

ENGINEERING CANADA'S CLEAN-TECH FUTURE

EXPERT OPINION

Canada can realize the rewards of getting ahead of the innovation curve



By Tom Rand, P.Eng., PhD,
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Clean technology is like the microchip in the 1960s – but bigger. Lots bigger. Information technology drove economic growth in places like Silicon Valley and created lasting wealth. Clean-tech will do the same and bring high-value jobs to places that get ahead of the innovation curve. Canada is already a leader. But if our emerging clean-tech companies are to become global players, they need more capital, partners and global market access than their IT-based cousins.

Clean-tech is infrastructure. It's big wires, not just little ones. It's projects, not just patents. That means more capital: venture to get going and project finance to expand. Mission-critical energy systems have little tolerance for technology risk. So partnerships with global players are not a luxury, but a necessity. It's tough to get clean-tech to market.

But the rewards are bigger. Global clean-tech markets are expected to reach \$2 trillion to \$3 trillion by 2020. If Canada gets just two per cent of that market, our clean-tech industry will rival the auto sector. To reap those rewards, we need a coherent, long-term, national strategy. It's not enough to invent stuff. Our entrepreneurs need support to tap into this fast-growing global market.

We're off to a good start. Our clean-tech industry generates more than \$8 billion in revenue and spends more on R&D than the entire oil and gas sector. Funding programs like Sustainable Development Technology Canada (SDTC), which collabo-



Woodland Biofuels Inc. of Mississauga is one of the clean-tech companies that the MaRS Cleantech Fund has invested in. Here, Woodland president and CEO Greg Nuttall is speaking at the announcement of a \$4-million investment in the company by the Ontario government through the Innovation Demonstration Fund. SUPPLIED

rate with the private sector to lower the risk of early projects, have been very effective in planting the seeds. Venture firms, like Chrysalix and EnerTech, provide some capital to grow these companies. But the venture well in Canada is nearly dry, and it can't support the higher capital requirements of emerging Canadian clean-tech startups.

At MaRS Cleantech, we focus on three areas to grow the industry. We start with innovation. The key drivers of high-value jobs are inventions and entrepreneurs. The privately backed \$30-million MaRS Cleantech Fund provides much-needed early-stage capital. The MaRS partnership reduces many of the risks of early-stage investing, and has catalyzed this private-sector pool of capital.

We then enable collaboration

between stakeholders. Innovators, regulators and policy-makers have different priorities and often speak different languages. MaRS translates. The big corporations have markets, but need more innovation. Entrepreneurs invent, but can't get access to the market. MaRS brings them together.

Finally, we take action at home to position our companies for export markets. If we can open up the data on all those smart meters that Ontario installed, for example, then our entrepreneurs will leverage Ontario's lead and invent new energy management tools that the whole world will use. If we can get home-grown energy storage technologies working on our grid, those companies can anticipate huge export markets.

But global markets require big

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capital. The Export Development Bank of Canada recently announced its intention to support Canadian clean-tech projects abroad through its partnership with SDTC. That's a good start. We also need our pension funds and Big Five banks to develop the expertise needed to understand the risks and rewards of getting Canadian clean-tech into global markets.

If you solve a big problem in a market economy, you get a big reward. Clean-tech targets some of the biggest global problems of the 21st century: air quality in Beijing, clean water in California and the onslaught of extreme weather that climate change has in store for all of us. Canadian innovation can address those problems, all over the world. And create real value here at home.

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If you are a graduate of an engineering program outside of Canada and are thinking about a career in this country, this website will give you advice on how to prepare before coming to Canada, compare your education to a Canadian education, obtain a professional engineering licence, and much more.

The website launches in January 2013!

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commence par un plan.

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Le site Web sera lancé en janvier 2013.

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