

What a biogas!, Ivor Tossell, Special to The Globe and Mail, July 08, 2009

It will be Grand Central for technologies you didn't know existed, let alone knew were cooked up in Toronto. Next week, the Metro Toronto Convention Centre will play host to Discovery 09: a gathering of thousands of high-tech researchers and business types, all looking for ways to take the latest ideas - as organizers are fond of saying - from "mind to market." The show is staged by the Ontario Centres for Excellence, a government-supported non-profit that helps bring research ideas to market, in a city where venture capital can be thin on the ground. Despite the generally apocalyptic mood these days, the event has actually grown since 2008. And amidst the hundreds of exhibitors - including everything from rocket scientists to bioengineers who say they've created a "new apple tree" - the conference is showcasing the "green-collar" economy. Among them will be three startups with Toronto roots - and global aspirations.

REGEN: It was the blackout that drove Mark Kerbel and Roman Kulyk to start redesigning the power grid to work like bees. It's a stretch, but hang in there. "We've always been fascinated by swarm logic," says Mr. Kerbel, the president and CEO of REGEN. "There's no queen bee that says, 'You do this, and you do that.' Every bee has a puny little brain and they sniff around what's going on around them." After the August, 2003, blackout plunged Toronto into darkness (and its own swarming sociability), Mr. Kerbel and Mr. Kulyk, who had already partnered in a successful software venture for electric utilities, decided to put this idea into action on the power grid. The result was REGEN, a company that sells "swarm-logic controllers" - \$650 bug-like attachments that clamp onto a building's air conditioners and water heaters, and, by wirelessly chatting, endow a building with the kind of collective wisdom that keeps a beehive in business. The building's devices, aware of what their peers are doing, can make informed decisions about when to turn on and off, and smooth out the spikes in sudden power use. For instance, instead of 10 air conditioners on a floor kicking in together once the temperature gets too high, a swarm of networked air conditioners might realize that six or seven might suffice. The company claims energy savings of 10 per cent to 15 per cent. Mr. Kerbel says that the Toronto firm has outfitted several large clients in the city (including what he delicately calls "one of the largest retail chains in Canada") and is on the brink of breaking into the U.S. market, starting in the energy-conscious southwest. Their ultimate goal? To see their bee-thinking devices spread beyond office towers, and to help start regulating the power grid itself. "I think we've got bragging rights for being the first swarm-logic guys in the energy industry," says Mr. Kerbel.

STORMFISHER: When Ryan Little, at 25 years old, decided to start a renewable-energy business with a couple of business-school friends, they didn't actually know which renewable energy they were going to use. It was, he says, a case of "insert technology here." They sifted through their options, and met with an expert in the biogas field. The expert told them there was no way to make money doing it in Canada. "So we thought, 'It sounds like a perfect opportunity,'" says Mr. Little. Two years and several hundred million dollars later, the trio's instincts have proven sound. Their company, Stormfisher, has secured hundreds of millions in private financing, and hopes to see shovels in the ground for the first of five developments this spring. Biogas power digests agricultural waste in what the firm (unappealingly) compares to an industrial-strength stomach, and turns the byproducts into heat and power. The technology is big in Europe. "Their innovation wasn't in their technology, but in their business model," says Mark Romoff, president and chief executive officer of the Ontario Centres for Excellence, which helped get Stormfisher off the ground. What Mr. Little (now all of 28, and a vice-president), and his co-founders, Bas Van Berkel and Christopher Guillon, proposed was to make money at both ends of the process. Not only would they sell the heat and power that will come from the artificial stomachs, but they'll charge food processors to haul away the bio-waste.

CLEANFIELD ENERGY

For Tony Verrelli, the Canadian dream arrived while he was sitting at a Tim Hortons in Stoney Creek. Instead of big windmills in the country, why not rooftop windmills in the city? "You have these big satellite dishes on there. Why can't you put a wind turbine on the roof?" he says. Mr. Verrelli was more businessman than scientist, but a venture capitalist connected him with two Romanian experts, and together the trio founded Cleanfields in 2002. Six years of research later, with a development team working in North York, their first product hit the market: a roof-mounted turbine that looks like a bizarre whirligig. Windmills work well in open fields, where the wind reliably blows from a single direction. But in a city, the wind comes from many directions at once, bouncing off walls and sidewalks. The Cleanfields vertical-axis turbine, which can generate almost enough power to feed an average house, can catch such chaotic wind. As it turns out, you can't put a vibrating windmill on top of a building without keeping people up at night. So, the plan shifted from residential buildings toward office buildings and schools. But the company has found eager public-sector customers: Windmills are twirling atop Mohawk College, and will soon be going up at Durham College in Whitby - and in Toronto proper. Even as orders are starting to roll in, Mr. Verrelli sounds weary and excited at the same time. "We're such a young company and we've gone through so much."

Discovery 09, May 11-12, Metro Toronto Convention Centre, 255 Front St. W. 416-585-8000.

<http://www.ocediscovery.com>. *Greening Greater Toronto, May 12, 9:45 a.m. to 12 p.m.*

<http://www.greeninggreatertoronto.ca>.

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