

NOVA SCOTIA

Open to the world



Quantum leap

From Hackett's Cove to the International Space Station

PLUS: Joan Baxter: cross-continental volunteer

- Renewable energy mapping
- Clare's self-sufficiency project
- Eurobuilt: windows for climate change

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Snap SHOTS



SANDOR FIZLI

Quality before quantity: Luthier George Rizsanyi with one of his handcrafted guitars.

King of strings

The late Noel Redding, bass player for The Jimi Hendrix Experience, could have told you about his talent; so could James Taylor. That's because both musicians played his instruments. "He" is master guitar-maker George Rizsanyi, and he creates his handcrafted custom-made guitars (www.rizsanyiguitars.com) in his windowless studio: an old barn in

Pinehurst, located on Nova Scotia's South Shore.

"There's an Old World sense of pride here that most everyone who does a craft does it to the best of their ability," he says on the phone from his workshop. "Quality before quantity."

Rizsanyi is a "luthier," and at 52, he is a master. It was a chance meeting with

a transient guitar-maker in the mid-1970s that inspired the Hungarian-born, Ontario-bred factory worker to take up the craft, but his family was always musical. "I first had a guitar in my hands when I was five," he says.

In 1976 Rizsanyi apprenticed with Croatian-born guitar-maker Joe Kovacic, known as Joey Lado, near Oxbridge, Ont.; worked with violin-maker Bruce West near Bradford, Ont.; and was an employee at a Toronto musical-restoration house called The

Snap SHOTS

Twelfth Fret, before he struck out on his own. “I was quite good at restoration. Still am. Most people don’t trust just anybody with their really good instruments.”

It was Rizsanyi’s humble beginnings in repair work that taught him how to make a world-class guitar, a skill he also teaches. Among his varied accomplishments is the Six String Nation Guitar, a custom-made instrument constructed out of historically significant pieces of Canadian wood, metal, and bone. It was assembled over a decade and includes decking from the *Bluenose II*, Pierre Trudeau’s canoe paddles, and

“There’s an old world sense of pride here that most everyone who does a craft does it to the best of their ability,” says Rizsanyi

Paul Henderson’s hockey stick. The guitar, played for the first time on Canada Day 2006, is meant to be a symbol of national unity, and it isn’t the last one of its kind he’ll bring into the world.

“I plan on building another at some point,” says Rizsanyi. “This next guitar I’d like to hand to a musician I know [and tell him to] play it when he’s ready and pass it to somebody else. I’d love to see this guitar travel across the country. It’s a big form of communication that the guitar and music affords us. I’ve had people who don’t speak a word of English working in my shop. We don’t need it to get our point across; we do it through music, through guitars.”

—CARSTEN KNOX



NOVA SCOTIA TOURISM, CULTURE AND HERITAGE

A bit of Bavaria

One year, a 32-piece brass marching band from Germany played in the streets of tiny Tatamagouche. Another year, an accordion player serenaded partygoers table to table. And last year, when a regular performer didn’t show up, organizers presumed he must have passed away. “Only death keeps them from coming to Oktoberfest,” says co-founder Claire Mueller with a wry grin.

For the past 27 years in rural Tatamagouche on Nova Scotia’s North Shore, the last weekend of September has been synonymous with Oktoberfest

(www.nsoktoberfest.ca). Locals anticipate it all year long, tourists plan vacations around it, and more than 3,000 men, women, and children pass through the doors of the North Shore Recreation Centre into a recreated Bavarian dance hall, eager to dance and sample German beer, sausage, and sauerkraut.

Top musical talent is always on tap, and goodwill flows freely. “When you walk into the arena, it’s not an arena anymore,” says Mueller. “You are immediately transported to Munich. From the smells to the music to the sights, it’s elec-

Through the years

The first Oktoberfest began with a Royal Bavarian wedding in 1810, when Crown Prince Ludwig I decided to commemorate his marriage to Princess Therese of Saxony. Held in Munich, the merry-making events featured a horse race, beer, food, music, and dancing. It was so popular that anniversary celebrations continued each year. Oktoberfests have been held in Munich for nearly 200 years. — S.C-M

tric.” Mueller is French Canadian from Grande Rivier on the Gaspé Peninsula, but her husband, Dieter, hails from Bamberg in Bavaria. “Sometimes I think I’m more Bavarian than he is,” she says, laughing. In fact, Mueller, a champion hog grower, launched the festival in 1980 after being challenged by her hog-feed salesman. He used to come by every other week with feed for Mueller’s pure-bred hogs, and he became friends with the couple. One day he invited the Muellers to an Oktoberfest in Debert, N.S. When the Muellers arrived, they were horrified to find canned sauerkraut and Scottish music masquerading as the famous Bavarian festival. “I remember saying, ‘That’s not an Oktoberfest,’ ” she recalls. The salesman quipped that if she

was so unimpressed, then she should organize a proper Oktoberfest in Tatamagouche.

That’s exactly what the Muellers did. At the time, the pair also ran The Pork Shop in Tatamagouche (they retired in 1998), and many of their customers were German. They posted a sign promoting Oktoberfest events on the meat shop’s wall—the only advertising they did—and 85 people showed up. By the third year, attendance had soared to 365, and the following year it was too big for them to handle on their own. The solution? In 1983 they joined George and Enis Vogel and Julius Zarand to form the North Shore Bavarian Society. Today 50 volunteers are required to put on Canada’s second-largest Oktoberfest (the biggest one

takes place in Kitchener-Waterloo, Ont.).

The secret to Oktoberfest’s success is that its organizers don’t treat it as simply a moneymaking event. “We wanted to give people the feeling of being in Germany for one night,” says Mueller. The economic spin-off from the festival is broad. Businesses report increased sales, accommodations are booked to capacity, and local causes reap the financial rewards. For example, each year the Bavarian Society donates funds to community projects and school bursaries. “Oktoberfest is a great tradition that extends the tourism season,” says Joyce Mingo, the executive director of Central Nova Tourist Association. “It’s an event that the community talks about year round.” — **SHELLEY CAMERON-MCCARRON**

Art of the finest kind

The Canadian town with the most art galleries per capital than anywhere in Canada is not Toronto, Ottawa, or Vancouver but rather Lunenburg, a tiny heritage town on Nova Scotia’s South Shore. “Lunenburg inspires a feeling in people, it’s not something tangible, it’s more of an experience,” says Stuart Simpson, the owner of North Shore Canadian Art. “Artists and galleries converge here.”

Simpson is also president of the Art Galleries Association of Lunenburg (www.lunenburgart.com), which was formed in 2005 to boost the growing fine arts community. Membership is currently full, at 20 galleries. “We have so much high-quality art here,” says Simpson. “That’s why we needed to market ourselves to the world as an arts destination.” The AGAL produces a catalogue that is distributed to auctions and art shows across the country. A foldout and a map of the town showing the galleries has also been created, and they have been distributed to visitor centres and tourist outlets.

“We’ve had a great response,” says Simpson, who sells nationally recognized Canadian art and specializes in original paintings by William deGarthe, one of Nova Scotia’s best-known marine artists. “We held an art show late last May as a fundraiser for the town’s opera house, which is being restored. We had 90 works on display, and 700 people came through in three days. That’s not bad for a town of fewer than 2,500 people.”

Mariette Roodenburg is a photographer, the owner of Anderson Gallery, and a member of the AGAL. She recently moved to Nova Scotia’s South Shore from Holland after falling in love with the area during a holiday. “If you combine your energies and networks,” she says, “you accomplish more than if you work single-handedly.”

Susan Hudson opened Peer Gallery Contemporary Art in Lunenburg as an artists’ co-operative in January of 2002. The gallery exhibits the work of 12 Nova Scotian artists who have established regional and national reputations. Originally from Montreal, and the gallery’s president, Hudson has



AGAL members on Lunenburg’s Railway Wharf

lived in Lunenburg for the past decade. “I was drawn to the area because of the sheer beauty of the architecture and the varied landscape,” she says. Hudson believes that being part of the AGAL is not only beneficial for its members but also for the community. “Artists add to any place they are part of,” she says. “People come to see the art, then they visit the restaurants and shops, and all of a sudden the place becomes a destination.”

The fact that visitors can stroll from gallery to gallery is a big advantage, according to Steven Rhude, a contemporary realist painter whose vivid work is inspired by marine culture. Rhude is the former president of the AGAL and currently the association’s secretary. “The art is concentrated here,” he says. “It’s unique to be able to walk around a town and visit this many galleries on foot.”

The art on display at the various galleries includes original oil and watercolours, acrylics and drawings, contemporary prints made using techniques of stone lithography, copper-plate etching and woodcuts, colourful contemporary pottery, Nova Scotian folk art, and handwoven clothing.

“Artists need inspiration, and Lunenburg is a living centre of cultural heritage and old-world social values,” says Simpson. “It’s home to the aesthetically inclined, whether you were born here or you’re just visiting. The art scene here is a manifestation of the feeling that Lunenburg radiates.”

— **CAROL MOREIRA**



Nothing ventured, nothing gained

Specializing in neuropathic pain relief, Origin BioMed is experiencing international growth with support from Canadian venture capital investors

At Halifax-based biotechnology company Origin BioMed Inc., the motto “not too fast, not too slow” comes up frequently. “We have been patient with our growth—expanding one desk, one phone, and one computer at a time,” says president and CEO Robert Cervelli. “Our success to date is proof that strategic and steady growth is the best growth.”

When it launched in 2001, Origin BioMed’s goal was to have a big impact on the pharmaceutical industry with its impressive portfolio of over the counter drug products. Instead of aggressively pushing those products into the marketplace, Origin BioMed (www.originbiomed.com) dedicated the first two years of business to conducting pilot marketing. By doing so, the company made sure that its products targeted undeveloped health niche markets and ensured it was prepared for significant growth.

In Canada alone, Origin BioMed’s products are in Shoppers Drug Mart, the largest drugstore chain, as well as in Lawtons Drugs, London Drugs, and Pharmasave. These national pharmacies carry many of the company’s products, including Neuragen®, its leading topical drug that provides rapid relief of diabetic and post-shingles pain. Origin BioMed’s focus is on developing innovative topical drug products for the relief of specific conditions causing pain, using the highest quality active ingredients with scientific and clinical effectiveness. By accessing qualified pharmacists, medical researchers, and clinicians, Origin BioMed products are supported by scientific communities worldwide.

“About 60% of people with diabetes have mild to severe forms of nervous system damage. The damage includes impaired sensation or pain in the feet or hands and other

nerve problems,” says Cervelli. “Our leading topical drug, Neuragen®, has proven to be effective in relieving pain for up to 70% of patients in clinical trials.”

In January, Origin BioMed took its product portfolio to a new international market by signing a distribution deal for Neuragen®. SciTrove Inc., a Tokyo-based marketing and distributing company for products in the life sciences sector. SciTrove will help Origin BioMed produce a promotional campaign targeting the Japanese market. As well, Origin BioMed has begun to expand into

dients, and food technology.

“Origin is addressing real consumer needs and demands through plant-based medicines and botanical drugs,” says Aki Georgacacos, general partner at Avrio Ventures. “With its strong team, proprietary product line, and brand presence, the company is in a great position to capitalize on the tremendous growth and opportunity in the market for neuropathic pain relief.”

NSBI is helping Origin BioMed through its venture capital division, NSBI Venture Capital, which offers its venture capital part-

“Partnerships with national players make the difference by giving our local companies the right tools they need to grow and compete” — Peter MacNeil

American drugstores, including launching a Neuragen® pilot program with CVS/pharmacy, the largest drugstore chain in the United States with more than 6,200 outlets; the company has also established an American subsidiary in New York City.

With products already taking their place on pharmacy shelves around the world, Origin BioMed is continuing to break into new markets with the support of investing partners such as Nova Scotia Business Inc. (NSBI). Co-investors NSBI Venture Capital (www.novascotiabusines.com) and Avrio Ventures Limited (www.avrioventures.com) are providing financial assistance as the company expands internationally and embarks on a U.S. expansion.

Avrio Ventures is a Calgary-based venture capital firm that supports the development of Canadian commercialization and growth-stage companies with a focus on industrial bioproducts, nutraceutical ingre-

ners valuable insight into Nova Scotia’s most promising companies. NSBI Venture Capital is a mid- to late-stage investor with the ability to do follow-on investments in its portfolio companies. It focuses on Nova Scotia businesses in key provincial sectors, including information and communications technology, defence and aerospace, energy, advanced manufacturing, and life sciences.

Stephen Lund, NSBI president and CEO, and VP and COO Pat Ryan view venture capital as a valuable investment tool. When NSBI and Peter MacNeil, NSBI Venture Capital’s investment manager, learned of the chance to partner with Avrio Ventures on an investment with Origin BioMed, there was no doubt that this division offered the right services for the company’s growth plan.

“Partnerships with national players in the life sciences sector give our local companies the right tools to grow and compete,” says MacNeil. — **MARY-ELEANOR WALKER**

The volunteer

Author and journalist Joan Baxter is returning to Africa, where she will continue to play a vital role as a volunteer with the Nova Scotia Gambia Association

Joan Baxter is insatiably nosy. “That’s why Africa is the perfect place for me,” says the former executive director of the Halifax-based Nova Scotia Gambia Association (NSGA). “There is something new to learn every single day.”

That being said, her recent stint with the NSGA (www.novascotiagambia.ca) brought Baxter moments of exhilaration that alternated with apprehension. “Can we pay the salaries at the end of the month? Is there going to be time to write those reports to donors? I was the chief financial officer, human resources, general manager, communications officer—all at the same time,” says Baxter, a native of Dartmouth, N.S., who spent 22 years in Africa working as an author, journalist, and anthropologist. “I learned more this year managing an NGO than I ever would have in 20 years watching from the sidelines.”

Baxter first went to Niger in 1982 as a young media studies graduate of the University of King’s College in Halifax. Africa ended up becoming home. “I was married there, and our children grew up in Africa,” she says. “There is a magic there that you can’t explain.”

Baxter recently resigned from the NSGA in order to resume her writing career and to return to Sierra Leone, where her husband heads a development project for food security and peace reconciliation. From 1993 to 1997, she was a science writer for the World Agroforestry Centre and a journalist for the BBC World Service and Associated Press. She also contributed to Canadian media, including CBC Radio, *The Globe and Mail*, *Toronto Star*, and *The Chronicle-Herald*. Baxter has been writing a non-fiction book for the last three years, which is tentatively titled *As the Library Burns: The Theft of Africa’s Wealth and Wisdom* and is scheduled

for publication in October of 2008. Baxter will continue working with the NSGA as a volunteer, in the Sierra Leone office and on a new project that will involve doing mass education on HIV/AIDS prevention and HIV voluntary testing and counselling.

Baxter’s experience has given her a “substantial understanding of and feeling for the people of West Africa, the nature of international development work, and of our work, which is working on the ground with people in a sustainable way,” says Margaret-Anne Bennett, NSGA’s board chair. “We will miss her enthusiastic leadership, but Joan had a very successful year in leading the organization through a time of transition.”

The NSGA was created in 1989 by Brian Devanney, an English teacher at Halifax West high school, and a group of five volunteers, three of whom were also teachers. Today the organization works with all age groups, although its focus is still on the health and education of young people. The peer-education program focuses on many health issues, including AIDS, malaria, tuberculosis, sexually transmitted infections, healthy relationships, food and nutrition, and gender equity.





"I was married in Africa, and our children grew up there," says Joan Baxter. "There's a magic that you can't explain."

SANDOR FIZLI



"Africa is not just wars and famine. There are many, many positive things happening. It is really and truly an inspiring place"

The NSGA has expanded out of The Gambia and into Sierra Leone, which endured a horrific decade-long war that ended in 2002. The organization went into Sierra Leone immediately after the war. "In many places, schools had been closed for over a decade," says Baxter. "There was no formal education. Lots of communities didn't even know that HIV exists."

Nova Scotia is well known in The Gambia because of the work of the NSGA. "The historical link between Nova Scotia and Sierra Leone is well known," says Baxter, who points out that black Loyalists from Nova Scotia founded the capital of Freetown in 1792, led by a man called Thomas Peters. "When we move around The Gambia in an NSGA vehicle, people shout, 'Nova Scotia!,' which they know from their own history."

The connection and concern Nova Scotians feel for West Africa is palpable. "It is an absolutely wonderful feeling," says Baxter. "People here care about the work the NSGA is doing and they want to make a difference. Some Nova Scotian children even donated their Christmas gifts to help. When that happened, I got chills."

— CAROL MOREIRA

A turn for the better

Using green technology to manufacture tilt-turn windows and doors, Eurobuilt Inc. has a market niche all sealed up

Ron Eberle saw his first vinyl window back in 1986, at a home show that was being held in the Halifax Forum. “I was intrigued by the uniqueness of the multi-chamber design and the green properties of the window,” he says. When he learned that the product was made in part by environmentally friendly recyclable material, he was hooked. “The product will last for generations, and then it can be reprocessed.”

Today Eberle is the president of Eurobuilt Inc. (www.eurobuilt.com), a Hubbards, N.S.-based company that designs and manufactures European-inspired windows and doors that are leading the industry in energy efficiency, safety, and durability. The vinyl frames are made from polyvinylchloride; the technology involves taking a vinyl compound, melting it into a liquid, and pushing it through a shape known as a die. “It’s kind of like making noodles,” jokes Eberle.

This method of creating frames using molds allows Eberle to build features into his products that help them perform better. Eurobuilt’s frames have five hollow chambers, containing multiple layers of “dead air,” which increase resistance to heat loss in winter in northern climates and reduce loss of cool air in southern climates. The unique centre-gasket system further eliminates air exchange through the frame components. “Energy efficiency and energy conservation are issues we’ve been dealing with since we began,” says Eberle.

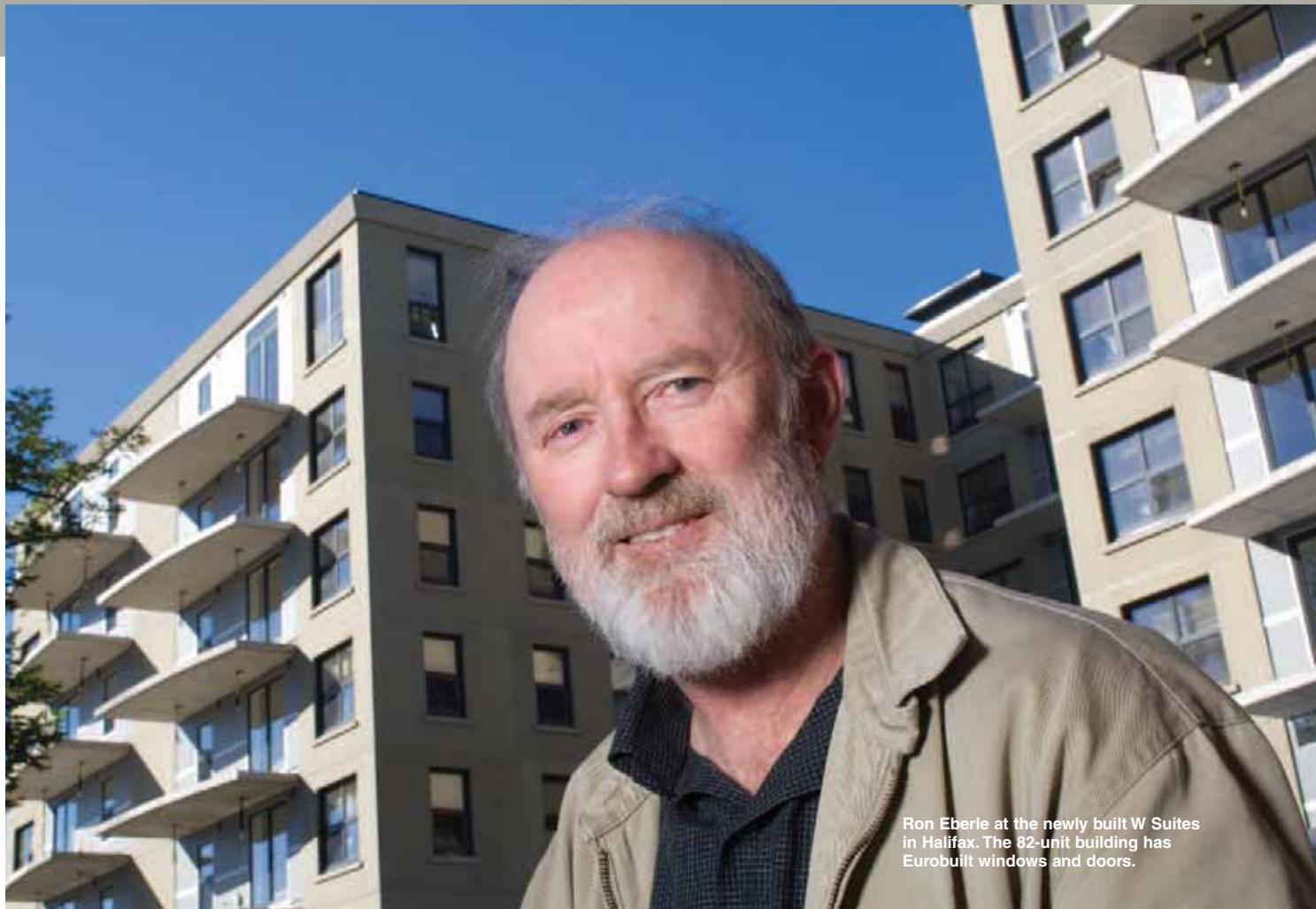
In 1981 Eberle first moved to Atlantic Canada from Ontario to work as a sales representative for a company that manufactured wood-burning stoves. “I was exposed to alternative-energy concepts back then,” he says. “I can remember people getting away from oil and burning wood.” Eberle learned his new business as he went along, since he had no prior knowledge or experience with window-

and-door technology. In 1989 he incorporated his company.

When Eberle first discovered vinyl frame technology, North Americans weren’t interested in it because it was expensive. When consumers started buying the products, the price-driven mass market created pressure to reduce costs. Vinyl windows became smaller, slimmer, and cheaper in North America, but they have remained heavy, rugged, and increasingly more multi-chambered in Europe. Eurobuilt’s products provide a more energy efficient, high-quality alternative.

“Today there’s a whole lot more interest in North America than there was 20 years ago,” says Eberle. “It’s an education process, and there is more and more interest all the time. In the 1980s energy conservation was a high priority, and the issue has come around again, not only in northern climates but in the south as well.”

Eberle works with his wife, Mary,



Ron Eberle at the newly built W Suites in Halifax. The 82-unit building has Eurobuilt windows and doors.

who is the office manager, and another eight to 10 full-time employees. Eurobuilt windows and doors are designed using “tilt-turn” technology, which also was developed in Europe; the dual action allows the windows and doors to swing inward as well as pivot into a tilt position that opens more at the top. If it’s sunny out, the temperature in the room will increase; the warm air rises and stratifies at the ceiling. The window can be tilted inward so that hot air escapes from the top, while cool fresh air simultaneously enters at the bottom. This allows for an automatic air exchange without requiring any energy use or fans.

The windows also swing in for easy cleaning, all with the operation of a single handle. They can even act as a fire escape in case of emergencies. “Because our product is performance based,” says Eberle, “it’s tested and certified.” In the United States there have been recent changes to building codes; energy effi-

ciency and impact performance, such as high winds and water from hurricanes, are the two major factors influencing those changes. “The building industry is facing critical issues, like energy conservation in any climate and using green technology,” says Eberle. “We are almost a shoo-in because we meet the new codes and address those concerns.”

Eurobuilt’s rain-screen products are ideally suited for high rises and buildings in coastal areas that experience powerful winds and driving rain. Most of the company’s business is international exports, with most of it coming from the states of Alaska, Washington, New Jersey, North Carolina, and Colorado. From providing windows for an Oregon resort that has to buffer 100-kilometre-per-hour winds to condominiums in Barbados to high rises in Dartmouth and Halifax, business is booming. “We’ve got a great long-term product,” says Eberle. “Everything installed is forever.” — SHANNON LONG

“In the 1980s energy conservation was a high priority, and the issue has come around again, not only in northern climates but in the south as well”

— Ron Eberle

Space quest

Nautel is an international exporter of radio transmitters and a leader in digital technology. What's next? Developing products that could revolutionize space travel

by CAROL MOREIRA

photography by SANDOR FIZLI

Hackett's Cove is a tiny fishing village on the South Shore of Nova Scotia. It's a quiet spot; the only views are of the tree-studded coastline and the little islands that border this part of the Atlantic Ocean. The only main road leads to the famous but remote and scenic attraction of Peggy's Cove. So it's no surprise to learn that when Denis Colville launched his engineering company, Nautel Ltd., almost 40 years ago, he figured if business didn't work out, he could sell the premises as an oceanside home.

Fortunately things did work out, and today Nautel (www.nautel.com) is a well-known producer of radio transmitters and is now on the cusp of breaking into the space industry. Nautel staff is buzzing after an unexpected approach just over a year and a half ago by Texas-based Ad Astra Rocket, a company that is developing plasma rocket-propulsion systems that are expected to



John Whyte (left) and Tim Hardy at Nautel's seaside location in Hackett's Cove.



revolutionize space travel. Ad Astra approached Nautel after learning about its expertise in radio-frequency amplification. Nautel exports radio transmitters to 170 countries around the world, using the latest digital technology and producing transmitters that are compatible with all of the digital-transmission methods being used internationally.

Digital radio is currently poised to become the greatest revolution in radio broadcasting since the introduction of

The technology will mean that spacecraft and satellites will be much more mobile

FM. The digital signal delivers high-quality audio and allows up to three stations to be transmitted on one signal. It also provides great efficiency; a digital broadcaster can serve a broadcast area using only 1/100th the power required with analog (AM and FM) broadcasting.

With this in mind, Ad Astra asked Nautel to create and develop radio-frequency amplifiers for plasma generation and acceleration in the propulsion systems of electric spacecraft. Nautel staff members have been only too happy to take on the challenge. "This technology represents a quantum step forward in spacecraft propulsion. We're doing world-class work. It is very exciting to be involved," says Tim Hardy, Nautel's head of research. "We've never developed a product for space before. There's a lot of new learning. It's an important step forward in a core technology we have. We're branching out and applying technology we understand in new ways."

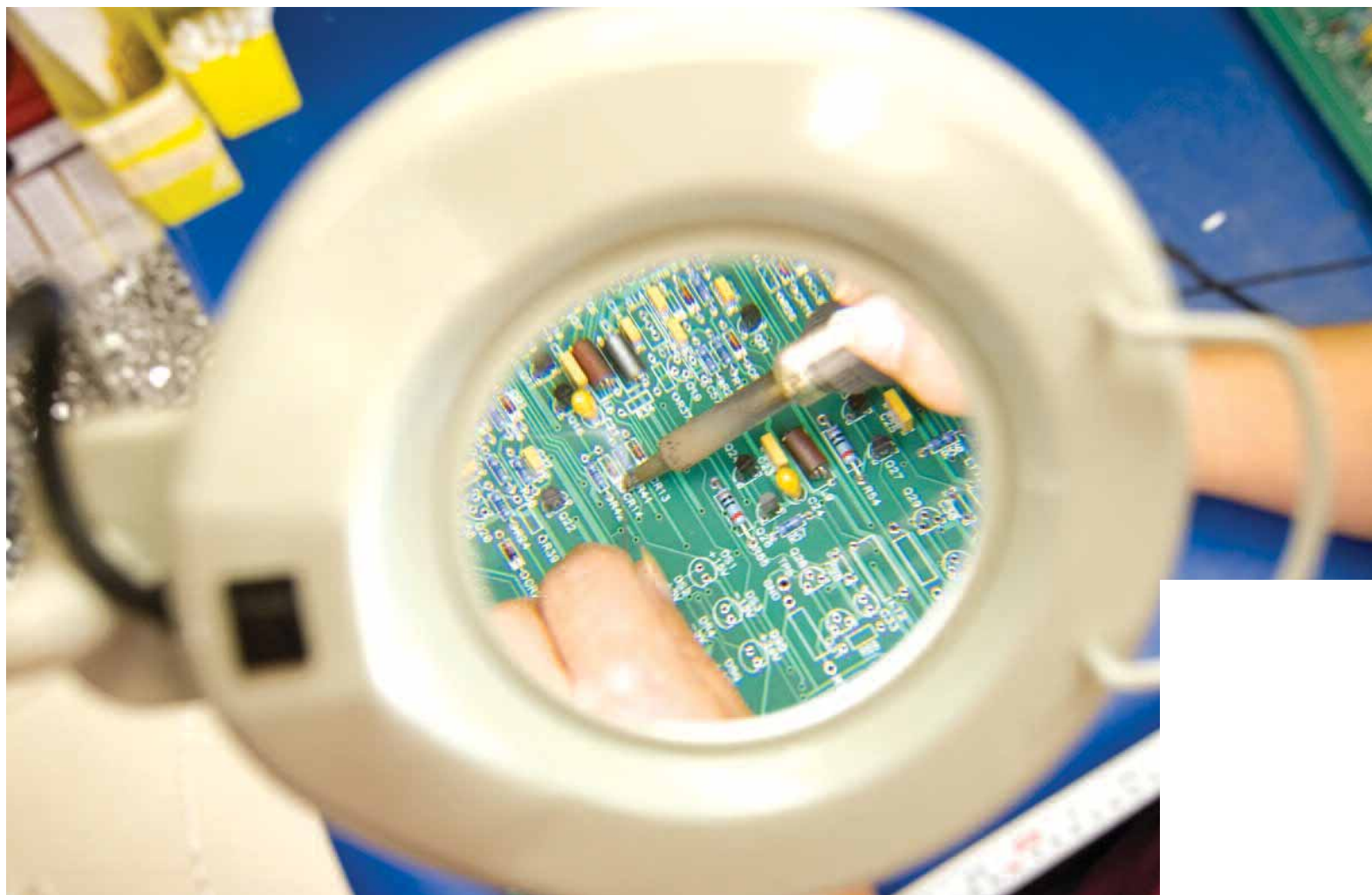
John Whyte, Nautel's marketing manager, describes the project with Ad Astra as Nautel's "Honda racing program" because of the way it is pushing the company's engineering limits. Seven of the company's 34 research and development staff members are part of the work that involves converting power from solar cells to radio-frequency power, which are then relayed to an antenna that heats plasma.

Plasmas are electrically charged fluids that can be heated to extreme temperatures by radio waves and are controlled and guided by strong magnetic fields. The temperature of a plasma starts at about 10,000 centigrade, but present-day laboratory plasmas can be 1,000 times hotter. These temperatures are comparable to those in the interior of the sun. "No known material could survive contact with such plasma, but a magnetic channel can be built that guides the plasma so that it never has to touch material walls," says Hardy. "Ad Astra uses extremely intense magnetic fields, generated by superconducting magnets, to create a kind of magnetic pipe or nozzle."

Whyte compared the technology to building a microwave oven to cook plasma in space. The device has to be small, lightweight, and hard enough to withstand space travel. When developed, the technology will mean that spacecraft and satellites will be much more mobile because propulsion will be far greater. For example, a mission to Mars would currently take about a year, but the new technology would allow it to be done in one month.

Hardy says the cost of keeping the space station in orbit could be greatly reduced because the amount of fuel required could be cut from around 7,000 kilograms a year to around 120 kilograms, with fuel costing \$20,000 per kilogram. That's a savings of 98%, or a potential savings of \$1 billion over an eight-year period. "Electric rockets are much more fuel efficient because they use electricity instead of chemical combustion to produce higher-velocity





Having so many long-term employees helps with quality control

exhaust gases,” Hardy explains. Adds Whyte: “It’s pretty crude the way rockets work today. It’s just a mass of chemicals burning. Plasma will revolutionize space travel. Plasma rockets have exhaust velocities way above those achievable by chemicals, so fuel consumption is very low.”

ONE-STOP SHOPPING

Whyte says that Nautel is well placed to work on Ad Astra’s specialized project because Nautel does almost everything in-house, so the company’s standards of quality control are first rate. “We’re very innovative with production,” says Whyte. “Lots of companies outsource aspects of production, but we do almost all of it in-house. It gives us control over quality and the ability to tackle very specialized development.”

The original building that Colville thought he might one day sell is now being used to house administration, marketing, and sales staff. The former residence is connected by a tunnel to a large green building, complete with an annex that houses a fully integrated, ISO 9001:2000–

certified manufacturing facility. “Our staff of 150 works here on everything from R&D, metal stamping, painting, machining, circuit-board assembly, testing, and packing,” says Whyte. “It’s all under our roof.”

The wooden boxes that transport Nautel’s products are also made in this complex of buildings. Even the copper coils inside the transmitters are made here; only the little fans nestling nearby them are not. There’s a strong sense of community as employees work on all of the different areas. On one floor, women are moulding piles of delicate, spaghetti-like, co-axle wires for use in circuit boards, while nearby men work on casting many types of metal casings.

Having so many long-term employees aids quality control too; until staff recently started to retire, workers in production had an accumulated 500 years of service. Nautel is so much a part of the local scene that it even has its own radio station for research use that transmits to the area. There’s also a fully operational Nautel subsidiary, staffed by 25 employees, in Maine. “By using two facilities, we increase our scheduling flexibility,” says Whyte,



“At Nautel we have a strong culture of self-funding our growth” — Tim Hardy, head of research

“guaranteeing on-time shipments to customers.”

The partnership with Ad Astra is producing palpable excitement at Nautel because it’s allowing the company to diversify its core business, which is already growing well. Nautel’s revenue is currently in the \$20-million to \$30-million range. Over the past three years, Nautel’s revenues have grown by a total of 50%.

The company produces about 30 products, including medium-wave AM and FM radio broadcast transmitters (analog and digital); navigational radio beacons; Differential Global Positioning System (DGPS) transmitters; medium-frequency telegraph and NAVTEX transmitters; and amplifiers for dielectric high-frequency heating applications. The room-sized NA 300 kilowatt AM transmitter is the biggest transmitter it makes. “We’re recognizing we have a relatively narrow market focus,” says Hardy. “The broadcast-radio business is a big part of our revenue, and that makes us a bit dependent on that particular industry. This is a way of diversifying. It’s hard for any business to jump into a new field, but we’re pushing back the boundaries.”

The space-linked R&D work has received \$1.8 million from the Atlantic Canada Opportunities Agency’s (ACOA) Atlantic Innovation Fund. Hardy notes that repayment of the loan was contingent on making money from the new technology, which he is confident that Nautel will ultimately do. At the moment, Nautel is in the proof-of-concept phase (building a model with mainstream parts to prove their engineers can do the work). Nautel and Ad Astra hope

that by 2011, the new plasma-propulsion system will be tested on the International Space Station.

“It’s higher risk and potentially a higher return on investment, although it will be a few years before we see any revenue,” says Hardy. “Right now we’re working on the performance matrix, which requires small size, high efficiency. When we’ve learned to do this for the customer, we can use the technology in other, more mainstream businesses, such as our core broadcast business.”

Nautel hopes to eventually make money from other spin-offs; there are many plasma applications used in the industry, such as semi-conductor processing, waste disposal, and coatings on glass. “At Nautel we have a strong culture of self-funding our growth. It’s rare for us to go out and look for funding,” says Hardy, of the loan from ACOA. “Nautel understands the importance of R&D. Annually, about 10% of our revenue goes toward R&D. The ACOA funding considerably reduces the risk; it would be difficult for us to entirely fund a major project like this at this level of risk.”

Franklin Chang Diaz, Ad Astra’s chair and CEO, is pleased to have forged the partnership. “Nautel’s compact and lightweight high-power RF technology is critical to a successful space application,” he says. “In addition, the low-voltage requirements of these RF transmitters make them compatible with the voltage output of space-borne solar-power arrays, eliminating costly and bulky power transformers and other intermediate power-conditioning equipment.” ■

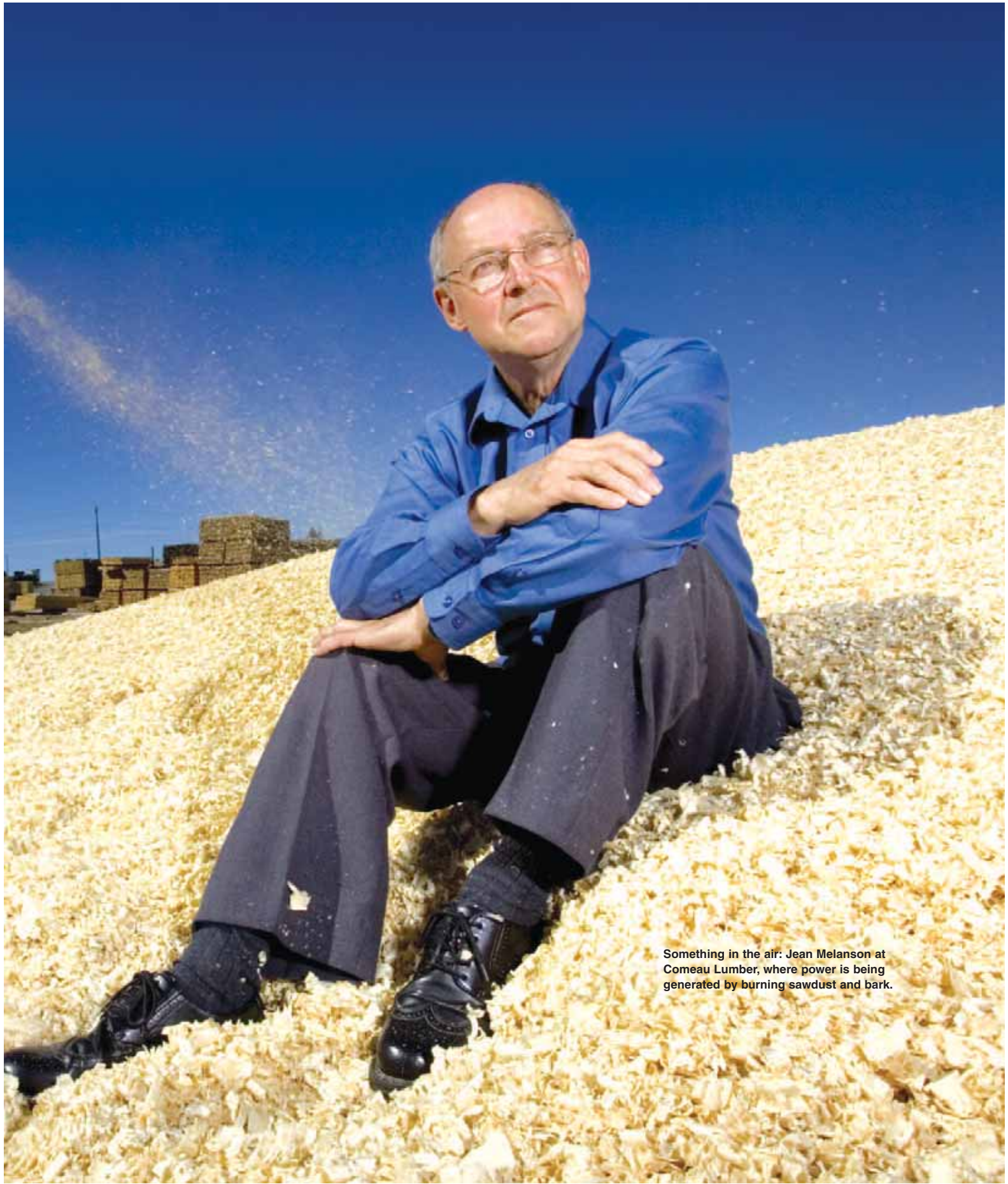
Carbon COPY

As the inevitable shadow of high-priced and carbon-emitting fossil fuels looms, the Municipality of Clare is sowing its own seeds of self-sufficiency, based on its kinship with a comparable community in Austria

by JOE FITZGERALD

In the spring of 2005, Martin Prauhart, an Austrian who summers in Nova Scotia, approached Jean Melanson to ask if he'd be interested in travelling to Prauhart's hometown of Gussing to see the remarkable achievements it had made in environmental sustainability. "I was skeptical at first," admits Melanson, the warden of the Municipality of Clare. "But Martin was enthusiastic, and after a few meetings it sounded like something we could do."





Something in the air: Jean Melanson at Comeau Lumber, where power is being generated by burning sawdust and bark.

SANDOR FIZLI

Gussing is a small farming community near the border of Hungary. Agriculture was its main industry for decades, but as a result of globalization it became economically depressed. Today Gussing produces all of its own heat and electricity, has cut its carbon emissions by more than 90%, has created new jobs, and has attracted global investors, scientists, and politicians to witness the town's self-sustainability model. It is also home to the European Centre of Renewable Energy.


"We're demographically similar to Gussing," says Melanson. "I became convinced that we should explore the possibility of doing here [in Clare] what they had done there, which was basically to become more self-sufficient in renewable energy and to produce our own energy through renewable resources."

To get a good cross-section of his community, Melanson proposed the idea to representatives at Université Sainte-Anne and local businesspeople, then contacted the South West Shore Development Authority (www.swsda.com), which began organizing what became

Energy and have also explored the use of solar cells, solar panels, and biodiesel.

With the advancements in renewable energy practices, a learning program called a Solarteur school, which is run through the local high school as a trade; it has been established throughout Europe. The school teaches renewable energy practices and technical skills such as how to install heat pumps, solar cells, and solar panels. One of the founders of the Solarteur schools is a resident of Gussing.

"It was quite an eye-opener for us," says Melanson. "Each of our local businesses had its own particular interest. For example, Comeau Sea Foods had a lot of excess fish oil and thought it could convert this into biodiesel and run some of its generators. Spectacle Lake Pork Farm was interested in the methane it could capture from its manure, and for many years Comeau Lumber has been producing power by burning sawdust and bark. It can now sell the excess electricity it generates back to Nova Scotia Power. A.F. Theriault & Son is a local pri-



"I became convinced that we should explore the possibility of becoming more self-sufficient in renewable energy" — Jean Melanson, warden, Municipality of Clare

an exploratory mission to Gussing. The response was enthusiastic, and in June of 2005 a delegation of 19 businesses, including the Spectacle Lake group of companies, ADI Horner Engineering, Nova Scotia Business Inc. (www.novascotiabusiness.com), the Municipality of Clare, and representatives from the Departments of Energy and Natural Resources and Université Sainte-Anne, travelled to Austria for 10 days. The delegates attended workshops and studied the various models Gussing was using to produce energy.

In the early 1990s, Gussing began its own renewable-energy project, when town officials decided to stop paying for expensive fossil fuels. They began by building a district heating system fuelled by locally available biomass in the form of trees. As it became more successful, they expanded the system and incorporated technology to produce electricity and heat at the same time, through a process called co-generation. Because of this leadership in community-based renewable energy, they have become home to the European Centre for Renewable

vately owned shipyard, and [its members] are now on our steering committee."

Université Sainte-Anne explored the possibility of implementing a certified Solarteur school; it is a future consideration for the university, which is venturing into using wood chips to co-generate heat and electricity. "This would be a project to address our energy needs," says Sebastien Dol, a communications agent with Université Sainte-Anne. "It could be used as a demonstration project of community heating, with neighbouring houses and businesses hooked up on the same system."

Although opportunities abound, Clare and Gussing comparisons should be kept in context. "We still have relatively cheap sources of energy here," says Jason Hollett, a Department of Energy program administration officer and the organizer of the exploratory mission, "whereas the cost of [Gussing's] energy is two, three, four times as much as ours. They have economic as well as environmental drivers, and right now we're working on environmental drivers. The economics will catch up eventually."

Without the dedication of the municipality, the initiative wouldn't be moving forward



Clare's first step was to design a community master plan, which was completed last winter. "Basically, you map out your community and do an inventory of where your energy is used and where it comes from," says Hollett. "You know how many kilowatt hours are used, you know what greenhouse gases are produced from what sources. With that snapshot of the community, you do an analysis of what the opportunities are to reduce that energy use and produce your own energy from renewable resources, whether it's wind, biomass, or solar. The next step is to develop a plan to realize those opportunities. That's where Clare is today; it has completed those three steps."

Without the dedication of the municipality, the initiative wouldn't be moving forward; this dedication has also brought other partners on board. The first three project milestones were funded through the federal, provincial,

and municipal governments and by an organization called the Federation of Canadian Municipalities, or the FCM. "The municipality joined a program called Partners for Climate Protection, and it lays out five milestones," says Hollett. "Clare has done the first three. The fourth is implementing the plan, and the fifth is monitoring it."

Clare spends \$40 million each year on energy costs; \$28 million of that is from residential use, including heating, electricity, and transportation. The remaining \$12 million is being spent on commercial energy use. Clare is now ready to begin implementing plans to reduce its environmental footprint and become self-sufficient in renewable energy. "Clare has taken a leadership position on using renewable energy," says Hollett. "They took a big risk and invested their own money to travel to Austria. They are implementing great ideas and viable concepts. The project is moving forward." ■

Inspired Beginnings



Frank Sobey, son of John William, Pictou County, 1907

Vision. Risk taking. A commitment to value, service and selection. These are the hallmarks of the Sobey family story.

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Food for thought

Where does our food come from? It's a simple question that generated the Slow Food movement. In Nova Scotia the answer has schoolchildren gardening, farmers' markets thriving, and people preserving our unique culinary heritage

by LINDSAY CAMERON WILSON

It's a warm, sunny, August day in Hants County, and Allison and Jessica Hayes-Conroy are weeding the garden at Dr. Arthur Hines Elementary School in Summerville. In May the students planted the garden, but over the summer the weeds took over. Somewhere beneath the surface, seeds are soaking up nutrient-rich soil, beginning the transformation into the potatoes, onions, carrots, and corn they are destined to become.

As the 26-year-old twins pull weeds and till the soil, the leafy tops of vegetables become visible in rows. The Hayes-Conroys, who hail from Riverton, N.J., are living in Nova Scotia while conducting their PhD field research. Allison attends Clark University in Worcester, Mass., while Jessica attends Penn State. Both are students in the social and political discipline of geography. Allison is researching how everyday life with food—from tasting, smelling, and chopping to growing, tending, and shopping—can inspire social and political activism. Her focus is Nova Scotia's Slow Food movement, mainly because of its vibrant and friendly yet politically active membership. "My work focuses on human motivation for creating social change and for being part of a movement," says Allison.

Jessica is researching school gardens, both in Nova Scotia and in Berkeley, Calif., to determine how economic and gender differences affect the students' experiences. "I am interested in what sorts of visceral experiences are created through the garden and cooking program," says Jessica. "I want to know what it takes to try to create positive emotional experiences for schoolchildren so that programs like this garden can be more effective at creating nutritional and social change."

Although their research began as separate proposals, when two bodies of research both stem from food, they are bound to intertwine. "Both of us are interested in the moods, feelings, and sensations that arise through the interaction with the material world," says Jessica. "In this case, it's with food."

Needless to say, the scope of the sisters' research is wide, but their focus narrows as they crouch in the soil and corral their thoughts. The garden at Dr. Arthur Hines was spearheaded several years ago in the spring of 2004 by



Flower power: Allison (left) and Jessica Hayes-Conroy amidst the bounty at Dr. Arthur Hines Elementary School's student-tended garden.

Kathy Aldous, a program co-ordinator of health promotion at the Hants Shore Community Health Centre and a former board member of Slow Food Nova Scotia (www.slowfoodns.ca). Aldous's plan was to get students involved with the production of vegetables while simultaneously—and surreptitiously—promoting healthy eating. “The children are learning skills in the garden and kitchen,” says Aldous, “skills that are being lost in this modern world of two-income families and convenient supermarkets.” Even though the program has had its challenges, such as finding time to integrate it into the school day and consistent funding, the garden is becoming an important part of the school. “It’s attracting the attention of parents, teachers, and the community,” says Aldous. “I believe all schools should consider having a garden.”

On a global level, the Slow Food movement aims to educate; its focus is to encourage an understanding about food—how it tastes and where it comes from—in order to make eating more pleasurable. The goal isn’t to abolish junk food; rather, it’s to show that food comes from somewhere besides fast-food restaurants. “Slow food can’t conquer fast food, but it can show that there’s another food system out there,” says Brian Kienapple, the leader of Slow Food Nova Scotia. “There is a triangular relationship between the person who grows the food, the person who prepares it, and the person who consumes it,”

The opposite of fast food

The Slow Food movement began in 1986, when fast-food giant McDonald’s opened its first restaurant in Rome on a site near the Spanish Steps. Carlo Petrini, an Italian journalist and lawyer, was horrified. His response to the “McDonaldization” of food—the encroaching reach of bland international food made in a highly mechanized fashion—was to launch a grassroots revolution in food politics that would eventually reach around the world. His goal: to unite those who savour the sensual pleasures of good food with those concerned with the social and ecological implications of the erosion of traditional methods of food production. He called the movement Slow Food.

By 1989 Slow Food had become an international non-profit organization consisting of nearly 1,000 *convivia*, or chapters (a single chapter is called a *convivium*), with more than 80,000 members. In May of 2003, Slow Food Nova Scotia launched. Its leader, Brian Kienapple, is a former CBC-TV producer who became passionate about the concept while travelling in Italy in 2000 and 2001. On his journey, he witnessed heritage ingredients made by regular folk and produced on a day-to-day basis—from classic Chianti vineyards and cheese aged in a former Etruscan tomb to a flavourful breed of pig in the town of Greve.

The four Slow Food principles are to promote local, fresh, and healthy food produced by small-scale artisans; to encourage natural growing practices, especially organic and sustainable methods; to preserve our culinary history and culture so we have diversity in food choices; and to reconnect producers and consumers so they can educate each other. — **L.C.W.**

says Kienapple. “This relationship is essential not only to the success of our local agricultural production but also to the preservation of Nova Scotia’s culinary heritage.”

Tending a garden is the perfect place to start. Students plant seeds in the spring and harvest the produce in the fall; then, in the small kitchen off the gym, three Grade 6 students at a time take turns working with a supervisor, who teaches them how to prepare lunches with the vegetables they have grown. Finally, the fruit of their labour is sold and served through the school’s lunch program.

One day each fall, the menu gets a boost from Chef Michael Howell, the co-owner of Tempest restaurant in Wolfville, N.S., and a Slow Food member. “I am motivated by a belief that slow food and its ideals are important to impart to the younger generation,” says Howell. While the children are both nervous and excited, they feed off the energy and immediacy of preparing the food. “The kids ask questions, some more relevant than others, like, ‘What can I do with a turnip?’ and ‘What’s coconut milk?’” says Howell. “Sometimes it’s, ‘Have you ever cut yourself with a knife?’ or ‘What’s it like being on TV?’ It’s a worthwhile project I believe in.”

Howell’s recipes are relatively quick and simple, and they adhere to the standards of the school’s healthy lunch program. The Nova Scotia Department of Education recently passed a new provincial food-and-nutrition policy that sets standards for the food and beverages allowed to be served and sold in schools. Vending machines containing junk food have been removed and replaced with more nutritional alternatives.

Occasionally, Howell pushes the envelope a little. “I’ll bring in fish sauce and curry paste and create a Thai vegetable curry,” he says. “The key is to keep the kids interested while teaching them to be creative with the ingredients they have.” Sometimes the food is a hit; other times it’s a miss. Either way, everyone gets a chance to taste familiar vegetables—squash, potatoes, corn, parsnips, onions, and carrots—in new ways.

“What the school garden is also doing is tying educational concepts—math, science, biology, socialization—to what goes on in a garden,” says Kienapple. While the garden isn’t an official Slow Food Nova Scotia project, the organization has been involved in the process by bringing in Howell to harvest and prepare the food.

Soon these concepts will be captured on film. Kienapple and Aldous, with the help of funds raised by the *convivium* (for the definition of a *convivium*, see “Power in Numbers” on page 25), are making a video to document the process of creating and working in the Dr. Arthur Hayes garden. Kienapple is currently in discussions with Acadia University to market the video both as both a health and an educational tool. “We hope the video is more inspirational than educational,” says Kienapple. “We’re marketing it to education officials to encourage implementing gardens in more school districts.”



“Nova Scotia is where both of our interests overlapped. Beyond that, we both wanted to travel here, and we’re excited to be here,” says Allison (right) with Jessica, holding the fruits of their labour.

SANDOR FIZLI

That’s the essence of Slow Food. An idea becomes a seed that grows into the hands of farmers, students, parents, teachers, chefs, and consumers. As these connections grow stronger, the symbiotic relationship between rural and urban communities is strengthened. Farmers’ markets grow. Consumer awareness rises. Local tastes are rediscovered. History, tradition, and culture are revived through something as simple as growing vegetables in a garden. “Blueberries, maple syrup, lobster, the Berkshire pig, Gravenstein apples—these are foods that have cultural and culinary significance in Nova Scotia,” says Kienapple.

Slow Food has 1,000 convivia throughout the world, but

Power in numbers

Convivium is Latin for “a feast, an entertainment, a banquet” (its plural is convivia). Slow Food pioneer Carlo Petrini chose this word because, unlike chapter or group, convivium encourages conviviality among its members. There are 1,000 convivia worldwide; they build relationships and connect chefs with local producers, campaign to protect traditional foods, organize tastings and seminars, nominate producers to participate in international events, and promote Slow Food education in schools.

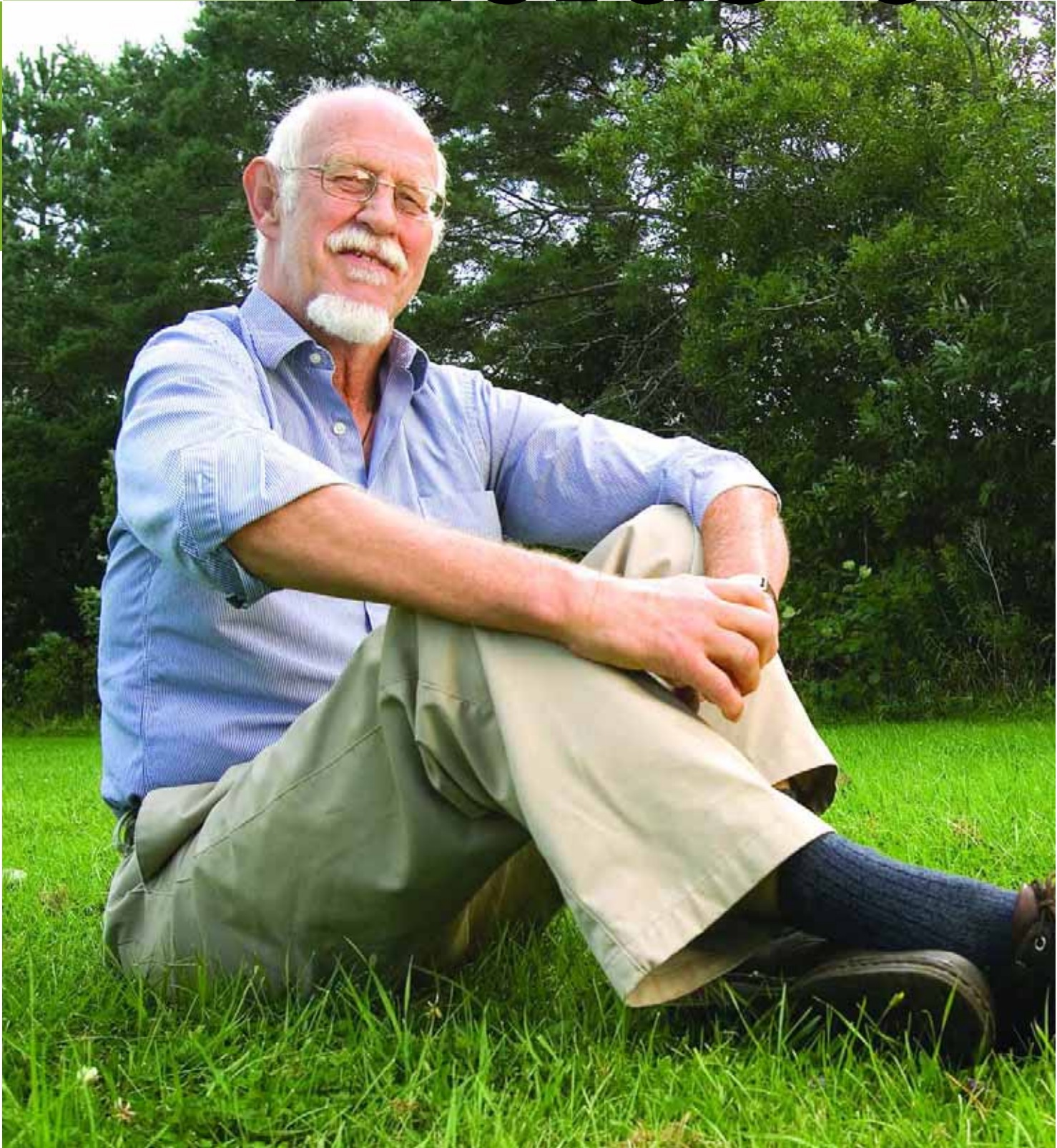
— L.C.W.

Allison and Jessica Hayes-Conroy chose to conduct their PhD research on the Nova Scotian convivium. “We wanted a place that was likely to be different from Berkeley in terms of agriculture, history, culture, and diversity,” says Allison. “We also wanted to do research in the same place. Nova Scotia is where both of our interests overlapped. Beyond that, we both wanted to travel here, and we’re excited to be here.”

Perhaps it’s the biodiversity of farms here—they’re the most diverse in Canada—that make it unique. Or it could be that the province had the first farmers’ market in Canada, one that is still thriving today. Maybe it’s the active interest Nova Scotians have in preserving their culinary heritage in order to create variety in their food choices. One factor is certain: The gap between rich and poor isn’t broad enough here to drive a socio-economic wedge between consumers and producers. Wedges such as those, which exist in many parts of the United States, make researching social and political activism there an elitist activity.

While Allison and Jessica believe that food will forever be a complex topic, they feel their time in Nova Scotia has been well spent. “We’ve been warmly welcomed by Slow Food Nova Scotia, and we’ve had a great experience,” says Jessica. “We came here hoping to engage people in dialogue, to discuss the fun, the chaos, and the complications of food activism.” Although the sisters bid farewell to the province at the end of September, that doesn’t mean they don’t plan to return. “I love it here,” says Jessica, “and I hope to move here one day.” ■

Fields of



SANDOR FIZLI

green



Applied research in tidal, wind, and solar power is raising the profile of green energy alternatives

by Allison Lawlor

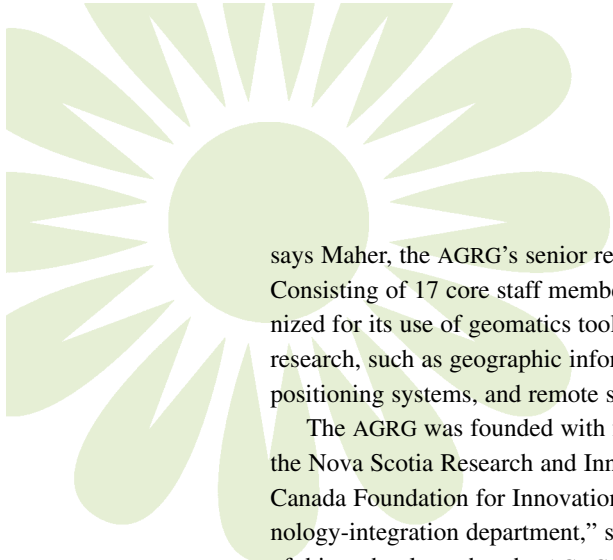
B

ob Maher has always cared about the environment. “It’s important to reduce our impact on the planet,” he says. “It’s a philosophical thing.” In his own modest way, Maher limits his ecological footprint on the Earth.

When he can, he leaves his car at home and bicycles the 12 kilometres along winding country roads to his office in Middleton, in the heart of Nova Scotia’s fertile Annapolis Valley. At home he tends a big garden, where he grows herbicide-free vegetables.

In 2000, after many years of hard work, opportunities to work on renewable energy projects began at the Applied Geomatics Research Group (AGRG) at the Nova Scotia Community College’s Centre for Geographic Sciences (agrg.cogs.nsc.ca). Maher leapt at the chance to further pursue something he cared about both personally and professionally. “This builds on our previous strengths, like software development, and the application of geographically-based technologies,”

Bob Maher: “The work being done here will raise Nova Scotia’s global profile.”



says Maher, the AGRG's senior research scientist. Consisting of 17 core staff members, his group is recognized for its use of geomatics tools in environmental research, such as geographic information systems, global positioning systems, and remote sensing.

The AGRG was founded with financial support from the Nova Scotia Research and Innovation Trust and the Canada Foundation for Innovation. "We're really a technology-integration department," says Maher. It's because of this technology that the AGRG is now working on three different renewable energy fronts: wind, solar, and tidal. In a province that has signalled that it wants to become greener, Maher sees a place for his research group in the growing alternative energy sector. Earlier this year, the province introduced regulations that require about 20% of its electricity to be generated by renewable energy by 2013. As a result of the new legislation, Nova Scotia Power has put out a tender for 130 megawatts of renewable energy; the company estimates that this will result in almost \$300 million in new investments in the province.

"There is probably going to be a flurry of activity on the tidal front," predicts Maher. "The work being done here will raise our global profile." With the highest tides in

enough energy to power close to 100,000 homes.

To help make that happen, Tim Webster, an AGRG research scientist, is working with ATEC Power Inc., a Windsor, N.S.-based company established in 2005 and a contender to develop tidal power in Atlantic Canada. "It seemed like a natural fit," says John Wightman, who is an owner of ATEC Power. "They're a leading facility doing this type of research in Canada," he adds, referring to AGRG's expertise in global positioning system and remote sensing.

Wightman and his organization want to have a better understanding of the nature of the Bay of Fundy's tidal currents, so Webster is amassing huge amounts of information on the bay, ranging from bottom type and currents, to the location of infrastructure such as power lines. After collecting digital maps and charts from various government agencies and research departments, Webster will use a computer-mapping system to produce one detailed map that will overlay all of the information, allowing it to be viewed simultaneously. He will then develop a website for ATEC Power, where the information can be posted.

Preliminary tidal-current studies conducted in 2005 by ATEC Power show the Minas Passage, an area about 12 kilometres long and five kilometres wide between Cape

In a province that wants to become greener, Maher sees a place for his research group in the growing alternative energy sector

the world, the Bay of Fundy, located between Nova Scotia and New Brunswick, has garnered a lot of attention for its green potential. Research from the Palo Alto, Calif.-based Electric Power Research Institute identifies that body of water as potentially the best site in North America for large-scale, grid-connected, tidal-energy generation.

With 100 billion tonnes of seawater flowing in and out of the Bay of Fundy each day, it has more than the combined flow of the world's freshwater rivers. When fully developed, estimates are that new tidal technology has the potential to generate 300 megawatts of emission-free energy from eight locations in Nova Scotia—that's

Split and Cape Blomidon, as the most favourable site for tidal power generation. Still, Webster says it's too early in his research to name a specific test site for ATEC to potentially locate its underwater hydrokinetic tidal turbine designed by Annapolis, Md.-based UEK Corp. Wightman will say that the Minas Passage is the prime location when it comes to tidal power: "We obviously want to be a player in that hot spot."

Webster is also working with the Geological Survey of Canada on another project in the Bay of Fundy, which uses LiDAR technology to collect topographical information. The technology works by mounting a piece of the

equipment on an aircraft and sending a laser down to a specific area to collect data. Once the data is collected and modelled, the Geological Survey will combine it into its surveys, providing additional information for those interested in developing tidal power.

LiDAR technology is one of the ways the AGRG is distinguishing itself from other educational institutions, not only in Canada but also worldwide. To Maher's knowledge, there are only four other academic institutions in the world with this multimillion-dollar piece of equipment. Currently, the centre's LiDAR technology is being loaned to researchers in Alberta; flying over the glaciers in the Canadian Rockies, they will use it to map the area in precise three-dimensional detail. Concerned with the receding glaciers, the technology permits the scientists to go back the following year to get another picture, allowing them to draw detailed maps rather than rely on less accurate estimates. Maher predicts a growing demand for this technology—and the AGRG's ability to provide it.

Winds of change

When it comes to renewable energy, AGRG researchers are also working on wind and solar power projects. Research scientist David Colville has partnered with Yves Gagnon at the Université de Moncton to develop an online interactive wind atlas, for which the Nova Scotia government provided \$78,000. "Folks interested in wind development will have a place to start," says Colville. "The primary value of the atlas will be for understanding the locations with the best potential wind power."

Gagnon has already developed wind atlases for New Brunswick and Prince Edward Island. The Prince Edward Island atlas allows users to zoom in to find detailed information on the wind resource in any particular area. Colville says that Nova Scotia's map will be similar; he is currently collecting weather, topography, and land-use data from governmental departments to use in the wind atlas. Gagnon developed the model for the atlas, and Colville and his research associate, Steve Bird, built an interactive website with the results. The site, launched in late September, is hosted by the Department of Energy.

Colville and Bird are also working with Green Power Labs Inc. on a solar-radiation project. In 2004 the Dartmouth, N.S.-based company released the Solar Energy Map for Nova Scotia, a GIS tool to demonstrate the economic feasibility of solar energy across the province. In late 2006, the company announced a partnership with the

Running on pure power

In a little over a decade, Nova Scotia hopes to be one of the cleanest and most sustainable environments in the world. The Environmental Goals and Sustainable Prosperity Act was introduced in late spring and approved during national Environment Week in early June. "This Act recognizes that a healthy environment contributes to a healthy economy and to our long-term prosperity," says Nova Scotia Premier Rodney MacDonald.

The Act includes more than 20 goals to help the province become cleaner and more sustainable by 2020. Some of those targets include: reducing greenhouse gas emissions by 10% less than 1990 levels; new emission standards for motor vehicles by 2010; new policies to prevent the loss of wetlands by 2009; and legally protecting 12% of Nova Scotia's land mass by 2015.

The Act follows a commitment to set a new standard for renewable energy in Canada by generating almost 20% of Nova Scotia's electricity through green sources such as wind, tidal, biomass, solar, and hydro by 2013. "Nova Scotians want more renewable energy generated here," says Minister of Energy Bill Dooks. "We are going to get cleaner, greener energy to power our homes and businesses in the most cost-effective way possible." With the new regulations in place, 100,000 more homes will be running on renewable energy in five years.

Working with the province to help achieve those goals is Cape Breton Power Ltd. After two years of preparation, nine wind turbines in Glace Bay, N.S., at the Lingan Wind Farm are up and running and will be producing 42 million kilowatt hours of electricity every year—enough energy to power 6,000 homes. According to Premier MacDonald, this project is proof that Nova Scotia has the policy, resources, and people to create a green economy. "This is an opportunity to use our wind resources to increase the supply of renewable energy for the entire province," says Luciano Lisi, the CFO of Cape Breton Power. "It's a small but important step toward integrating renewable energy into the existing mix of power generated in Nova Scotia."

Wind turbines stand as tall as a 12-storey building and are equipped with a triple-blade rotor that is 48 metres in diameter. The blades of the wind turbines capture the wind and convert it into energy. The Lingan turbines have no moving mechanical parts, making them quiet and more reliable than past models. The energy being produced at the Lingan Wind Farm is being entirely contracted to Nova Scotia Power Inc. By 2009 NSPI plans to generate 200 megawatts of renewable new energy, enough to power 70,000 homes.

"The Lingan Wind Farm project is the result of a lot of hard work by Cape Breton entrepreneurs who have invested significant sums to produce cleaner, greener power," says NSPI president and CEO Ralph Tedesco. "The dedication of this successful wind farm, together with other wind installations, means that Nova Scotia has more wind-generated electricity on the ground than any other Atlantic province." The company also estimates that roughly 12% of the electricity produced in Nova Scotia is made from renewable sources. — **HEATHER MACLEAN**

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“We provide information to people in a way that they can understand”

Applied Geomatics Research Group to do a more advanced assessment of the Maritime region’s solar-energy resource based on satellite imagery. “The college has a very strong applied geomatics research group,” says Alexandre Pavlovski, the president of Green Power Labs.

Colville received about \$30,000 from Nova Scotia Economic Development to facilitate the project, which will be completed in the spring of 2008. “We envision having a solar-radiation atlas for the Maritimes,” he says. To collect the information, they are using GOES weather-satellite imagery provided by NASA. While GOES imagery has long been used to watch weather, Green Power Labs has developed a model to use the imagery with one-kilometre resolution, meaning that there is information for every one kilometre squared in the Maritimes. Using this imagery will allow researchers to map out where the clouds are and how much solar energy is getting through.

Colville and Bird are collecting data over a year-long period to build an accurate image of the maximum and minimum amounts of sunlight in a given area. Using this data, he and his team will determine the monthly and daily solar-radiation amounts for particular areas. “To make this happen,” says Colville, “we are building software tools.” But it’s not just any software—it will be another valuable tool for Green Power Labs to better serve its clients, as well as a product it hopes to sell globally.

Maher is excited about future AGRG opportunities in the renewable-energy sector and sees a growing demand for this technology—and the AGRG’s ability to undertake applied-research projects. He predicts possibilities for everything from monitoring buildings to allowing owners



SANDOR FIZLI

to see whether or not they are truly recycling water or reducing heat consumption to providing people with easily accessible detailed data about their local environment. Relying more on renewable energy makes good sense. “Nova Scotians as a whole have to meet their economic bottom line,” says Maher. “Part of that is the sensible use of the resources they have.”

With technology being increasingly relied upon to make better use of the Earth’s limited natural resources, there’s no question that the AGRG will continue to play a meaningful role. “Essentially, we provide information to people in a way that they can understand,” says Maher. “It’s all part of educating people about their environment.” ■



PLUG IN

Progress

Our audience means business



On a mission

Education leaders are promoting post-secondary institutions, building global partnerships, and attracting more international students to Nova Scotia

The tartan scarves may have offered to a casual observer the first clue that this was a unified group. In fact, it was a group on a mission—a mission to Ottawa, to meet foreign service officers, ambassadors, high commissioners, and consular officials and to promote Nova Scotia as an education destination and a partner in international education and training projects.

The February mission itself involved partnership and collaboration, uniting EduNova (the provincial non-profit, co-operative, education-and-training association), Nova Scotia Business Inc. (www.novascotiabusiness.com), and the provincial Department of Education (www.ednet.ns.ca). When EduNova (www.edunova.ca) lists its membership—Nova Scotia's 11 universities, a 13-campus community college network, seven school boards, and a number of private education and training organizations and consulting firms—its significance becomes apparent.

"It was a winning situation for every one of us to get together and have a clear message that went out around the world about the quality that we represent," says Nova Scotia Agricultural College (www.nsac.ns.ca) president Philip Hicks, who chairs the Council of Nova Scotia University Presidents.

Nova Scotia has about 4,000 international students representing 140 countries, who contribute about \$100 million a year to the provincial economy. "If those students didn't come to Nova Scotia, we would definitely notice," says EduNova president and CEO Ava Czapalay. "Our businesses would notice, and our universities would notice for sure."

The internationalization of campuses continues to be crucial for the education

sector in Nova Scotia. "What is a university but a crucible for the exchange of ideas, challenges, contradictions, and arguments out of which comes knowledge and wisdom?" asks Hicks. "And if we all are from the same cultural heritage, we're not going to achieve that on our campuses."

Joan McArthur-Blair, the president and CEO of the Nova Scotia Community College (www.nsc.ca), agrees. "There are tremendous growth possibilities for the community college in international work,"

buzz these days in Bermuda and Europe is that Halifax is the next Dublin," says Lund. "Dublin's success was driven by its education system, and so we believe there are huge opportunities for us here."

The international connection continues to be strengthened through relationship building. Philip Smith, the High Commissioner for the Bahamas, says that even though Nova Scotia is not really an island, the atmosphere is very similar to home for the more than 200 international

"In order to support the economy and quality of life of Nova Scotia, we need to be part of internationalizing our province" — Joan McArthur-Blair

she says. "To support the economy and quality of life of Nova Scotia, we need to be part of internationalizing our province."

NSBI president and CEO Stephen Lund view the mission as an opportunity to highlight the importance of our education system and its link to the province's economic success. "We talk to companies every day about locating in Nova Scotia, and they're looking at places around the world," he says. "The reason we're so successful is because we've got what most places don't have: a really strong, solid, post-secondary education system."

In what Lund describes as a worldwide "war for talent," a highly educated workforce is at the top of NSBI's list of competitive advantages and a key attraction for companies such as Citco Fund Services. The world's No. 1 hedge fund administrator recently opened an operation in Halifax and is slated to employ up to 350 people. "The

students from the Bahamas who come to study here. "Not only do Bahamians feel very much at home, but all of the people from the Caribbean who have come to Nova Scotia have found that it's among the best places to study. It's foreign, it's different, but it's very much like home."

Nearly 90 Nova Scotians participated in the program, which included an afternoon information session for foreign service officers and an evening reception at which embassies from around the world were represented. "It was great exposure and a great audience," says Education Minister Karen Casey. "We spoke to the audience, and the audience heard. It was a great success."

Back in Nova Scotia, Czapalay spoke on the phone with the High Commissioner of India, who thanked her for hosting the reception and conveyed an eagerness to collaborate. "It was definitely mission accomplished," she says. — **MARIE WEEREN**