

# SOLutions



## CanSIA FOCUSES ON NEW MARKETS

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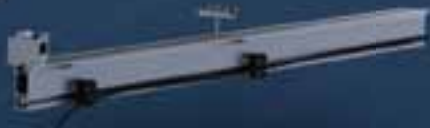
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**ON THE COVER:** Background: ©David Vonesch, BSc. En. Photo courtesy of SkyFire Energy. Inset: Silver Islet Tower, Ontario, 2004. Photo courtesy of Carmanah Technologies.

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## » WHO WE ARE

The Canadian Solar Industries Association (CanSIA) is a national trade association representing 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 the capacity to provide innovative solar energy solutions and to play a major role in the global transition to a sustainable, clean-energy future.

## » WHAT WE SEE

By 2025, solar energy is widely deployed throughout Canada, having already achieved market competitiveness that removes the need for government incentives, and is recognized as an established component of Canada's energy mix. The solar industry will be supporting more than 35,000 jobs in the economy and displacing 15 to 31 million tonnes of greenhouse gas emissions per year, providing a safer, cleaner environment for generations to come.

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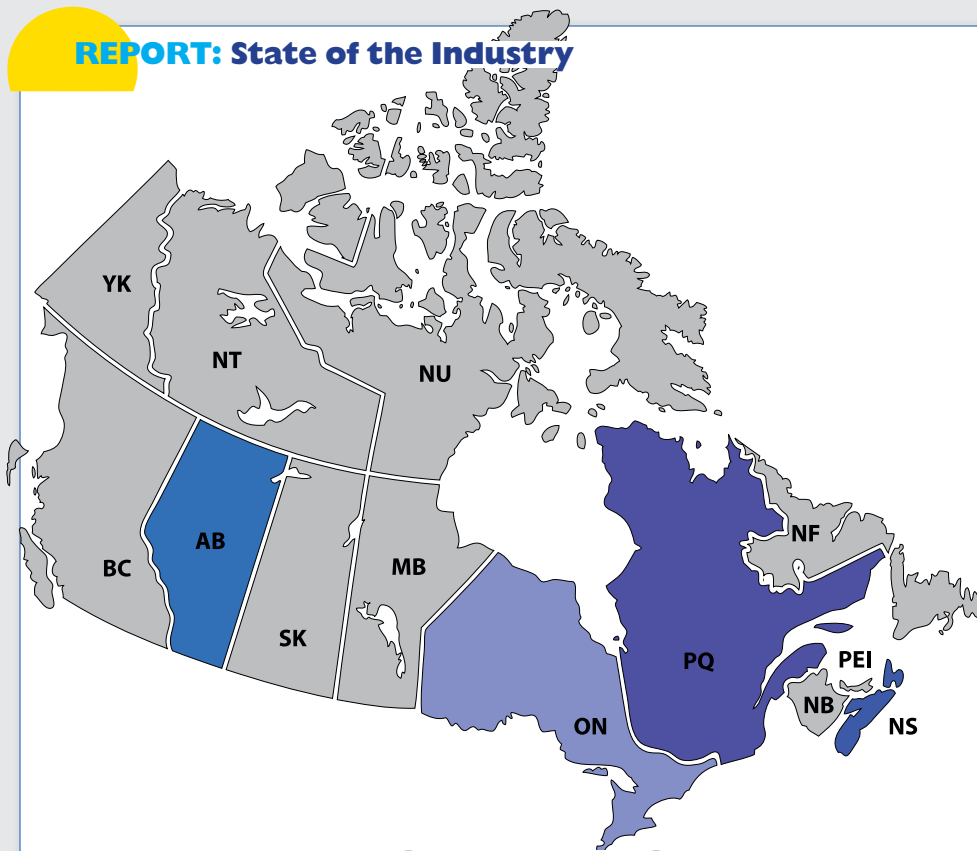


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## BEYOND WHAT HAPPENS IN

Ontario in 2013, members and executives of CanSIA will see Canadian solar thermal and photovoltaic markets mature, driven by the inevitability of growth.

“Our business plan is to bring Canada over the tipping point by investing time and other resources into Alberta, Nova Scotia and Quebec,” says **CanSIA President John Gorman**. “We see the biggest and quickest market potential in those three areas.”

During the summer Gorman was in Alberta, where he met with provincial and municipal politicians, senior bureaucrats, academics and business people in Edmonton and Calgary. He communicated the ability

# CanSIA FOCUSES ON NEW MARKETS

By Drew McKibben

## SOLAR IMPACT RADIATES THROUGHOUT THE NATION

The Canadian solar industry must continue to make a strong case that solar energy is going to be competitive with traditional energy sources in the near future.

of solar resources to help overcome the escalating challenge of finding new energy supplies that do not weigh on the yoke of environmental and economic responsibility.

“There is a convergence of provincial, municipal and utility programs and policies coming together and creating a very significant opportunity,” says Gorman. “We came out of there feeling confident Alberta will introduce a draft renewable energy program that will have a significant solar component, and that

it's being fast-tracked by **Premier Alison Redford.**"

In Alberta and elsewhere, Gorman says the Canadian solar industry must continue to make a strong case that solar energy is going to be competitive with traditional energy sources in the near future.

"There are lots of reasons why Canada could be a global leader, and Ontario has proven this. A number of other regions are looking very, very seriously at introducing their own programs, so I feel we're at a very promising but precarious point."

Gorman believes Canadian provincial markets are not evolving in the shadow of Ontario, but rather in the context of what is happening there. The feed-in-tariff, or FIT program, has drawn the attention of everyone involved in the energy

activity, solar is pulling its weight in greening the grid through the offset of carbon emissions and the development of distributed generation.

"Ontario is now going from the developmental phase into a program that can continue to run, be administered and chug along in a predictable and sustainable way," says Gorman. "It's about to make it over that tipping point, but there is still risk and uncertainty. The critical mass of Ontario has not made it past the point where it will be immune to political change, for example."

Political change in Quebec, on the other hand, observes Gorman, is not a bad thing for renewables, with the Parti Québécois defeating the Liberals to head a new minority government. This year

Scotia Feed-In-Tariff Forum, examining opportunities for renewables under Nova Scotia's renewable electricity plan and community feed-in-tariff program, ComFIT. Promoters highlighted a CanSIA sponsored session as "a critical dialogue on how to drive solar PV opportunities in Nova Scotia with input from the Department of Energy." The results of the think-tank discussion were distilled and published in a report for CanSIA members.

Three months ago, says Gorman, PV was not registering on the Nova Scotia radar. "This is all happening pretty quickly. Nova Scotia, for a number of years now, has really focused on wind but has decided this year to look at opening ComFIT up to PV. We have a lot of activity going on there, and a new caucus set up in Atlantic Canada is concentrating on policy input to the developing market."

Nova Scotia's recent interest in PV is notable, but the province has also been a stalwart proponent of ST when other provinces and the Federal Government seem to be losing interest. As a result, and as CanSIA widens its focus to encompass inviting opportunities in provincial markets, it is also renewing its approach to ST encouragement nationally.

There are three tacks to this approach, says Gorman. "The first addresses building codes and relationships with the building community; the second is education of policy makers from all level of government, the public and business people; the third focuses on municipal permitting and approvals requirements."

"The Federal Government has phased out a program that was offering very generous incentives for companies and residents to install solar thermal heating and cooling, and this has coincided with a couple of the larger provinces pulling their incentives," says Gorman.

"CanSIA is having these discussions at the provincial level to reinstitute some of these programs, but we also recognize broader work has to be done so we're not so beholden to the ebbs and flows of incentive programs." ●

John A. Gorman, CanSIA President



industry across the country as well as the international solar community. In short, the ongoing lessons of FIT and its parent, the 2006 Renewable Energy Standard Offer program, have been monumentally absorbing.

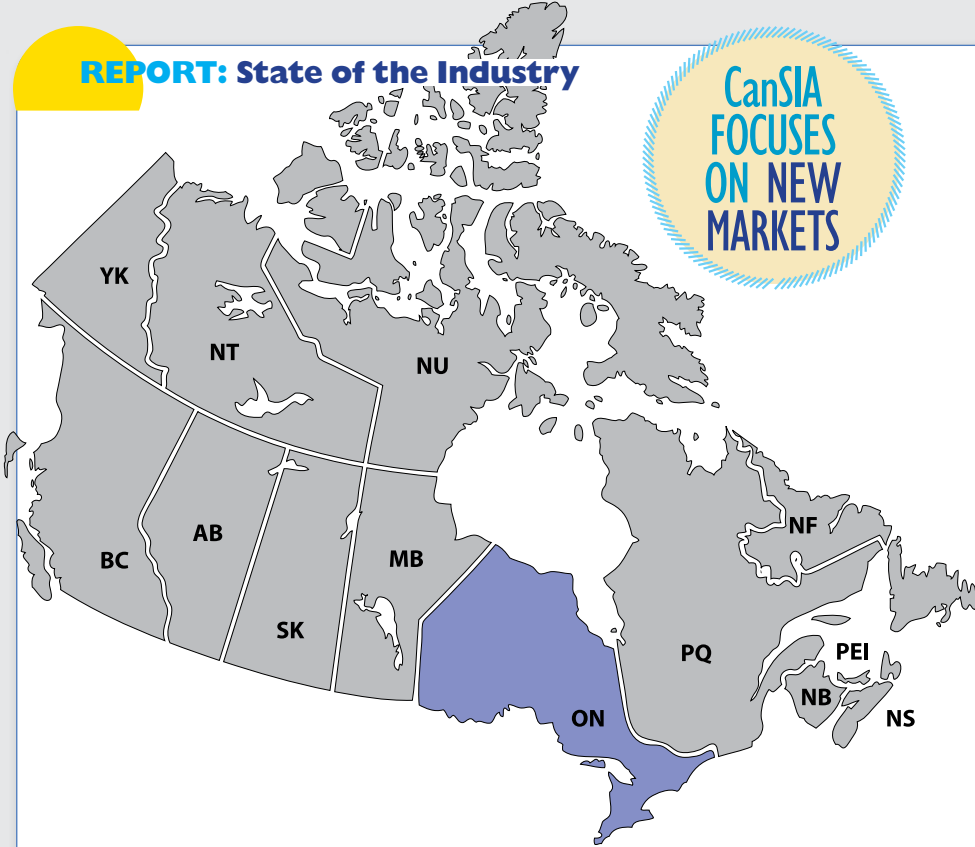
Ontario's initiative, from the solar sector alone, has produced tens of thousands of power-producer applications, thousands of jobs, more than 500 MW of generation installed and 1,600 MW of additional capacity under contract. In addition to jobs and significant economic

the Liberals introduced a solar thermal and photovoltaic pilot program that is as distinct in the Canadian context as the province's culture, as you will discover further in this issue of *SOLutions*.

"The election results there point to a party that is likely going to be very supportive of the existing program, and may want to promote even more renewables because of its environmental bent. There is an opportunity there."

At the time of printing, Gorman had just spoken at the privately organized Nova

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**ONTARIO HAS  
RELAUNCHED ITS** feed-in-tariff program, dubbed FIT 2.0, finalizing rules and opening application windows for all but the largest projects.

Following a lengthy review launched in fall 2011, the Ontario Power Authority (OPA) finalized and issued new microFIT rules in July 2012. The program acquires supply from renewable systems no larger than 10 kW, and 99 per cent of applications are photovoltaic. At the same time—to the great relief of the solar industry—it began accepting microFIT applications.

2012 has been dominated by waiting, says **CanSIA board member Bob Waddell, General Manager of Centrosolar Canada.** “It’s been a big challenge. People had to have an extraordinary amount of patience while waiting for this and trying to keep their businesses running. We’re all watching now to see if the OPA can make things happen.”

The **OPA’s Tim Butters**, before commenting on the progress of the revised FIT program, points out there are now more than 13,000 microFIT projects contracted and fully commissioned; which, he adds, are providing

Corporate consolidation is occurring in Ontario, as it is globally, and increasing market demands are beginning to favour the most experienced competitors.

# In ONTARIO —

## LARGE PROJECTS NEXT STEP

clean energy to the grid. Collectively, they have an installed capacity of 115 MW.

“Since the microFIT program relaunched on July 12, the OPA has received more than 5,000 applications, which includes those who chose to resubmit during the transition period,” says Butters, who believes this demonstrates Ontarians’ sustained interest in the program.

The resubmission of applications, which Butters refers to, is an important feature of the FIT relaunch. The last microFIT report before

Photo courtesy of  
Cleave Energy Inc.



Enwave Theatre Building Integrated Photovoltaic Installation at Toronto's Harbourfront Centre. Photo courtesy of Internat Energy Solutions Canada Inc.



# FIT Rolls On;

the reopening, dated June 25, indicated nearly 50,000 applications in the queue. But those who applied between September 2011 and April 5, 2012 became subject to the new FIT rules and were given 30 days to reapply and retain their timestamp or be terminated: the transition period.

Butters couldn't comment on the number of applications now in the microFIT queue. According to their bi-weekly microFIT Report dated Oct. 15, 2012, which reported on August data (the last available in time for this issue of *SOLutions*), the OPA had seen some 460 ground-mount projects and more than 9,500 rooftop projects approved. More than 26,000 rooftop and 2,551 ground-mount projects had been withdrawn or rejected.

"By saying the window is open and you have until Aug. 10 to reapply, they were really trying to clean out as many of

those old applications as they could," says Waddell. He isn't surprised to see ground-mounted microFIT projects winnowed by the new program's terms and conditions. MicroFIT ground-mount PV has been reduced to 44.5¢ kWh from 64.2¢. Also, microFIT ground-mount is now essentially limited to agricultural land that is not adjacent to residential property: a very important change.

Despite this Waddell goes on to explain that rooftop solar industry "can generally work with" the other FIT rate reductions: although rooftop microFIT like its ground-mount counterpart similarly dropped by about 30 per cent which makes small microFIT systems (less than 5kW) much more challenging as their fixed installation costs are proportionally much higher, so the payback is marginal. All other FIT solar rates dropped about 18 per cent. He also

believes microFIT participants now reflect some optimism about how 2012 will finish up. At this point it seems the OPA will fulfill its 50 MW microFIT quota without too much fuss.

How this recommencement of FIT, to be followed by two more tranches of applications, will evolve the market, though, remains to be seen.

**CanSIA Board Chair Michelle Chislett, Vice-President of Solar Development for International Power,** says the best way to interpret the changes in Ontario's solar market is to recognize the signs of maturation. Corporate consolidation is occurring in Ontario, as it is globally, and increasing market demands are beginning to favour the most experienced competitors. "The changes that have impacted the industry have resulted in mature companies operating in Canada,"

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continued from page 15

says Chislett. “In essence we are seeing a coming of age.”

Following the July microFIT opening, the new rules for all other projects were finalized in August, and a two-month application window for projects 10 kW–500 kW, small FIT, was scheduled for early October. A significant issue for small FIT is, once again, a new ruling that prohibits ground-mount projects adjacent to residential property. Small FIT ground-mount is also limited on commercial and industrial land, where it may only be installed if the PV project does not become the primary function of the property.

CanSIA is playing a lead role with the land use working group led by the Ministry of Energy, bringing together numerous municipalities and the Ontario Federation of Agriculture. CanSIA hopes this effort will result in a softening of these prohibitions and establish ground-mount setbacks. The intention is to have the new setbacks in place before the small FIT opening, says Chislett. More on this issue can be found on page 42.

A rejig of the small FIT queue is also certain, largely due to a new point system devised by the OPA to assess applications. The review dictates a minimum 10 per cent of the 1.2 GW capacity that remains of the FIT allocation, to be accomplished by 2015, must have at least 50 per cent community or aboriginal participation. Priority points are assigned to these projects with community or First Nation backing, moving these applications up the queue.

“The point system offers many opportunities and has initiated some very creative business models,” says Chislett.

At the time of printing what remained vague were the details that are so essential to creating strong business cases.

If proposed PV projects don’t make it through the reapplication process in the small-FIT opening, Chislett believes they too are likely to be from the ground-mount sector. On the bright side, though, as the tariff for wind energy at this scale is not particularly inviting, a large portion of the 200 MW sought through small FIT is likely to be PV, rooftop PV.

“I think the OPA and the ministry always intended this program, at least the microFIT and small FIT, to have a majority of the installations being urban rooftop rather than rural ground mount,” says Waddell. “Their expectation in the beginning was rooftop, and I think they’re steering it back to that.”

The future of FIT ground-mount PV will become evident in the large-FIT application window, not yet scheduled. One thing everyone agrees on is the immediate need for large ground-mount PV projects to support Ontario solar equipment manufacturing, the success of which is a cornerstone of the FIT program.

“There is a place for both rooftop and ground-mount in the industry and certainly in our communities,” said Chislett. “I think we will certainly see more rooftop projects in the future. Large ground-mount systems, however, bring capacity to the system, and

well placed, are a boon to the community. So I think we will be seeing more of both.”

On Oct. 15 Ontario Premier Dalton McGuinty announced his resignation and prorogued parliament.

“CanSIA will continue to promote the solar industries’ historic success in creating jobs and bringing business to Ontario which we know will resonate across political lines,” said **CanSIA President John Gorman**. “We will continue to advocate for the launch of the Small FIT and Large FIT application windows as soon as possible.” ●



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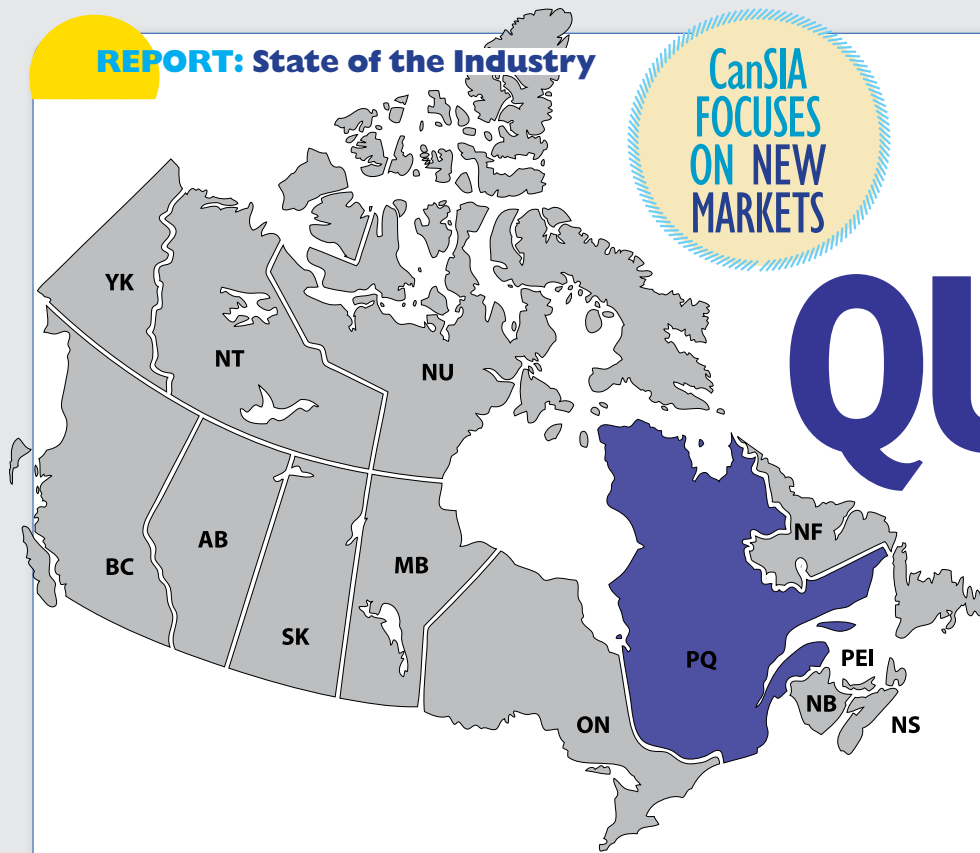
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# QUEBEC PILOT MODELS LONG-TERM PLAN

The Programme d'aide à l'installation d'équipements solaires opérationnels, or PAIESO, promises financial support for approved solar thermal and photovoltaic installations that offset fossil fuels.

**QUEBEC HAS LAUNCHED A** two-year, \$7 million pilot to evaluate the installation of new solar energy projects in the province, and chances are good it will become a long-term program.

"I think we'll continue up to 2020 to support the solar industry," says **Alain Daneau, Director General of the Provincial Resource Ministry's Bureau of Energy Efficiency and Innovation**. "I think it will remain a small contribution to the energy balance in Quebec. I think the pilot will become a program. It's our expectation. And it will look much the same."

The Programme d'aide à l'installation d'équipements solaires opérationnels, or PAIESO, promises financial support for approved solar thermal and photovoltaic installations that offset fossil fuels. Daneau's office launched PAIESO in spring 2012, and 30 applications evenly divided between ST and PV had been submitted by the fall. The deadline for proposals is March 2013, and successful applicants will have two years to complete their projects.

Solar thermal equipment is eligible for a rebate of up to 50 per cent of total project costs. Photovoltaic is 75 per cent. The maximum PAIESO contribution to a single project of any technology is \$300,000.

"We're getting lots of inquiries and there's lots of quoting going on, but it's only just getting going," says **Matrix Energy's Brian Wilkinson, a Past President of CanSIA**. Matrix is a wholesale provider of photovoltaic and solar thermal air-heating equipment.

In the national context, PAIESO's PV funding is unconventional: it is off-grid. Projects between 3 kW and 50 kW cannot be connected to the province's hydro-powered electricity system. They may be connected to a micro-grid, but applicants will have to prove they're replacing generation that is at least 80 per cent fuelled by natural gas or a petroleum product.

“On the PV side you’re going to get outfitters, telecom, mining firms and remote communities for example interested in the program. It will be pretty varied,” says Wilkinson. “Certainly in the far northern communities, bringing in fuel to remote areas is a pricey and potentially dangerous proposition. And often the operation of gensets can be wasteful. You might have a 20 kW generator using just 20 per cent of its capacity, yet running at almost full power. This program will combat this problem and stimulate the use of hybrid applications where the PV system will very cost effectively handle that 20 per cent load saving the genset for the heavy lifting only when needed. This program not only helps everyone achieve their own greenhouse



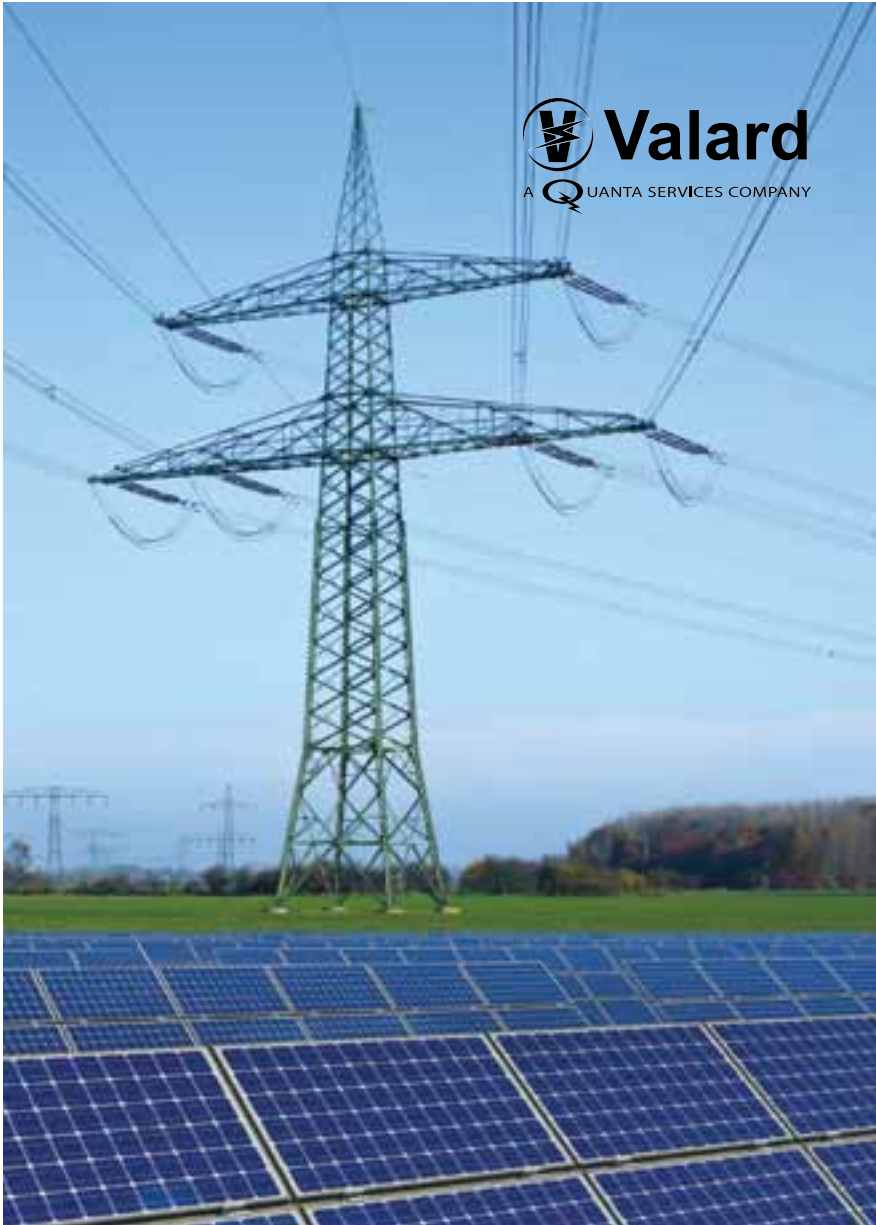
gas mitigation targets but reduces the customer’s overall energy cost.”

Daneau explains PAIESO’s \$7 million was drawn from Quebec’s 2006-2012 \$1.5-billion climate change action plan. Because Hydro-Québec’s utility mix is about 95 per cent hydraulic, PV is and for now will remain an off-grid component.

In total, PAIESO is aimed at reducing 3,500 tonnes of greenhouse gas emissions, and whether PV or thermal the program is targeted at the commercial, industrial and institutional sectors. According to the province, solar domestic hot water does not qualify because 70 per cent of Quebec residents use electricity for heating.

In terms of program investment, because of a “wide swath” of anticipated





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*continued from page 19*

PV applications, Wilkinson predicts PV may come out ahead of ST through PAIESO.

"We're seeing good results with this program on the solar thermal side as well," he explains. "But a lot of companies are putting off building new buildings, even renovations are down. Were the economy different, and were natural gas prices higher our product's ROI would probably change thereby buoying demand."

While ST makes up "a good part" of Matrix's business, says Wilkinson. The discontinued federal EcoENERGY ST program has been a problem for the sector.

"That has certainly had an impact," he says. "Most of our (ST) market I would say, now, is for new buildings where people just recognize the cost advantages of a solar thermal system, particularly in our case where we are preheating ventilation air, which accounts for a large chunk of a building's operating costs. We offer a competitive and practical long-term solution to a building owner to help offset those energy costs."

While PV may be a more attractive investment today, Daneau says there are more provincial greenhouse gas emissions related to fossil-fuel heating than remote electricity generation. Quebec's manufacturing, mining and forestry industries have space- and process-heating demands met by natural gas, oil and even coal. Therefore, the long-term potential for the Quebec solar sector as viewed by government from environmental and economic development perspectives is on the ST side.

"We see it that way," says Daneau. "PV is very developed in China, in Germany. In terms of building solar companies in Quebec, we see more potential in solar thermal than PV because we cannot compete with the Chinese."

Quebec's greenhouse gas reduction target is 20 per cent below 1990 levels by 2020. The newly elected Parti Québécois minority government campaigned on a promise to increase the goal to 25 per cent, which may bode well for continued government interest in ongoing solar deployment.

"This is the Quebec government's sniff of the industry and its potential benefits," says Wilkinson. "This is phase one. Will there be a phase two? As we say in French, 'on verra,' – we'll see." ●

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ON NEW  
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**NOVA SCOTIA HAS PROVEN** itself a steady believer in solar thermal heating by perpetuating installation incentives while other provinces and the Federal Government have not, and now it is looking at a feed-in-tariff for new photovoltaic generation.

CanSIA Board member **Heather MacAulay** is President of Nova Scotia-based **My Generation Inc.** She also chairs the association's **Atlantic Caucus**, which she says is advocating for balanced ST and PV development. Nova Scotia officials, says MacAulay, are listening.



# NOVA SCOTIA CARRIES THERMAL



Solar installation by EnCom Alternative Energy Solutions Ltd. in Clayton Park, Halifax

“Everyone seems to be aware we want to develop in a way that’s more holistic, more inclusive than Ontario, where the solar thermal contingent has been left to try and reinvigorate the discussion alongside the FIT.”

Ontario’s feed-in-tariff, or FIT program, is forging ahead with hundreds of megawatts of grid-connected PV and has thousands more in its queue. But solar thermal growth in the province, by contrast, is languishing. This year’s evaporation of the Federal Government’s EcoENERGY solar thermal program, and Ontario’s decision to follow suit, are a large part of the problem. In a

reversal of fortune, Nova Scotia launched its renewable energy Community FIT program, ComFIT, in fall 2011, excluding PV, but has perpetuated ST incentives despite the federal reversal.

MacAulay believes Nova Scotia’s ST incentives are among the best in North America. “We’ve seen federal programs come and go. The relative consistency of the provincial program has allowed the industry to maintain a stable foundation and not go through the boom and bust cycle that has been experienced so dramatically in other parts of the country.”

Efficiency Nova Scotia Corporation – an independent, publicly funded organization – offers homeowners \$1,250 toward the installation of solar domestic water heating and \$500 for solar air heating. Commercial installations of solar air and water heating receive a 15 per cent rebate.

ST rebates in the province date back to 2005, says **Efficiency Nova Scotia Program Manager Lauren McNutt**, and are available to all homes and businesses regardless of the fuel source for their heating. The organization’s funding is reviewed annually, says McNutt, adding she does not anticipate an interruption in 2013 funding. There will soon, however, be changes.

In late September Efficiency Nova Scotia launched a zero per cent financing option for residential solar water heating giving Nova Scotians the option of either applying for a rebate or accepting financing. They will not receive both.

“Offering zero per cent financing removes the barriers to participation for those who do not have the upfront capital to make a significant investment in energy efficiency,” says McNutt.

In addition, Halifax is trying to get in the game with an ST program called Solar City. Not yet approved by city council, the plan is to offer financing through property taxes to homeowners for the installation of solar thermal water heating. The pilot, if approved, has a goal of about 700 homes.

All in all, when it comes to the ST market, MacAulay suspects provincial interest in clean energy is not only stable in Nova Scotia but that it helps maintain a base of market activity to help fill the gap left behind by fickle federal incentives.

Efficiency Nova Scotia programs reinforce that solar thermal is a cost-effective means to reduce the winter peak load.

## TORCH, ADDS PV



continued from page 23

Efficiency Nova Scotia programs reinforce that solar thermal is a cost-effective means to reduce that load.

“Nova Scotia has some fairly aggressive targets in terms of renewable energy goals and environmental sustainability plans,” says MacAulay. “There’s commitment there. It has benchmarks at regular intervals. I don’t see the province being able to meet those benchmarks without a contribution from both solar thermal and PV.”

It’s likely MacAulay is right. While no one at the Nova Scotia Department of Energy could speak with SOLutions, many solar industry insiders say the province is close to announcing its intention to include PV in ComFIT, which now procures power from wind, run-of-river hydro, in-stream tidal and combined-heat-and-power biomass generation. CanSIA has of course pursued PV’s addition to the list, and will continue through the recently announced ComFIT Review. The province has tasked **Evan MacDonald, Senior Policy Analyst with the Nova Scotia Department of Energy** with leading a

study to better understand PV and help guide the next steps.

“There has been a fair amount of discussion about the fact that by limiting the program, by excluding PV, urban communities have been largely shut out of ComFIT opportunities”, says MacAulay.

MacAulay is also correct to trace Nova Scotia’s solar impetus to provincial energy targets and plans. Power utility rates are high, as are greenhouse gas emissions resultant from a generation supply about 80 per cent driven by fossil fuels.

In 2005, Nova Scotia established a green energy framework titled Smart Choices for Cleaner Energy, which outlined a commitment to install 300 MW of renewable generation and make the electricity system more sustainable. This was followed by the province’s 2010 Renewable Electricity Plan, which commits Nova Scotia to achieving 25 per cent renewable generation by 2015, and 40 per cent by 2020.

This plan created enhanced net metering: an allowance for small generation projects up to 1 MW, including PV, to supply multiple metered accounts in a

single distribution zone with excess power purchased at retail rates. It also created the ComFIT now under review.

The original ComFIT supported the development of local renewable energy projects by municipalities, First Nations, co-operatives, universities and non-profit groups. Projects had to be connected to the distribution system, and installation sizes were evaluated on a case-by-case basis with local grid capacity in mind. Projects were expected to be in the 2- to 4-MW range, and the 42 approved applications identified on the Department of Energy’s website indicate this was essentially the outcome. The list is dominated by wind generators, the smallest of which is a 3.5 kW turbine proposed by a non-profit, the largest an 11.5 MW wind project from the Halifax Regional Water Commission.

MacAulay says the inclusion of a PV tariff, with a rate set by the Nova Scotia Utility and Review Board after public consultation, is likely to occur in conjunction with a ComFIT review scheduled for late 2012.

“We have every indication that will happen.” ●

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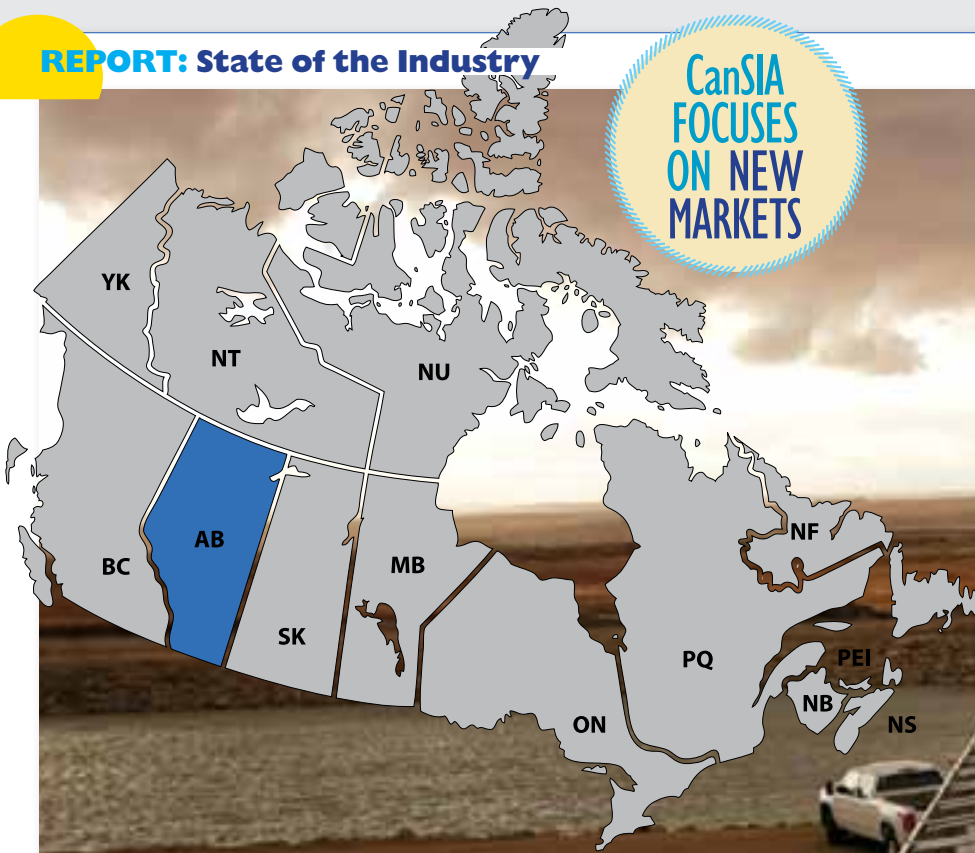
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# FOCUSING ON ALBERTA AND ITS VENTURES INTO RENEWABLE ENERGY

*Ironwood Building Systems,  
Calgary. Photographer:  
David Vonesch, BSc. Eng.  
Photo courtesy of SkyFire  
Energy Inc.*

**ALBERTA HAS A RELATIVELY** strong economy; an electricity system 80 per cent reliant on carbon fuels dominated by coal; a petroleum industry with world-famous environmental issues; solar resources in spades and a government drafting a renewable energy plan.

“When that moves forward I definitely expect to see something in there for solar,” says **Brent Harris, Chair of CanSIA’s Alberta working group and Chief Technology Officer** at Calgary-based **Sustainable Energy Technologies**.

Alberta is in the throes of producing its long-awaited Alternative and Renewable Energy Policy Framework which includes stakeholder consultation. The Alberta Ministry of Energy was not forthcoming with a *SOLutions* interview, but it did offer some scripted comments in response to questions.

“The framework will focus on achieving a 37-megatonne reduction in carbon dioxide emissions (or equivalent) by 2050 through green energy production, as required by the *Alberta Climate Change Strategy*,” wrote a ministry spokesperson.

For renewable energy producers, though, the *Alberta Climate Change Strategy* only promises to “consider incentives for expanding the use of renewable and alternative energy sources.” So at the moment the province still has a lot of latitude to define “green energy.”

Alberta has an interesting solar landscape, though, which can’t be ignored. The 52-home Drake Landing community with a central solar heating system is here, as well as the 1 MW solar-concentrating power plant project scheduled for completion in the fall of 2013. There are numerous municipal and utility solar initiatives, and the provincial micro-generation regulation allows grid-connected power producers up to 1 MW to receive financial credit for electricity exports.

Through the regulation, installed generation capacity is not permitted to exceed a site’s anticipated load requirement, but any outstanding credits are paid out annually at retail rates. Since 2009 this regulation has permitted more than 2.3 MW of supply – more than 60 per cent of which is PV.

And Alberta’s newest solar initiative, encouragingly, is a program entirely conceived by the provincial government. The Growing Forward Alberta Solar PV Equipment Pilot, launched in 2012, offered a funding formula to a maximum of \$19,500 for a 10 kW grid-connected PV system to qualifying agricultural operations. The Ministry of Agriculture and Rural Development squeezed two application windows into one calendar year, explains **pilot manager Kelly Lund**. It funded a January 2012 opening at the tail end of the 2011 fiscal year, and then three months later requested a second round of applications through the 2012 budget.

A flood of applicants in January, many of which were wait-listed, meant the program was fully subscribed as soon as it reopened in April. “Definitely a large number of applicants, a very high level of interest in the province, even though the grants were fairly modest,” says Lund.



*Photo courtesy of Sustainable  
Energy Technologies*

continued from page 27

There will be no further application opportunities for the pilot, and after all the projects are approved and commissioned, Lund will be collecting three years of production data from roughly 45 installations with an average capacity of 10 kW.

“We’re well aware PV technology is proven, especially what’s established on the market,” she says. “The step we want to take is to install proven technology and verify what the actual production numbers are in various locations around the province.”

Lund also says the intent of the PV pilot is to share information with other ministries. Harris hopes the Ministry of Energy notices Albertan’s enthusiastic response to the program.

“I think it’s exciting, what happened with Growing Forward, to see any level of commitment from the government raises solar’s profile,” he says.

Harris, in fact, applied to the program, was wait-listed in the first round has been approved for a PV system on his horse ranch through round two. “The other



Photo courtesy of SkyFire Energy.

thing we’re seeing here, regardless of government support, is installations are increasing. People are just deciding they want to do this,” he says.

**Jared Donald, Vice-Chair of CanSIA’s Board of Directors and**

**President of Conergy Canada,** is also an Albertan. He says the province has a small but growing grid-connected PV market, but for 10 years Conergy’s Alberta business has been focused on off-grid PV systems for the petroleum industry.



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## Alberta Electric System Operator Pool Monthly Summary for August 2012

The average pool price for the month of August was \$56.54/MWh. This is 17.3% lower than July's average of \$68.39/MWh. The maximum pool price was \$974.12/MWh, compared to \$1000.00/MWh in July. The on peak pool price averaged \$76.86/MWh and ranged from \$9.24/MWh to \$974.12/MWh. The off peak pool price averaged \$15.89/MWh and ranged from \$0.30/MWh to \$109.85/MWh.

Total energy in August was 6,341 GWh and peak demand was 9,878 MWh. The total energy is 0.5% lower than the previous month's total of 6,375 GWh. The peak demand is 7 MW lower than the previous month's peak of 9,885 MW.



Source: Alberta Electric System Operator

The Alberta solar thermal market too, he explains, holds opportunity, and CanSIA is developing concepts for thermal development in preparation for the provincial renewable energy policy consultations. The challenges of Alberta solar thermal development are similar to other provinces, though. This year's disappearance of the federal EcoENERGY program coupled with low natural gas prices, says Donald, will make "the pitch for thermal" more difficult.

To incentivize PV, when it comes to the direction the provincial government should take, there is no obvious path.

"If we do some kind of clean energy standard, and if solar is mandated as part of the standard, you're going to see mega-parks built. That's the only way to get cost efficiencies. But then you lose out on a lot of the value of smaller scale solar, like reduced transmission and distribution inefficiencies," says Donald. "I can therefore see there being two approaches in Alberta,

one that somehow involves the micro-generation regulation, which is an excellent framework and ready to go for small and mid-sized systems and then some type of clean energy standard for larger projects."

An important factor in understanding what Alberta is likely to come up with, though, is the Power Pool, a competitive hourly spot market through which all the province's electricity must be exchanged. The 2011 average market price was \$76.22/MWh. Essentially, the rate and volatility of Alberta merchant-electricity pricing (see chart) can make financing tricky for developers, and the province must include the Power Pool in its renewable energy plan.

"We've seen markets develop in a lot of different ways," says Donald, "and motivations need to be well understood. In Ontario the motivation was jobs. We don't have the same motivation in Alberta. If it's reducing greenhouse gas emissions, that's a good fit for us. If it's demonstrating a green public image, solar is great for that. Based on what we see back from this government, we need to tailor our response to ensure we're delivering what they want from the technology.

"We have definitely seen interest from residents in Alberta, and I believe there's political will on the provincial level to see more engagement of solar." ●

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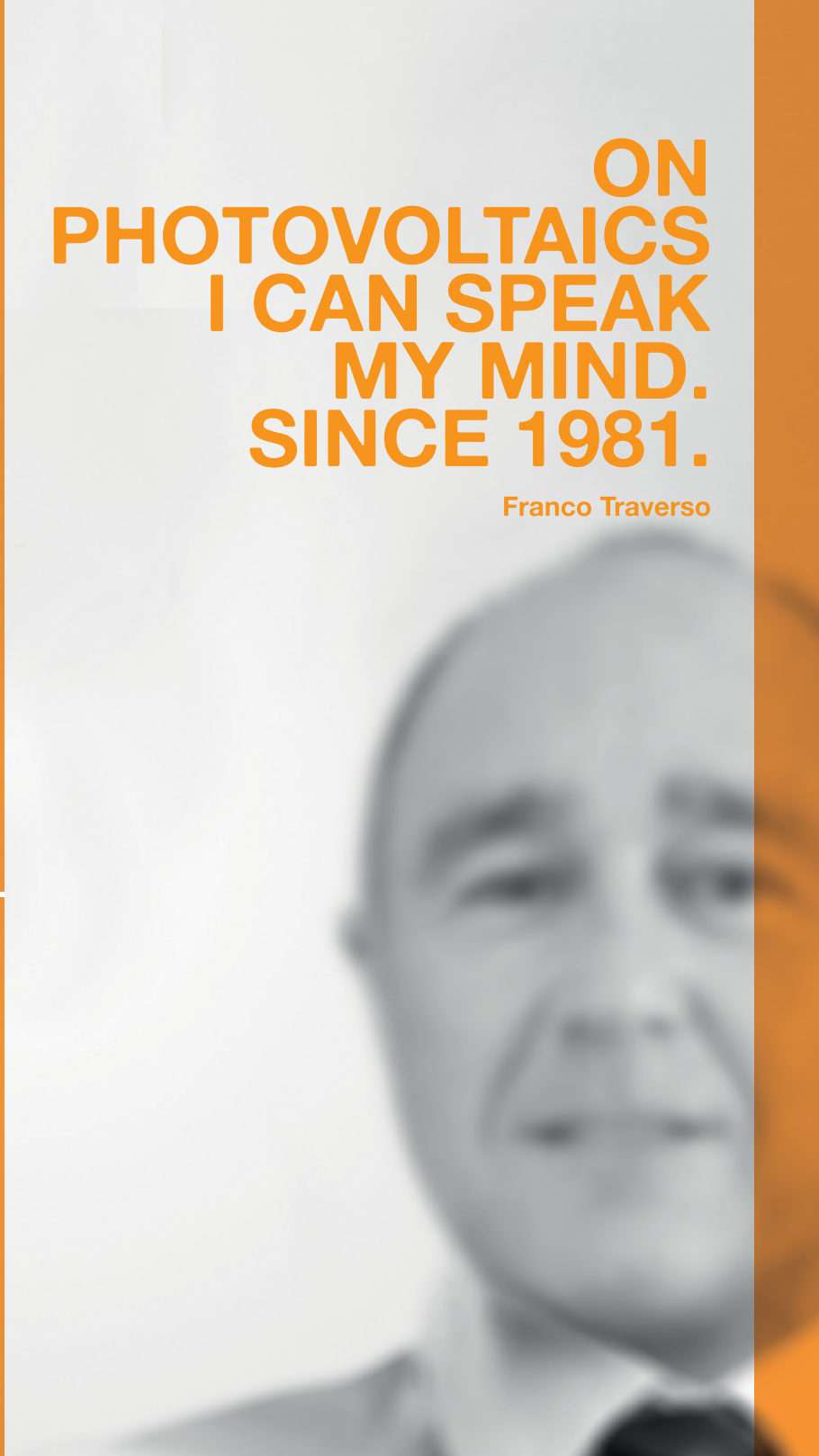
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## **Grid independence - a growing market Solutions by DEGERenergie**

**Energy turnaround, financial crisis and rising electricity prices lead to the development of decentralized structures in the energy sector. The trend has reached North America too. To support this evolution, DEGERenergie, global leader for solar tracking systems, enlarges its service teams in Canada and the US and cuts down the prices for some of its products.**

No doubt, the energy of the future is green. And it is generated where it is consumed. All over the world, municipalities, medium-sized companies and private households become independent from public utilities, thanks to solar power they generate themselves.

This is made possible thanks to small-scale photovoltaic tracking energy storage (PTES) solutions by DEGERenergie for the generation of solar electricity. At this time, PTES solutions are commercially available to homeowners. They are manageable, easy to control, do not require expensive network infrastructure and render the consumer independent from political and economic uncertainties and rising energy prices.

Fact is: Decentralized and local generation of solar energy for self-supply is no longer a problem with today's technologies. Even the storage of generated solar energy, which is often mentioned as an unsolved problem, can be realized today with competitive prices.



### **Independent energy supply**

In Southern Germany, for example, there are small home installations working with conventional solar modules in combination with solar tracking systems and storage units. Each installation generates around 6,000 kilowatt hours per year on a collector surface of approximately 22 qm<sup>2</sup>. Thus, it covers more than the demand of a private household plus office and two electric vehicles. Thanks to modern storage solutions, power failures or periods when the sun does not shine are not an issue.

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### **No feasible alternative**

However, not only in Germany, there is a trend of decentralized generation of solar energy. In other regions in the world it is indispensable, as there is no practical alternative. Particularly in sparsely populated areas, it is not possible to set up a comprehensive grid that would reach all consumers. Grid expansion is simply too expensive and too time consuming to reach all customers.

In many regions in the world there is a growing interest in self-generated solar energy and alternatives to the public utility network. This concerns private households, farmers as well as medium-sized companies and, increasingly, municipalities and public institutions.

Whether for private households, companies or municipalities – when a decision in favor of solar energy is made, each supplier wants to get the highest return for his investment. For this reason, DEGERenergies' tracking systems and their patented MLD (Maximum Light Detection) technology are the first choice for many investors. Thanks to this technology, yields can be increased by up to 45 percent compared to fixed systems.

DEGERenergie has seen a spike in interest from municipalities that want to become independent from rising energy prices and are planning to operate small and medium sized solar parks, for example, on conversion areas like former landfill sites.

### **Support for self-supply systems**

To support this trend – and its customers – DEGERenergie is reinforcing its activities in the US and Canada. Recently, the company has engaged Felix Freudenberg as Sales Director North America. His main task is to further develop DEGERenergie's strategy for the continent. Within the next months the company will enlarge its technical service teams both in the US and in Ontario, Canada. Their job will be to advise customers, plan their solutions with DEGERenergie's technology and support them especially in terms of installation.

In order to ensure the economic viability even with reduced fed-in tariffs DEGERenergie has cut down the prices for some of its systems up to 10 percent. "This is part of our strong commitment for the markets in the USA and Canada", says Felix Freudenberg.

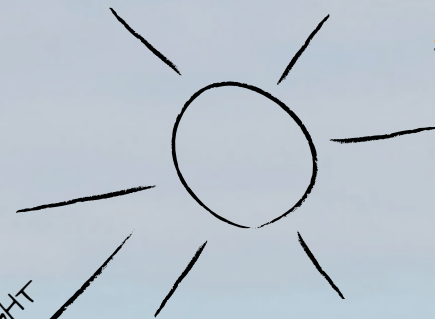
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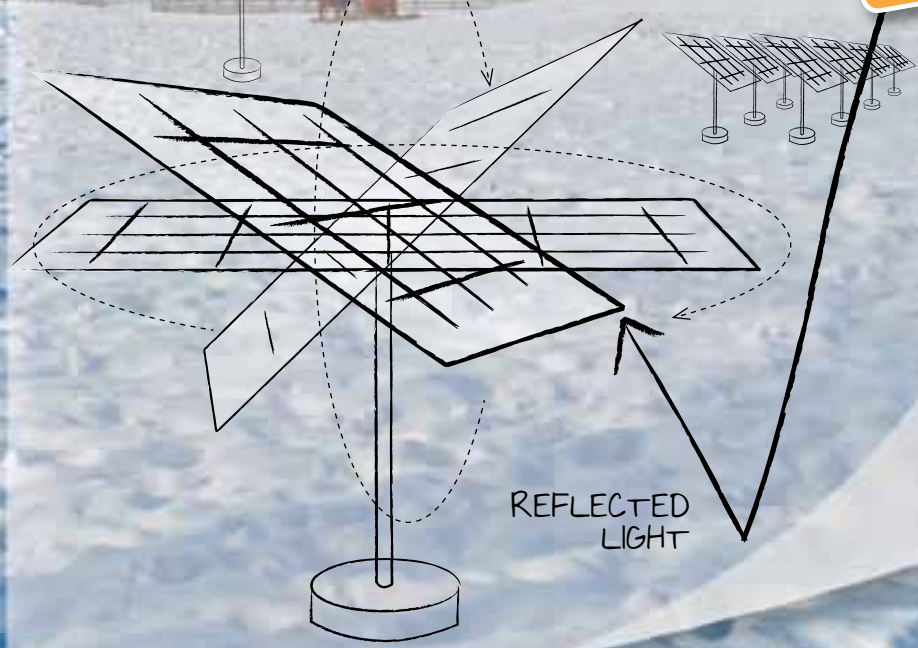
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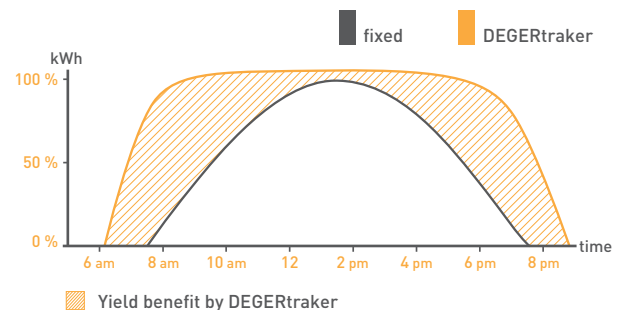


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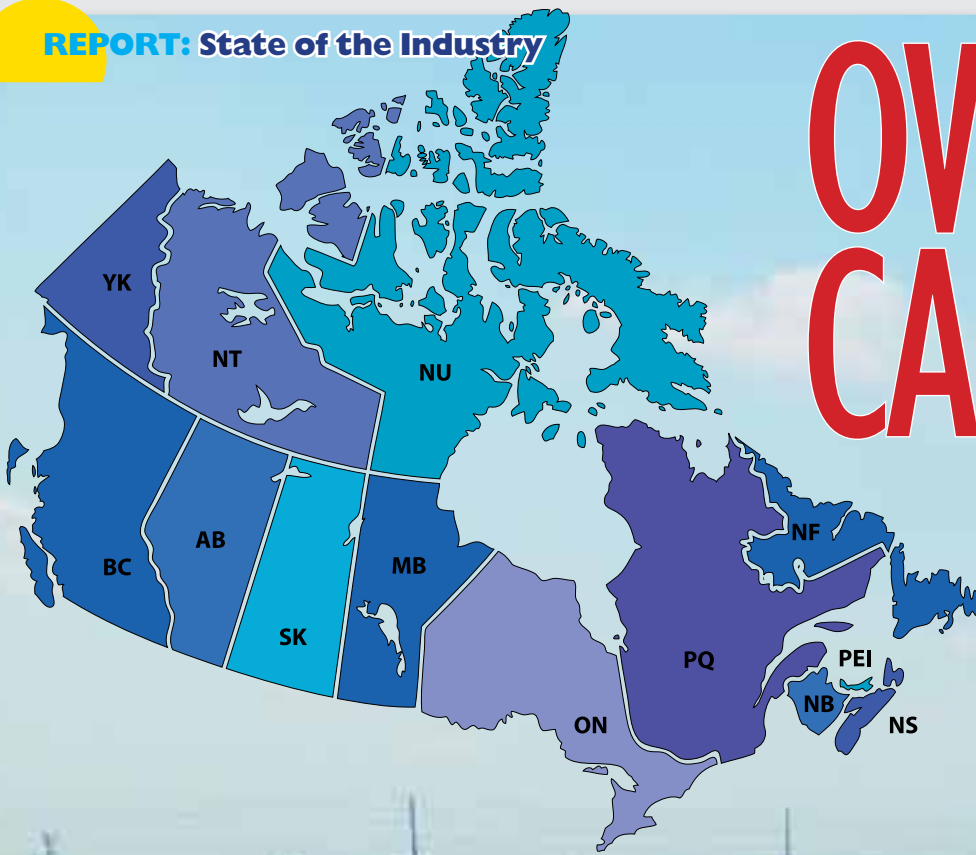
Rating chart using a sunny summer day as an example



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# OVERVIEW CANADIAN



**CANADA'S ENERGY RESOURCE BASE** and human talent have proven to be one of our greatest competitive advantages and sources of economic strength in the past. While many of our significant traditional and renewable energy resources are centralized (e.g. petrochemicals, natural gas, coal and geothermal energy in western Canada and marine energy at our coasts), solar energy is both ubiquitous and abundant in each and



Photo courtesy of Cleave Energy, Inc.

# OF THE SOLAR INDUSTRY

every Canadian community, and solar energy enjoys more public support than any other source of energy.

The momentum gained by the Canadian solar energy industry in the past decade has planted a firm foundation for Canadian solar energy products and businesses to play a significant role in the global transition to a cleaner energy future. The Canadian solar industry is estimated to have employed a Canadian labour force of

more than 8,000 and to have generated Canadian investment revenues approaching \$2 billion in 2011.

Solar energy can be harnessed for use in a wide variety of applications in the residential, commercial, industrial and institutional sectors.

## **Solar Photovoltaics (PV)**

Solar electricity or photovoltaics is the generation of electricity directly

from sunlight, using solar cells made from semiconductor materials. There are four main types of applications.

- **Consumer** – PV is readily available for homes and offices. For example, many calculators and watches run off of small PV cells. Solar garden lights are also easily available at garden and hardware stores.
- **Off-Grid** – The high cost to extend power lines makes solar a viable



alternative. Solar electricity is often the first choice for remote power supply over power line extensions and portable gasoline and diesel generators because of the cheaper installed price, zero fuel costs, low maintenance, high reliability and long-term durability.

- **Near-Grid** – PV has cost effective applications in urban areas where solar can reduce the costs of trenching, maintenance, transformer and metering purchases. For example, the Toronto Parking Authority uses solar to power centralized parking meters and saved hundreds of thousands of dollars in street trenching, installation and maintenance bills.
- **Grid-Connected** – More Canadians are turning to solar to supplement existing electricity supply as electricity prices continue to climb and solar costs drop. Solar PV is already competitive in many cases to the cost of peak power. Further, there are significant savings to utilities as no transmission and distribution costs are incurred for PV systems.

### Solar Thermal

Solar thermal refers to the absorption of sunlight that can be converted directly into thermal energy. There are six main types of solar thermal applications.

- **Pool** – An average pool in Canada, if heated, uses about the same amount of energy to heat in the summer as most homes require year round. Solar pool heaters pay for themselves very quickly.
- **Water** – Domestic hot water (DHW) heating can account for more than 20 per cent of an average homeowner's total energy needs. Solar can supply 30 to 60 per cent of this energy demand.
- **Air Heating** – Solar air systems are practical and affordable in many applications. As buildings become more efficient and airtight, the need for outside or make up air increases, so that air and contaminants (moisture, dust, combustion and cooking odours) can be exhausted. Large energy-efficient buildings can also benefit from this technology by preheating outside air before it is brought in the building. Solar air systems can even recover heat that is lost through building walls.

- **Combi-Systems** – Combi-systems use solar for both heating of water plus the space heating needs of the building (usually with radiant floor heating). These types of systems maximize the benefits of solar year-round.
- **Air Cooling** – A common solar air-cooling method is to use solar energy to vaporize a refrigerant in a cooling system. Solar cooling, as distinct from solar heating, has absolutely no storage needs. As the need for air conditioning increases in the summer, the demand for solar in this market is expected to increase. These systems can often be combined with combi-systems – providing heat in the winter and air conditioning in the summer.
- **Crop Drying** – Solar air heating systems can also be used in such applications as crop, manure and textile drying, in which outdoor air is heated in order to pick up more moisture.

There are many different types of solar thermal collectors, including unglazed liquid for pools, glazed liquid, evacuated tube, unglazed air and glazed air collectors.

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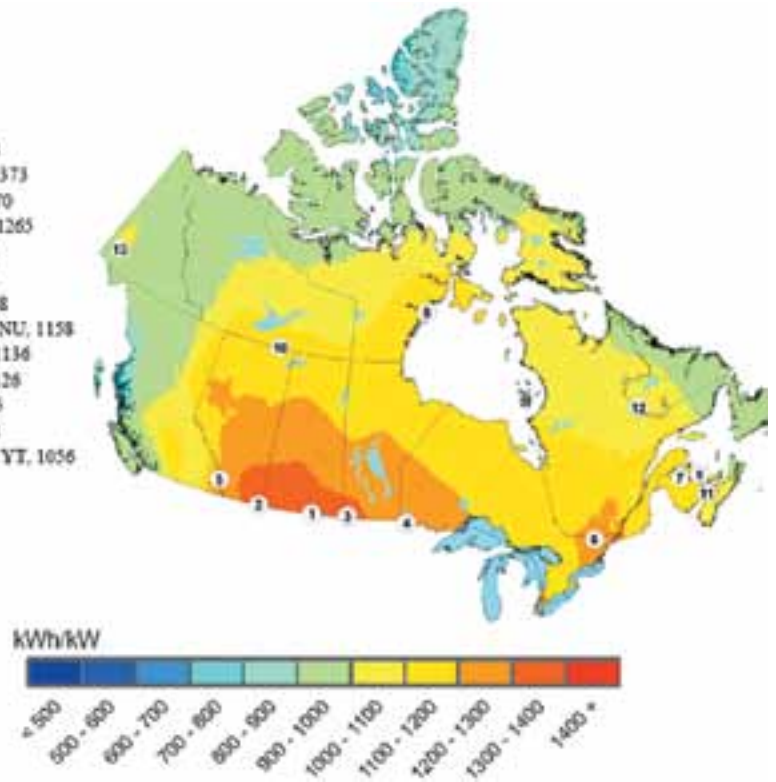


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3. Waskada MB, 1370
4. Rainy River ON, 1265
5. Elkford BC, 1236
6. Quyon QC, 1208
7. Chatham NB, 1168
8. Chesterfield Inlet NU, 1158
9. Minto PE, 1136
10. Fort Smith NT, 1126
11. Amherst NS, 1125
12. Wabush NF, 1074
13. Burwash Landing YT, 1056



Yearly PV potential map for latitude tilt and the 13 “PV hotspots” in each province and territory in Canada. Courtesy of CANMET Energy Technology Centre-Varenes, Natural Resources Canada.

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There are currently two important divisions of solar energy technology within the Canadian solar market: solar photovoltaics and solar thermal. The following sections provide an overview of the development of the Canadian market for these technologies and a forecast of what can be expected as they become mainstream to 2025.

### Canadian Solar Photovoltaic Market

The Canadian market for solar photovoltaics (PV) has developed steadily over the past decades and swiftly over the past years.

#### 1995 to 2005: From Kilowatts to Megawatts

During the period 1995 to 2005, the Canadian market for solar PV grew at an average annual rate of 28 per cent with cumulative installed capacity of solar PV in Canada increasing eleven-fold (from 1.5 MW at the beginning of 1995 to 16.5 MW at the end of 2005).

Market milestones achieved during this period included annual installed capacity surpassing 1 MW in 1998 for the first time and 2 MW in 2004.

The market was dominated by remote and off-grid applications while demand for grid-tied applications fluctuated greatly year-to-year. Off-grid market was on average 100 times larger between 1995 and 2000 and 50 times larger between 2000 and 2005 than grid-tied and annual growth in the grid-tied market was not experienced three years consecutively until 2005.

#### 2006 to 2011: Canadian Grid-Tied Market is Born

During the period 2006 to 2011, evolving energy priorities, growing consumer awareness and rapidly decreasing costs triggered major market growth of an average of 2.8 times per year (grid-tied by 5.75 and off-grid by 1.33).

2009 was an important year for the Canadian solar industry with many market milestones being achieved. It was the first year that annual market size reached tens of MWs, that the grid-tied market was larger than the off-grid and that Canada's first solar park in was completed.

In 2009, the province of Ontario also leapt onto the solar world stage from obscurity as the third largest market in North America, elevated to second in 2010.

A major driver for market growth for solar PV has been, and will continue to be,

rapid cost reductions for this technology. The cost of solar PV modules in Canada decreased at an average annual decline of 14 per cent between 2000 and 2005 and continued supply chain development in Canada and abroad is expected to have reduced costs by a further 2.5 times by 2012 (average annual reduction >10 per cent).

#### 2012 to 2025: Established to Mainstream

During the period 2012 to 2025, CanSIA forecasts that the Canadian solar PV market will continue to experience steady growth increasing from less than 500 MW per year between 2012 and 2015 to up to 1,000 MW per year 2016 to 2020 and 1,500 MW per year 2021 to 2025.

Contracts awarded up to 2012 by the province of Ontario's now retired Renewable Energy Standard Offer Program and current Feed-In Tariff program are expected to drive the Canadian market for solar photovoltaics until 2015.

Financial and non-financial incentive policy instruments under consideration and development in a number of other Canadian municipalities, provinces and territories and at the federal government level are expected to gradually shift the focus from the Ontario solar PV market until solar PV becomes a mainstream technology across Canada.

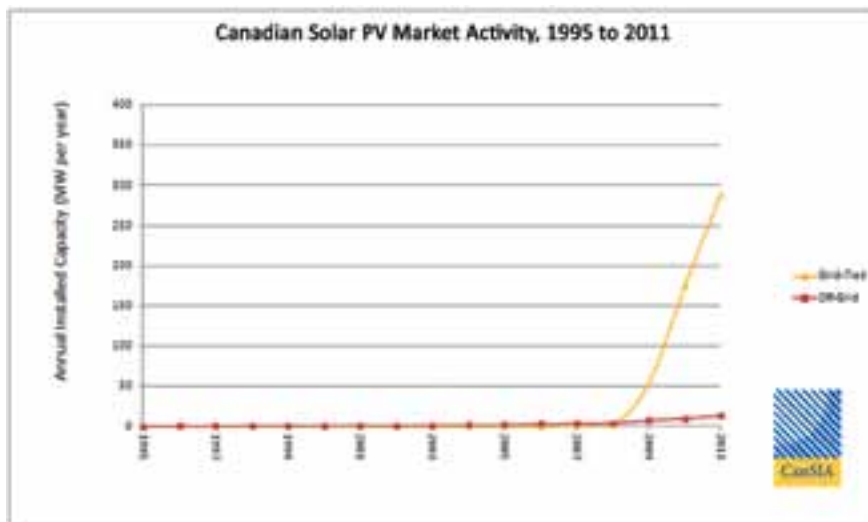
Ontario is expected to remain a globally and nationally significant market for solar PV deployment and manufacturing with more than 30 solar module and inverter manufacturers present in the province as of 2012.

### Canadian Solar Thermal Market

The Canadian market for solar thermal has developed steadily since 2000. Heightened public awareness, tightening building energy performance standards and the maturation of new technological applications will secure solar thermal technology's role in our future supply-mix.

#### 2000 to 2007: Established Applications Create Foothold

During the period 2000 to 2007 the Canadian market for solar thermal grew at an average annual rate of 16 per cent with



Source: CanSIA 2012



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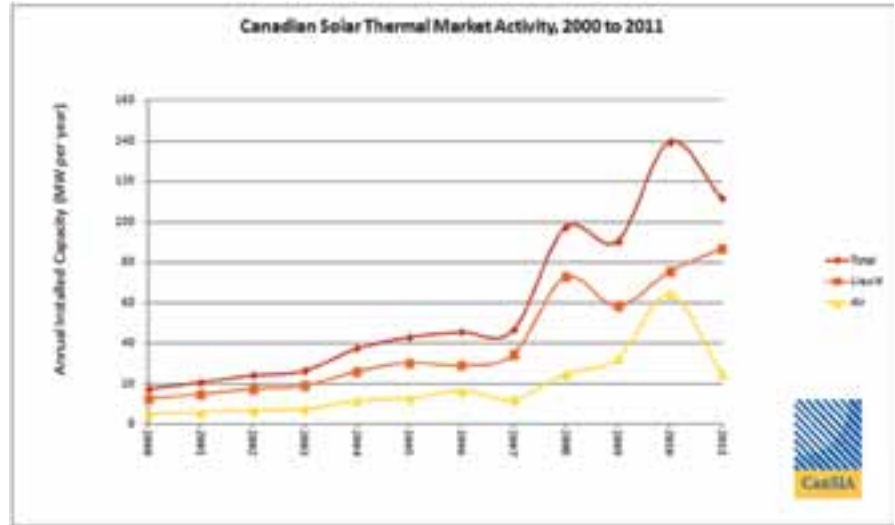
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each year displaying growth consecutively. The total cumulative installed capacity of operating solar thermal systems increased two-fold from 247 MW at the beginning of 2000 to 513 MW at the end of 2007 (228,000 to 544,000 m<sup>2</sup>).

During this period, the market was continuously dominated by liquid solar collectors. Solar thermal liquid collectors were almost a constant 70 per cent of total annual market activity by collector area with solar thermal air collectors representing 30 per cent. Within the liquid collector category, unglazed collectors annually represented an average of 96 per cent between 2000 and 2004 and 13 per cent between 2005 and 2007 (by MW) with glazed collectors comprising the remainder.

Market milestones achieved during this period included Canada's first community heated by solar thermal energy begun operation in Okotoks, Alberta in 2007. Drake Landing Solar Community consists of 52 homes heated by 800 liquid solar collectors with borehole thermal storage to conserve solar energy for use in Winter.



Source: CanSIA 2012

### 2008 to 2011: Rapid Industry Capacity Building

During the period 2008 to 2011, the introduction of the Government of Canada ecoENERGY for renewable heat programs and a number of complimentary programs at the provincial level, kick-started Canada's solar thermal industry. Average market activity grew annually by an estimated 40 to 50 per cent by collector area.

Market activity for solar thermal air surged from an average of over 30 MW per year between 2000 to 2007 to an estimated 120 MW per year between 2008 to 2011 comprising almost 50 per cent of the market in 2010.

Market milestones achieved during this period included Canada surpassing 1,000,000 m<sup>2</sup> of cumulative solar thermal systems in operation in 2010 and by the end of 2012, Canada will have surpassed 1 GW (1,000 MW) in operation.

### 2011 to 2025: Established to Mainstream

During the period 2011 to 2025, CanSIA forecasts that the Canadian solar thermal market will experience growth reaching 400,000 m<sup>2</sup> in 2015, up to 500,000 m<sup>2</sup> per year up to 2020 and 700,000 m<sup>2</sup> per year up to 2025.

The solar thermal market's transition from incentive programs that concluded in 2012 to new policy mechanisms under consideration and development will largely define the period to 2015.

As industry momentum is re-focused toward this period and as technological advancements and new applications for solar thermal technology reach maturation (including space heating and cooling and industrial processes), it is expected that solar thermal technology will continue to attain a growing share of Canada's heating and cooling technology market until the point that it is a mainstream choice for residential, commercial and industrial consumers across Canada and the world. ●

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# TOO RESTRICTIVE?

## ONTARIO'S LAND USE WORKING GROUP SEEKS CONSENSUS ON SITING RULES

By Nick Gustav

**THERE CERTAINLY IS A** lot to like about Ontario's Feed-In-Tariff program, launched in 2009 to boost the clean energy industry, create jobs and help protect the environment.

In 2011, the province released its review of the program's first two years, and the results were worth bragging about. More than 2,500 small and large FIT projects had been approved and would produce enough electricity to power 1.2 million homes.

FIT attracted more than \$27 billion in private-sector investment in Ontario, drew more than 30 clean-energy companies to the province and created more than 20,000 jobs. In addition, the provincial government said FIT would create another 30,000 clean-energy jobs in future years.

But for all the good things about FIT 1.0, in the view of some rural stakeholders, something important was missing: there was no mechanism for municipal governments to control the siting of ground-mounted solar projects in residential areas.

In addressing that problem, FIT 2.0 threatened to go too far, so CanSIA has led the charge against new rules that could heavily restrict the industry.

According to the original draft rules and contracts for FIT 2.0, ground-mounted solar installations of any size were to be prohibited in residential areas and lands bordering those areas. In commercial or industrial areas, ground-mounted solar projects would only be permitted

when producing renewable energy as a secondary use.

When the proposed restrictions were posted in April by the Ontario Power Authority, it was flooded with feedback from industry stakeholders, and the OPA quickly realized that the land-use rules needed a second look. The OPA received more than 1,000 comments on the draft rules and contracts for FIT 2.0, suggesting that there may be opportunities to protect local land-use priorities while still allowing ground-mounted solar projects with certain restrictions.

The Ministry of Energy thoroughly reviewed the comments and formed the Land Use Working Group, a broad coalition of stakeholders charged with reaching a compromise over siting rules for solar installations.

The group was tasked to come up with a set of regulations by the end of September that would be considered by **Minister of Energy Chris Bentley**. As of press time, the Land Use Working Group hadn't finalized its recommendations, but CanSIA was well represented on the panel and made sure

the voices of industry stakeholders were heard.

The group also included officials from the Association of Municipalities of Ontario, the Ontario Federation of Agriculture and other relevant government agencies as well as farmers and real-estate developers. It was chaired by **Mirrun Zaveri, Deputy Director of the Renewable Energy Facilitation Office**. Meetings were held at least twice monthly at the Ministry of Energy, and CanSIA stated its case with a 30-page report detailing its concerns.

"The intent of the Land Use Working Group was to get everyone in the same room, address everyone's concerns and come forward with a plan that makes sense for the province," said **Gregory Scallen, a CanSIA Board member and Treasurer and Assistant General Counsel for SunEdison Canada**. "I think it was a good process."

"CanSIA did quite bit of research into what other jurisdictions have done to deal with the development of green power, especially in rural areas. As the voice of the industry, CanSIA provided research data

**“CanSIA will remain in active dialogue with the Ministry and other stakeholders to ensure that the amendments to the FIT program are not overly restrictive for our members.”**

— Patrick Bateman, Policy and Research Analyst for CanSIA



Three-off grid solar systems at the Renewable Energy Technology Center in Windsor. Photo courtesy of Green Sun Rising.

and tried to ensure that everybody had good information in looking at the issue and how to approach it. I think that's a positive role that CanSIA played in this."

In establishing the Land Use Working Group, the Ministry of Energy acknowledged that there was a big problem with the proposed rules. Fifteen eastern Ontario municipalities and various stakeholders had indicated that under FIT 2.0 rules, ground-mounted solar systems would essentially be banned from rural zones.

That's because those rural zones have multiple primary uses, including residential and agricultural. Since these zones would be considered residential, ground-mounted solar installations would be prohibited from the rural areas as a whole, as well as the adjoining areas.

"If the government had not brought this group together, and if we weren't such an active stakeholder, we could see very, very restrictive guidelines put in place

that would make it very difficult to build a ground-mount solar facility anywhere in the province," said **Patrick Bateman, Policy and Research Analyst for CanSIA.**

"We could potentially see very punitive requirements introduced that don't reflect international experience and aren't consistent with the realities of project development. CanSIA will remain in active dialogue with the Ministry and other stakeholders to ensure that the land use requirements to the FIT program are not overly restrictive for our members."

CanSIA worked with Bousfields Inc., a Toronto-based planning and urban-design firm, to prepare a 30-page report detailing the solar industry's position on the proposed land-use rules.

Some members of the Land Use Working Group proposed a requirement that any solar installation be set back at least 100 metres from a residential structure on an adjoining property. But

CanSIA felt that rule was far too restrictive and would drastically limit the adoption of solar technology in the province.

CanSIA instead pushed for a 30-metre setback for installations between 501 kilowatts and 10,000 kilowatts and a 15-metre setback for systems between 10 kilowatts and 500 kilowatts. If a vegetative buffer such as a line of trees could be planted to keep the solar installation out of a neighbour's view, then only a 7.5-metre setback would be required, according to CanSIA's recommendations. Those vegetative buffers should be required for all systems adjacent to residential properties, CanSIA said in its report.

The report by CanSIA also argued that a larger setback distance would provide no real benefit to property owners: "In terms of visual (aesthetic) impact, which is acknowledged to be a somewhat subjective impact, an increased setback would have minimal impact in terms of ameliorating any such impact (i.e. the modules would



Pond mill aerator, 2000. Photo courtesy of Carmanah Technologies Corp.

continue to be visible, regardless of any reasonable distance setback). A more effective way to address visual impact is through buffering.

“We have allowed for a slightly greater front setback requirement of 10 metres from roads in order to accommodate access driveways, parking areas, gates, maneuvering areas, as well as the potential for additional landscape planting.”

CanSIA also argued that a general minimum setback requirement of 7.5 metres for solar equipment was in keeping with setback standards included in the city of Sarnia’s zoning bylaws and in a number of U.S. ordinances.

“A general minimum-setback requirement of 7.5 metres appears to be workable in terms of site layout,” CanSIA said in its report. “It would allow for a perimeter access road approximately six metres in width, plus a 1.5-metre-wide landscaping strip, where required to accommodate a vegetative visual buffer.”

Scallen said the Land Use Working Group was a worthwhile endeavour because it gave a wide spectrum of stakeholders a chance to air their concerns.

“There were a lot of ideas thrown around and concepts considered,” he said.

“Having face-to-face discussions was very beneficial in this particular context because it was much better to learn the various views of the other stakeholders and try to come to common ground.”

Though it wasn’t clear as of press time how the FIT 2.0 land use requirements would be implemented, Bateman said CanSIA would continue to advocate for land-use rules that don’t constrain the industry.

“Unlike other land uses, solar is very benign,” he said. “There are no emissions, there’s very little noise, and when projects are developed responsibly, there’s very little visual impact.” ●

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# PROOF POSITIVE

## CANSIA LOOKS TO ENHANCE THE INDUSTRY'S CREDIBILITY THROUGH CERTIFICATION

By Nick Gustav

**JUSTIN FERRABEE IS LOOKING** at one heck of a phone bill.

Over the past few months, Ferrabee has interviewed approximately 30 solar industry stakeholders in an effort to learn everything he can about the industry's past and present in Canada. Now, CanSIA is hoping that work helps the industry further solidify its future.

**Ferrabee is the Managing Partner** of the Ottawa-based consultancy **Totem Hill**, which helps businesses develop and implement large-scale change initiatives. CanSIA has hired the firm to evaluate the need for some form of solar-industry training and certification program that would give the industry even greater credibility among consumers and government officials.

After all, when you walk into your doctor's office or car-repair shop, it's nice to see some diplomas or certificates hanging on the walls. The same is true for consumers who make significant investments in solar systems and want to be assured that the people working on their rooftops know what they're doing.

"CanSIA is looking at the role of training and certification in raising the standards and skill level within the industry," Ferrabee said. "Having a robust, well-established, credible system for training and certification is one of the aspects of a healthy industry.

"If customers can have confidence that when they purchase a product, it's going to be installed properly and is going to last, then they will have more confidence in

their purchasing decision and will likely support the industry longer term."

Ferrabee said in September that Totem Hill had almost completed its interviews with stakeholders from all facets of the industry, including manufacturers, installers and distributors of solar equipment; sales professions; industry consultants; officials in the Ministry of Labour and government-funding agencies; and the directors of renewable-energy programs at public and private colleges.

Those interviews, combined with extensive research, will allow Ferrabee to present a set of recommendations for a certification program to CanSIA's board within months, he said. In late September, he said it was too soon to elaborate on what those recommendations might include, but he would be presenting CanSIA with several options, each supported by a viable funding mechanism.

The research included a look at certification programs in the solar industry and other industries, such as geothermal energy, across various regions, an effort to cast a wide net and come up with as many ideas as possible.



"In the early stages, when you're doing the research, you want to keep as open a mind as possible," Ferrabee said. "The first thing we do is take inventory. What are the standards of training in Canada, North America and across Europe? How are other industries doing things? Then we talk to industry representatives about their experiences, what they believe is the best way to do things. Then we take that information and develop a range of options."

Some interviews were done in person, but the majority involved telephone conversations lasting anywhere from 30 to 90 minutes. Ferrabee peppered his interview subjects with questions and said he was impressed with the level of expertise and passion for the industry displayed by solar professionals.

Ferrabee said he starts by asking how and why an interviewee got into the business. When interviewing an executive from a solar-equipment installation company, he asks how many installers it employs now and how many it expects to have in the next three to five years.

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Among the other questions to address: How does the company recruit installers, and how does it know those recruits have the required skills? Is there an internal training process? How does the company ensure its installations are done properly? Where is there a need for standardization of technique and certification? What about in the related areas of the pipe and electrical trades? How should a standardization and certification program be designed and implemented, and what role should CanSIA play? What role should community colleges and other educational institutions play? How does such a program get funded?

“It’s fascinating to see how many people have been involved in this industry, often for as long as 15 or 20 years, and are passionate about the industry,” he said. “I’ve been surprised by their depth and experience in the industry, at their willingness to cooperate, at their commitment to seeing a solution come through, and that they have a great deal of openness and an understanding of the challenges of putting something like this together across the country.

“I’ve been impressed with their desire to move quickly to get this in place, and their interest in thinking internationally. The people I’m speaking with are well aware that it’s time for this to happen.”

**Wesley Johnston, CanSIA’s Director of Policy and Research**, said a certification program also is important in ensuring worker safety. Installing solar panels might not be the most dangerous job, but workers do need to take precautions when dealing with electrical systems and working at heights, and proper training is essential.

Currently, CanSIA has in place a training and certification program for installing solar hot-water systems that was developed with funding support from Natural Resources Canada. In many cases, this certification is required for access to federal, provincial and municipal market incentives.

Those with experience installing for such systems, or those who are accredited plumbers, pipe fitters or HVAC technicians with experience, can qualify as experienced applicants. They then must complete a roof/fall-safety workshop, an installation workshop and pass a written exam. But

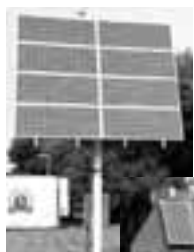
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a new, updated certification program would go far beyond just solar hot-water installation and encompass the industry at large.

"A certification program offers a level of reassurance, not only for customers but also for government agencies that are implementing extensive solar programs," Johnston said. "It allows them to know that the people who are installing these systems have gone through training and are certified as a result of that training.

"We see that as being important for the maturity of the industry and to illustrate that the industry is taking on that responsibility. We feel that if we have this in place, it will open up new markets throughout Canada for more solar energy."

Though any certification program would focus on equipment installation, there also are what Ferrabee calls "secondary markets" for training, and Totem Hill is working to identify the best way to reach these sections of the general public.

For example, architects who are given information about solar systems likely would be better able to incorporate them

into their designs. Property appraisers would be better able to assess the value of homes if they know about solar systems, and building inspectors would be better able to evaluate homes.

One option is to offer informational sessions and continuing education credits to these professionals, and part of Ferrabee's job is to evaluate what role CanSIA should play in a secondary training program, along with how it would be designed and funded.

"There's always the question of who should be doing that kind of training, so that's what we're investigating," Ferrabee said. "We're looking at what's the best model for doing that? Who should be doing it? When should it be rolled out? How should it be synchronized with North America, or should it not be? What are the best options for CanSIA and the industry?"

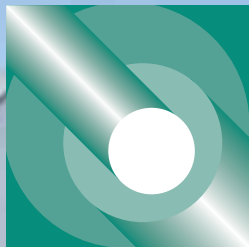
Johnston said another potential benefit of certification is the opportunity to lower installation costs, which would help solar energy reach grid parity with conventional energy sources more quickly.

"We see a certification program as a key to ensuring worker safety and hopefully improving the techniques for installation as well, and that would allow installation costs, and therefore the cost of projects, to go down over time," Johnston said. "The more people learn the fundamentals, the more we feel that improvements can be made."

Another benefit would be to provide a clear career path for people looking to enter the industry. Community colleges and other institutions that would like to implement solar training programs would have a clear idea of what standards need to be met and what their curricula should include, Johnston said.

Johnston said CanSIA's solid reputation and strong member support make it ideally suited to lead certification efforts, whatever form they may take.

"We have a nationally recognized brand," he said. "We're known from coast-to-coast as the voice of the solar industry, and we have a great network of members and stakeholders across Canada, so we feel that we're in a good position to deliver a national certification program." ●



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# TWENTY YEARS

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20 Years

## REPRESENTING ALL CANADIANS BY WORKING TOWARD RESPONSIBLE ENERGY POLICY

By Lyle Fitzsimmons

**FOR ONE PERSON IT** started with talk of global warming.

Though some hear of the science involved in predicting the Earth's perils in future generations and instantly cringe – for **Bob Swartman**, it drove him to action.

Swartman is the outspoken **President of Solcan**, a London, Ontario-based manufacturer of solar collectors and heat exchangers that has supplied solar hot water systems for installation both across the country and overseas since its inception in 1975, making it one of the country's older solar companies. He's also a long-time member of the Canadian Solar Industries Association – which represents more than 650 solar energy companies.

Since 1992, the organization has worked to develop a strong, efficient, ethical and professional Canadian solar energy industry with capacity to provide innovative solar energy solutions and play a major role in the global transition to a sustainable, clean-energy future.

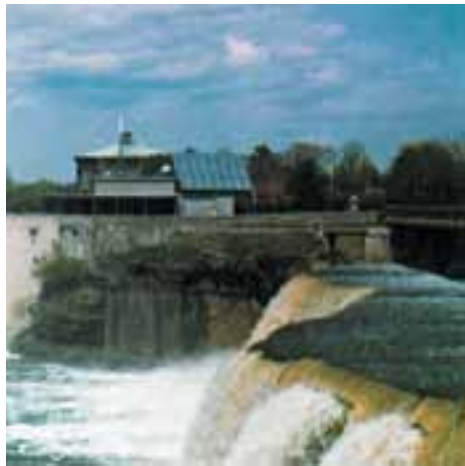
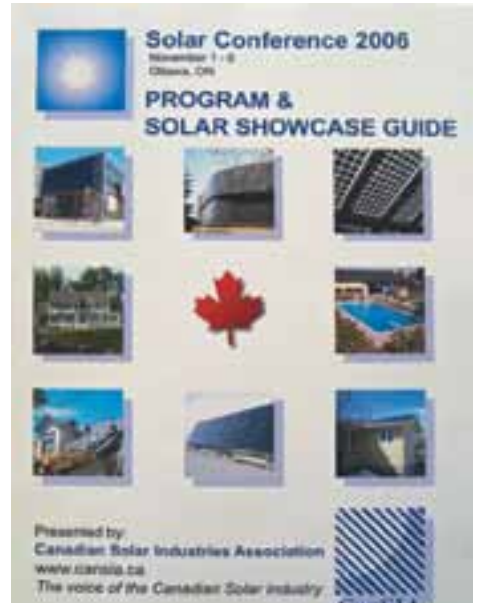
“What will we be using for energy 100 years from now?” asks Swartman.

While in Canada the term “energy independence” isn't the persistent buzzword it is in the run-up to the presidential election in

# OF CAN SIA



As CanSIA celebrates 20 years, the momentum begun by Ontario is swinging across the country with programs in Quebec, Nova Scotia and Alberta.



Photos from CanSIA precursor organization pamphlets courtesy of Viessmann Manufacturing Company Inc.

Program from CanSIA's Solar Conference 2006.

continued from page 53

the United States, it is only, says Swartman, because Canada's bounty of domestic oil supply has leaders going blind to the long-range climatic concerns he champions.

"The term is more common in the US and refers to slowing down dependence on offshore oil," he said. "The Canadian government is gung-ho for oil from Alberta and is not interested in national energy conservation, renewable energy or even global warming."

A quote that is evidence of one of the very reasons for CanSIA's existence: The need for a voice for solar in Canada.

Solar energy can meet three distinct applications: heating water, heating air and the generation of electricity in any residential or commercial setting. In most cases, solar energy provides the lowest lifecycle cost and the lowest environmental impact from the release of greenhouse gases.

The original Canadian Solar Industry (note the singular) Association actually started in 1978. The formation of CSIA was already under way when the government announced a support program – Program

of Assistance for Solar Equipment Manufacturers, funded by up to \$400 million – on July 4, 1978.

Eventually, 10 companies each received about \$400,000 apiece, followed by several projects under PUSH – the Purchase and Use of Solar Energy – administered by the then Public Works Canada (PWC) and designed mostly by consultants who had no experience with solar thermal. The projects and the program were designed for solar thermal alone.

Sensing a need to have their voices heard, several photovoltaic pioneers formed the CPVIA (Canadian Photovoltaic Industry Association) a few years later. They participated in the annual meeting and trade show of the Solar Energy Society of Canada Inc. (SESCI) from 1975 through the early '90s.

It was at the SESCO meeting that solar thermal and photovoltaic practitioners would get together, and where academics presented research papers.

By the mid '80s, Energy Mines & Resources (EMR) had taken over responsibility for solar energy from PWC

and the National Research Council was supporting research in solar thermal energy.

The constant changes ultimately left a vacuum of support, and in effect created a need to combine common voices.

"The PCs gained power in Ottawa and were not supportive of solar thermal energy, so the Federal Government left the incentives field," Swartman said. "Their announced reason: the price of oil had gone down. A new lab was built by EMR at Varennes, Que., with no mission. After a lengthy search, Varennes was designated the Energy Diversification Research Lab (EDRL) specializing in PV, so PV finally had a champion."

The EDRL facility became today's CanmetENERGY, which leads programs in buildings and communities, renewables, industrial processes and manages the world-leading RETScreen International Clean Energy Decision Support Centre. They design and implement clean energy solutions, and build on knowledge that helps produce and use energy in ways that are more efficient and sustainable.

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“CanSIA continues to be constructive, collaborative and factual in its approach while remaining firm with government decision makers regarding the essential future of the solar energy sector.”

— CanSIA Board Chair Michelle Chislett

It was Energy Mines & Resources that acted as matchmaker in bringing the associations together.

“With urging from a few bureaucrats in EMR, the CSIA and CPVIA amalgamated in 1992 to form CanSIA,” explains Swartman.

The effect was the birth of today’s Canadian Solar Industries (note the plural) Association.

Its role was to act as a voice for the entire solar industry.

And so it did, championing the highly successful ecoENERGY Retrofit – Homes program which operated from April 2007 to March 2012, enabling homeowners across Canada to save an average of 20 per cent on home energy use. With grants of up to \$5,000, homeowners were able to make their homes more energy efficient and reduce high energy costs. Since 2007, more than 640,000 homeowners have received an average grant of about \$1,400

– the equivalent of one in 20 households across Canada. The federal government estimates that is a savings of more than \$400 million on annual energy bills.

By the end of 2012, the now cancelled ecoENERGY Retrofit program will have spent a total program of \$934 million.

This national program was met with provincial opportunities and the solar industry began to grow from small operations to big business.

In Ontario it started in 2006 with the Renewable Energy Standard Offer Program (RESOP), which for the first time, instead of differentiating prices, offered a base price for electricity from renewables regardless of the technology used.

Solar seized the opportunity which lasted until 2008 when the program was put on hold.

Then in 2009 Ontario’s Feed-In-Tariff (FIT) program for renewable energy generation was announced as the cornerstone of the province’s Green Energy Act, becoming North America’s first comprehensive FIT program for renewable energy.

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CanSIA's role [is] to act as a voice for the entire solar industry.

The program – which continues today after a review – includes a stream called microFIT designed to encourage homeowners, businesses and others to generate renewable energy with projects of 10 kW or less. FIT program rules cover larger projects greater than 10 kW.

In both cases under the program, participants are paid a fixed price for the electricity they generate for a contract period of 20 years. Domestic content requirements for both FIT and microFIT projects saw Ontario welcoming manufacturers and seeing the creation of new green jobs for the province.

For the industry it marked a maturation that had taken it from operations being run out of garages to businesses taking over the premises of failed auto parts manufacturers.

As CanSIA celebrates 20 years, the momentum begun by Ontario is swinging across the country with programs in Quebec, Nova Scotia, Alberta (see CanSIA Focuses on New Markets beginning on page 12.)

Among the anniversary-year priorities set out by 2012 **CanSIA Board Chair Michelle Chislett** are the continued advocacy for the aforementioned FIT and microFIT program, committing resources to developing new markets across Canada and continuing to advocate for and commit resources to solar thermal.

“We have hundreds of members involved in 18 working groups and four caucuses, each led by a volunteer member chair,” she said. “CanSIA is fortunate to have a deeply engaged and committed membership. This truly is the best way for CanSIA to provide advocacy guidance to governments who develop and implement solar programs.”

“Renewable energy, and solar in particular, has achieved significant political support and is gaining public recognition for its value. We have protected and improved the FIT program through recent Ontario elections, a downturn in the economy and the accompanying lessening of demand for electricity of all types.”

“CanSIA continues to be constructive, collaborative and factual in its approach while remaining firm with government decision makers regarding the essential future of the solar energy sector.”

In effect it has done what it set out to do – become the sounding board for governments.

Swartman brought his passion to solar and an industry took root and bloomed into a business that governments seek to harvest and bring home to their constituents. In his action, and those of so many others, a science has been harnessed that can safeguard the environment for future generations.

Truly a reason to celebrate – 20 years of accomplishment and pride in the foundation laid for a clean energy industry. ●



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# WHAT CanSIA DOES FOR YOUR ORGANIZATION

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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 and Lobbying

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 and 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.

## Press and Media Relations and 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 and Regulations Development

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

## Education and Training

CanSIA has worked with the Association of Canadian Community Colleges (ACCC) to develop solar college curriculums that are now freely available to all community colleges across Canada. CanSIA is currently analyzing and exploring options with solar industry members, 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, the Summer Solstice industry celebration and other networking events.

## 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](http://www.cansia.ca) or contact Sharon Chester, Member Services Administrator, at 613-736-9077 ext. 222 or [sharonchester@cansia.ca](mailto:sharonchester@cansia.ca).

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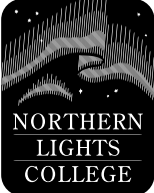
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