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Solar power shines in Calgary

Elizabeth McDonald of the Canadian Solar Industries Association and Brent Harris of Sustainable Energy Technologies say the technology has progressed.

Photograph by: Grant Black, Calgary Herald, Calgary Herald

By Dina O'Meara, Calgary Herald June 7, 2010 11:15 AM

Solar power experts in Alberta foresee sunny days ahead for the industry as costs fall and interest in the technology grows.

Witness Drake Landing, the 52-home community just outside Okotoks, which supplies 80 per cent of homes' space heating from solar -- a world record.

Or check out any road construction site in the city and the solar-powered signs flashing messages to passing drivers.

Home owners increasingly are incorporating solar water heaters and other technologies, as have campers and hikers, if Canadian Tire flyers promoting all sizes of solar panels are any indication.

Alberta has been the centre of Canada's solar industry for decades, used by the oilpatch to power and control field devices and pipelines in remote or dispersed sites.

"The interesting thing about solar is its scalability," said Elizabeth Mc-Donald, president of the Canadian Solar Industries Association. "It's so applicable in so many ways. Companies see that solar can be used for different applications in different sizes, a flexibility other renewable energy sources lack."

McDonald was in Calgary at the recent 2010 solar association conference, the first time the annual event was held in Alberta.

She said there was a huge appetite for solar in the province, which rivals Germany for the world's largest marketplace for solar in potential. Alberta has a yearly photovoltaic potential of 1,292 kilowatt hours per year, compared with Germany's 848 kW-h per year.

The European nation installed 3,500 megawatts of solar power last year and generates one per cent of its power from the renewable source.

In contrast, Canada generates about 70 MW, according to the European Photovoltaic Industry Association.

The holy grail for solar is grid parity, where the differential costs between renewable and traditional power sources intersect on the transmission grid, making renewable energy economic and profitable to install.

The way to achieve that goal is through a portfolio approach whereby prices for a stable of energy sources are blended, reducing the impact to consumers, industry experts said. But in Alberta, equality likely won't be achieved through the market price alone.

"In the retail segment, grid parity is a longer ways away than the specialty segment where photovoltaic can clearly compete," said John Kieran, with renewable power developer EDF EN Canada, "but at the utility level, large-scale level, it's probably even longer than the next five years or so."

The last two years have seen a "remarkable" price drop because the computer chip market tanked due to the recession. The drop in demand freed up silicon, a key component of solar modules, slicing costs in half.

Installation of a module now costs about $4 a watt, approximately what a module sold for on its own in 2008, said Brent Harris, vice-president of Sustainable Energy Technologies.

The hurdles for Alberta's solar industry to succeed are three-fold, despite the province's big, blue skies and long history with the technology, Harris said.

The province boasts Canada's only fully open electricity market -- both retail and wholesale -- has a vast supply of cheap accessible coal-fired generation, and lacks specific policies that support the renewable source.

"Figuring out how to use solar in the deregulated market is the biggest challenge," he said.

Ontario made waves in the solar community through its feed-in tariff for renewable energy, a financial incentive driven by the province's policy to eliminate its coal-fired generation by 2014. The province, which controls retail power costs, has offered 20-year contracts ranging from 80 cents per kilowatt-hour for rooftop solar panels to 44 cents per kW-h for ground-mounted, or solar farm installations.

Such incentives are needed to promote renewables, industry experts said.

"Without serious policies in place, we are at a disadvantage in the West," said Tim Weis, director of renewable energy with the Pembina Institute.

There's no silver bullet to reducing Canada's greenhouse gas emissions, but federal policies do drive development, "whether it's oil and gas, or it's renewable," Weis said.

The provincial energy strategy released last year promotes clean energy, reducing carbon emissions through carbon capture and storage, conservation and, lastly, renewable energy sources.

"We have very little solar generation in the province," said Ian McKay, executive director of the provincial infrastructure and alternative energy department. "All of our solar is in micro-generation."

Hooking in more renewable energy to the provincial grid is a challenge in a province that demands 80 per cent of its power to be running 24 hours a day, a load factor unique to Alberta largely because of its oil and gas industry, McKay said.

Short-term incentives aren't the solution, said commercial developer Jared Donald, with Conergy.

"The proliferation of solar on a local level requires stable, predictable policies," Donald said. "Long-term polices allow companies to put long-term investments into the market. Incentives are short-term and run out."

Policies that simplify rules around connecting to the grid, around installations and metering also are needed to facilitate renewables, said the solar industry association's McDonald.

"What we're dealing with are codes and rules that were made for another time," she said.

Recent innovations include integrating photovoltaic cells into buildings, where what appear to be windows are panels used to generate power and cooling abilities. The use of renewable energy such as solar in downtown cores as well as residential areas would reduce the need for new transmission lines and, in the long run, costs to the consumers, she noted.

domeara@theherald.canwest.com

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