

Fires stemming from properly installed solar PV systems are exceedingly rare, but that doesn’t mean the equipment isn’t a concern for firefighters. During a fire, a solar PV system may continue to generate electricity, posing a risk of electrocution for first responders. Firefighters often will cut holes in a building’s roof to expel heat and smoke, but that practice could be more dangerous if a solar panel is on the roof and a firefighter doesn’t take the proper precautions.

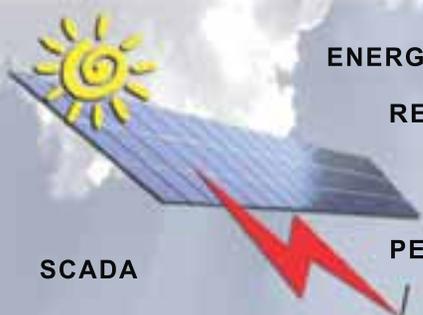
Similarly, since water conducts electricity, firefighters should usually set their hose nozzle to the “fog” setting instead of the full-blast, steady-stream setting when a building has a solar PV installation. The fog setting breaks the water stream into small droplets that reach a greater surface area, increasing heat absorption and speeding up the water’s conversion to steam, which displaces the oxygen that feeds the fire. The smaller droplets also minimize the risk of electrocution for a firefighter.

“The fog setting allows for a broken water stream,” Molloy said. “The droplets are not connected to each other, which will reduce the risk of electrical transfer. If you have a straight stream and you hit an energized source, that electricity can follow the water back

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up into the hose. So, if you go to the fog setting, that reduces the risk.”

Additionally, firefighters need to know how to disconnect a solar installation to reduce the risk of secondary fires.

Johnston said that in several instances, firefighters arrived at a fire at a building with a solar PV installation and were unsure about whether there were additional risks and how they should fight the fire. In those cases, the fire department’s default position is usually to err on the side of caution and simply let the fire burn out, taking the whole building with it.

“That’s obviously a huge public-safety concern, and it’s a concern for the industry as well because we certainly don’t want buildings to burn unnecessarily,” Johnston said. “We saw this as an area where there was an education gap, and we needed to educate the public and first responders. We’ve had a lot of membership participation in this effort, and that indicates to us that it is an industry priority, and they want to see action here.”

The training manual will eventually be used by fire colleges and firehouse training officers to conduct classroom training. The goal is to provide all of Canada’s firefighters with standardized training because it’s common for firehouses from several municipalities to work together on large fires, so all firefighters should be similarly prepared.

“Any time a new technology comes out where there are fire-safety considerations, first responders need to understand how it works, how to approach it, and whether it changes the way they fight a fire,” Aitchison said. “Keeping firefighters safe is the main goal of this training tool.” ●

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By Lia Van Baalen, ELSE Co-Chair

ANOTHER 20-HOUR BLACKOUT IN remote northwest Nepal has a health care worker fumbling in the dark of the Siddheswor community clinic.

In this small, two-room stone building perched on a steep hillside, it's a daily struggle for staff to administer vaccinations to children, help women in labour or set broken limbs.

Thanks to a 1.7 kW off-grid PV system funded by donations arranged by Emerging Leaders for Solar Energy (ELSE) and built by not-for-profit organization SunFarmer, this clinic will finally have access to reliable, clean energy, thereby improving the health care services for 4,000 patients and 100 births annually.

"The importance of energy access for these health care facilities cannot

be overstated," said **Amanda Eller, Marketing Manager at SunFarmer.** "Health workers are unable to deliver what we would consider even basic care without electricity. It's been exciting to see the role solar can play in transforming communities in off-grid locations."

Access to a steady energy supply means that the clinic can extend its hours, accommodate nighttime emergencies and communicate with the regional hospital. The clinic is now able to power basic amenities like LED ceiling lights, fans, birthing lights, cell phones and a computer. With increased energy access, they plan to purchase more advanced medical devices including a vaccine refrigerator, an oxygen machine and a suction machine.

SunFarmer is a not-for-profit organization that provides the capital and

technical expertise needed to bring solar energy to hospitals, schools, and other institutions that lack reliable energy. Most importantly, they also provide the monitoring and maintenance support to ensure the system performs over the long-term.

Building off-grid solar PV systems in remote areas is definitely challenging, said **Jason Gray, Managing Director of SunFarmer.** Some of the more unique challenges faced by the installation team included a four-day delay to ship special drill bits capable of penetrating the roofing material, which was made of concrete composed of chunky pebbles and stones. "Even a small piece of tool or equipment can hold off the installation, as there will be no shops nearby to purchase them from," Gray said.

SYSTEM DETAILS	
Size of system	1.68 kW
Location	Siddheswor, Nepal
Installer	Gham Power, local contractor
Modules	8 x 210W poly-modules - Vikram Solar-Eldroa Series
Storage	12 x 12V, 150AH solar deep cycle tubular batteries - Exide LMS series 1 x MPPT 60A charge controller - Outback, Flexmax series
Inverter	1 x 1.4 kVa off-grid inverter - Outback, GFX series
Racking	Locally produced aluminum racking - 30 degree tilt angle

Transporting the fragile modules and supplies by truck was extremely difficult. It took four days to ship the goods from the nearby city of Kathmandu, and the final leg of the journey was a breathless hour-long, off-road grind over a steep and slippery dirt track.

The last obstacle was actually installing the array, since there was no electricity onsite. "We generated our own power from the solar modules to carry out the installation," Gray said.

It was the powerful juxtaposition of the personal and the political that encouraged **Managing Director of Local Content Assurance Bureau (LCAB), Etienne Lecompte**, to contribute to the fundraising campaign. "It was a great initiative that demonstrated the value of solar power in a different context, outside of our typical commercial and industrial applications," he said, adding that the solar industry is valuable because solar power is for everyone. Lecompte had also volunteered in Nepal 15 years ago as an English teacher. LCAB was one of CanSIA's member companies to donate to the project.

In just two months this summer, the ELSE projects committee was able to raise more than \$5,000. "Everyone I reached out to responded favourably to the project. Everyone wanted to get involved, whether by donating or supporting in some other way," said **Noel McDonald, ELSE Board Member and Projects Committee Co-Chair**.

As ELSE's first international development project, there were some important lessons learned. **Santiago Bueno, ELSE Board Member and**

Projects Committee Co-Chair, said the biggest challenge was overcoming the assumption that they would be able to raise the full amount at CanSIA's Solar Ontario conference in May. "By reaching out directly to companies we were able to get a better response; just having a booth set up at a conference was not as effective," he said. For McDonald, it was more difficult than he had initially expected to set up the donation infrastructure.

"After this initial success, ELSE and CanSIA members are discussing an annual projects fund to bring the benefits of solar to more communities like Siddheswor," said **Jonathan Frank, ELSE Board of Directors Co-Chair**. "Future projects would get ELSE members more involved in project development and implementation, so the project would generate an additional benefit of skill development in Canada."

Through initiatives like this, ELSE is able to have a more active approach in promoting solar energy, Bueno said. "It's a more high-profile approach than regular advocacy - when you can help communities internationally that truly need it, that kind of story really advances the public's feelings towards solar." ●

ELSE would like to thank all those who were involved. A full list of donors is profiled on our website at www.elsecanada.ca/international-development. To donate to our next project, please contact us at else@cansia.ca.

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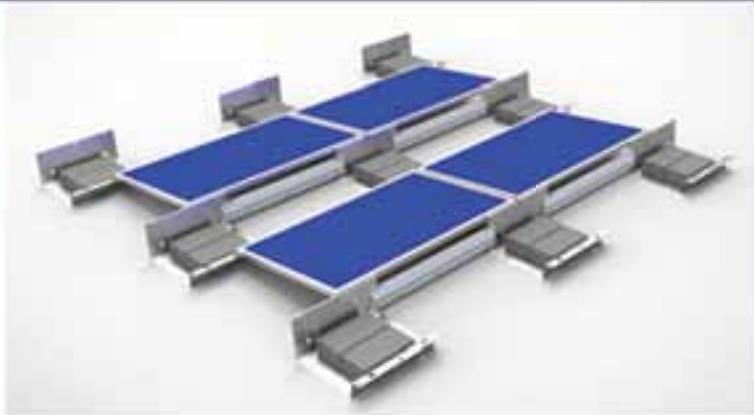
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