

“Payback periods are below the required decisional threshold”



Luba installation at the headquarters of Quebec City's public transportation organization RTC

Photos (3): Enerconcept Technologies

The Canadian air collector manufacturers are currently growing at rates in the high two-figure range. Their façade systems, which are mostly unglazed, have impressed the Canadian industry and the public with their reliable energy yields and short amortization times. SUN & WIND ENERGY spoke with Christian Vachon, the President of the Canadian company Enerconcept Technologies, about the national and international development of the industry.

S&WE: In 2010 Enerconcept recorded growth of 50 %, for 2011 you expect a further increase in sales of 30 %. What are the reasons for this extremely positive trend?

Christian Vachon: One of the reasons is that a critical mass of projects has been reached with a satisfaction rate of 100 % or close to it. There is a large consensus among the building professionals in Canada that solar air heating works well and requires no maintenance, based on a solid track record. The systems also deliver the projected energy savings estimated with Canadian government-made simulation tools: Retscreen, which includes all renewables, and Swift, which is more specialized for solar air projects. These tools, developed by Natural Resources Canada and downloadable from the Internet, lend an extremely high credibility to our solar air savings calculations. By the way, we also expect a further increase of 30 to 50 percent for 2012.

Air collector installation at the University de Québec en Outaouais, St-Jérôme



S&WE: According to the annual market study by Natural Resources Canada for 2010, air collectors constituted the strongest solar heating segment in Canada for the first time. Which factors are currently pushing the Canadian market for air collectors forward?

Vachon: The Canadian climate is very well-suited to solar air heating, with long heating seasons and relatively high levels of sunshine: Montreal has the same heating requirement as Moscow, but lies at the same latitude as Bordeaux! Furthermore, let us not forget that for the biggest players in the country, single installations are large, 100 m² or more, sometimes reaching 2,000 m². And collector costs are low, ranging from CAD 120 to 300 per m², installation included, so that payback periods are below the required decisional threshold of two to three years for industry and five to ten years for institutions. Most collectors can be used as building material, so that on new construction projects, their net incremental cost is CAD 0 compared to a building without solar, meaning the payback time is zero years. Collectors require no maintenance whatsoever apart from a damper or two.

S&WE: The Canadian Residential Retrofit programme and the Commercial Renewable Heat programme both finished at the beginning of 2011. Did this fact have a strong impact on the market?

Vachon: The end of these programmes had a strong impact on the economic viability of retrofit projects, making sales more difficult in that segment. For new buildings, the conditions are as good as before and no impact has been felt, at least by our company.

S&WE: Canada is one of the world's strongest markets for air collectors, but according to a study by Natural Resources Canada, Canadian manufacturers export only around 10 percent of their products. Why is this proportion so low?

Vachon: It is possible that some manufacturers have focused on busy domestic markets because the cost of sales near home, when compared to reaching international markets, is much lower. This consolidation close to home was Enerconcept's strategy as well, especially during the 2008 to 2010 economic downturn. Now our approach is to tap into international markets to broaden our revenue sources.

S&WE: Where are the current main export markets for air collectors made in Canada?

Vachon: The US market is very easy for us to get into. Apart from that, northern Europe and possibly Asia seem promising.

S&WE: Does Canada also import air collectors?

Vachon: We import collectors from Germany for specific purposes, such as for residential and closed-loop systems. I have also heard of some imports from US manufacturers.

S&WE: Where do you see the interesting markets for air collectors worldwide and what is currently the strongest segment?

Vachon: When looking at the 30 or so manufacturers of solar air heaters around the world, the solar air industry seems divided into two main markets: the small-scale residential market and the large-scale institutional, commercial and industrial market, the so-called ICI market. There may be only a small number of ICI manufacturers, but they achieve the highest number of square metres sold and the highest turnovers. For large systems, space heating is definitely the driver in cold climates, whereas process heat, for example industrial-scale drying, is good for warm climates. A number of residential players, for their part, have focused successfully on autonomous, PV-driven systems for cottages and remote homes.

S&WE: Are there new technical trends in the field of air collectors?

Vachon: Yes, we see new hybrid collector designs with integrated water heaters, a variety of autonomous PV-driven models and many options for glazed façades coming onto the market.

S&WE: Are there technical differences in performance, design, insulation, etc. that are typical for Canada, Europe or Asia?

Vachon: Most European collector designs include a glazed cover with an insulated frame aimed at relatively low air flows. North Americans favour unglazed, non-insulated designs aimed at high air flows. It is too early to say which way the Asian market is going to go.

S&WE: Some Chinese manufacturers of water-based systems have proclaimed this year that they want to get into the air collector business. How do you rate the Chinese market? Will we soon find air collectors made in China in Europe and North America?

Vachon: The Chinese advantage in PV modules and water-based collectors lies in the cost of manpower for manufacturing. Since there is some manpower required in producing residential collectors, it is possible that we will see Chinese products in North America and Europe in this sector. However, in ICI markets, most collectors used are composed of single-pane, machine-made panels – perforated cladding or injected polymer – with practically no manpower involved, making the Chinese advantage vanish.

S&WE: The international standard for air collectors will come into force in 2012. Do you think the standard will have an effect on the collector technology?

Vachon: Since the air collector industry is still emerging and standards were non-existent until recently, collector manufacturers are having a strong influence on the drafting of the standards. The solar air industry needs to mature a little longer before standards are set for good, and standards do have to be as wide and flexible as possible for now to support the industry. At a later stage, however, the industry will benefit from international standards.



Christian Vachon: "Solar air provides new opportunities which could revitalize the overall solar thermal market in Europe."

Photo: Stephanie Banse



The main office of the truck parts and service dealer Tardif Diesel is equipped with Lubi collectors. The collector is attached directly to the building, either on the wall or on the roof.

S&WE: Will the standard increase import and export activities?

Vachon: It is very likely, especially if the countries that develop standards, currently Canada and Germany, adopt a policy of reciprocity. This approach is highly desirable and especially easy to achieve now since the first standards are being written as we speak.

S&WE: For quite some time the international air collector industry has been trying to found a working platform. What is the state of play here?

Vachon: The first attempt to start an international solar air industry association did not gain momentum because it was driven overwhelmingly by only one manufacturer and was not endorsed by other mem-

bers of the industry. The first thing to do for solar air manufacturers is to find their common ground and objectives, lobbying aims, standards, etc., and then to decide what form of organization they need to attain them, for example a working group, forum or association. Enerconcept will be pioneering a meeting of solar air players during Intersolar in June 2012 in order to kick-start a successful working group with as many stakeholders of the industry as possible.

S&WE: This summer Enerconcept concluded a licence agreement with the Danish manufacturer SolarVenti and now uses a Danish patent for its glazed Luba GL collectors. Moreover, you announced that it was possible that SolarVenti could take over the production of the Luba GL collectors for the European market. Is such a cooperation a one-off occurrence or is it indicative of the relatively small size of the industry?

Vachon: In all branches of any industry there should be recognition of good ideas and good applications, and a match should be made between both if there are mutual benefits. SolarVenti has, until now, been strictly in the residential market and Enerconcept adapted their patented idea to large-scale industrial applications. A few projects have been completed in Canada and one is on its way in the US. Furthermore, a first industrial solar air project is taking shape in Denmark. Once the first winter has passed, there should be easy reproducibility in the following seasons.

S&WE: The European market for air collectors is currently stagnating. What could the European manufacturers learn from their colleagues in Canada?

Vachon: Over the last couple of years the solar water heating industry has been flagging in Europe, but Europe has the enormous advantage that solar thermal is very widely known in comparison with Canada. Solar air provides new opportunities which could revitalize the European solar thermal market. For that reason, solar air in Europe should become a special section within ESTIF, as it did in Canada within the Canadian Solar Industry Association Cansia.

The interview was conducted by Stephanie Banse.

Further information:

Enerconcept Technologies: www.enerconcept.com

International standard for air collectors from 2012

Since 2009 experts have been working on the integration of air collectors into the existing collector standard for water-based systems EN 12975 as part of the Luko-E project. Under the leadership of the German Fraunhofer Institute for Solar Energy Systems (ISE) the test stand has been optimized, the standard has been revised in terms of its performance measurements and its usability, and the conditions for the measurements have been updated. Now the standards committees of all the European countries must agree to these changes.

"In future, air collectors will be integrated into EN 12975", says Korbinian Kramer, Head of the test laboratory for solar thermal systems at the Fraunhofer ISE. "At the moment, the situation is as follows: for part one, which describes the general requirements, the public enquiry ended in October 2011. In Germany, the comments are now being discussed and sorted in order to define the German position. Part two regarding the test procedure is expected to be replaced in autumn 2012 by the new international collector standard 9806 which will include air collectors."

At the moment, says Kramer, there is also a problem that in the new Canadian CSA norm unglazed air collectors are mentioned in this application area although there is no real standard for this technology. Reference is made to 12975-2, but that does not yet include unglazed collectors.

"The unglazed collectors are now being added to the standard", explains Kramer. The project Luko-E will be extended for this purpose because in the opinion of the Fraunhofer researchers there are still a few fundamental questions to be answered. "The extension is expected to be added to the standard by early next year and then requires the agreement of all parties" says Kramer. "This is very likely to happen because there is a good cooperation between the German and Canadian institutes. The new version of the standard is expected to come into force in October 2012."