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# STRATEGIES FOR SUSTAINABILITY

THE GLOBE AND MAIL

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**SECTION SFS** 



Clean technology is much more than solar and wind energy. In Canada alone, the overall industry is worth almost \$12-billion and is made up of 10 clean technology sectors. Statistics Canada estimates that the value of Canadian exports in sustainable technologies was \$5.8-billion in 2014. Trade in low-carbon, energy-efficient technologies alone is projected to reach over \$2-trillion (U.S.) per year by 2020, a tripling of current levels. SOURCE: SDTC, ANALYTICA ADVISORS, CLEAN TECH GROUP

## How to tackle climate change? Start by supporting the companies that offer solutions

A s Canada's leadership has set ambitious climate action targets in an effort to boost the country's environmental performance, many look to research and innovation for the tools for getting there.

Is our research and innovation infrastructure up for the challenge? Not sufficiently, says Vicky Sharpe, who believes achieving a higher level of sustainability requires a shift in how we rank environmental impact in society as well as financial markets.

She says it is necessary to make a distinction between R&D and innovation. "Innovation is about delivering benefits to the market, and sometimes we forget that at our peril," she explains. "Cleantech companies need different forms of support through the entire innovation ecosystem, from research and development to demonstration, scaling and deployment."

It's Ms. Sharpe's prerogative to speak her mind about the issue. With her background as a corporate director and as founding president and past CEO of Sustainable Development Technology Canada (SDTC), she is one of the top go-to persons for advice on how to strengthen low-carbon technology innovation.

While there is currently much attention on Canada's action plan, she believes we are in a crucial period that may tip the scales between reaping



### "The reason the

companies cannot scale their operations is not because they're lacking competitive products or sophisticated management teams, it is because they don't fit our country's commodity-based investment approach."

### Vicky Sharpe

is founding president and past CEO of Sustainable Development Technology Canada (SDTC) the benefits of clean technology innovation or "losing the great companies that have received investments from both government and the private sector to foreign interests.

"These companies need to scale up and do so rapidly. The conventional venture capital model does not work for high-capital equipment, or high capital expenditure (high-capex), technologies, and private equity, or project finance approaches typically won't take on scale-up risk," says Ms. Sharpe.

She speaks about a certain kind of enterprise – a more mature cohort of companies that are about 15 years old, have strong intellectual property and whose revenues are mainly from exports.

"The good news is that these great companies increase productivity and competitiveness for the end user, plus they pay a higher average wage than other small or medium-size enterprises," she says. Plus, importantly for the commitment made by Canada at the Paris COP, these high-capex technologies deliver greater greenhouse gas reductions, according to a 2006 SDTC portfolio analysis.

Yet there are barriers hindering their forward momentum, says Ms. Sharpe. "The reason the companies cannot scale their operations is not because they're lacking competitive products or sophisticated management teams, it is because they don't fit our country's commodity-based investment approach," says Ms. Sharpe. "In spite of the strong performance of the Renewable Energy and Clean Technology Index, the TSX and TSXV are dominated by mining, utilities, oil and gas, and other technologies."

Another barrier is that Canada, except for off-grid communities, is a low energy price jurisdiction, so energy efficiency doesn't have the impact it has in other markets, like Europe, causing weak domestic sales. While many Canadian companies go directly to larger international markets, not being able to show domestic revenues puts them at a disadvantage.

"This creates serious doubt," says Ms. Sharpe, who recommends finding ways to engage – but not necessarily subsidize – domestic procurement by governments and businesses.

"Leaving it all to the market" doesn't work, in Ms. Sharpe's view. "Markets are typically tipped towards quick profit, and while we see increasing investment in low-carbon technologies globally, Canada is not seizing its share of this opportunity.

"We don't have the luxury to wait. If we want to meet climate targets, we have to redefine our priorities now." However, Ms. Sharpe takes heart

in the broad recognition that what is good for the environment is good for the economy, as is evident in a strong commitment to change at the federal level, plus provincial examples like Alberta's Climate Leadership Plan and Quebec and Ontario's cap and trade programs. More consistency in carbon pricing, smart regulations and reporting of companies' environmental impact, including carbon footprint, can also boost the confidence of international investors and trade partners in the Canadian market as a whole, she adds.

While government programs can help to de-risk future investment in these companies that help tackle climate change, Ms. Sharpe believes engaging the investment community is just as essential, thereby leveraging public funds and putting the onus on capital markets. Ways to attract this capital is through measures like loan and payment guarantees, performance bonding and a broader recognition of cleantech assets so a line of credit is easier to obtain. Pension funds, for example, can have an opportunity to re-balance the carbon intensity of their portfolios and invest in greener infrastructure.

"[Supporting clean technology] is not only the appropriate move – it's also the fiscally responsible thing to do," she says.

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## Smart cities delivering quality living environment

C urrently, more than half of the world's population lives in cities, and urbanization combined with overall population growth could add another 2.5 billion people to urban areas by 2050. With this rapid growth come serious concerns about the economic, social and environmental sustainability of cities. But they can also be a source of solutions, especially if they can leverage technology and innovation to become "smart cities," says Jeff Cassis, senior executive of Government Business, Philips Lighting.

Cities generally have an existing infrastructure that meets their residents' transportation, lighting, energy, and water and waste management needs. As a leader in lighting innovation, Philips Lighting has developed easy-to-use systems that leverage cloud-based software to control and manage street lights. They are readily deployed because they leverage public mobile networks that may also be reused for delivering a range of added-value services, Mr. Cassis explains.

The demand on city administrators to deliver a quality living environment – including safety, clean air, water and better environmental performance – originates mainly from engaged citizens, says Mr. Cassis. "[Urbanites] have been pushing for greater connectivity in their cities and are asking for transparency on how monies are spent."

The result is "a wave of opportunity for cities to work with their partners to better utilize – and upgrade – their infrastructure," he adds.

For lighting, that firstly means having a reliable infrastructure, energy-efficient technology, and an effective trouble-shooting and maintenance program. "Once you have this infrastructure, can you add other applications? Can you help other departments achieve their sustainability goals?" Mr. Cassis says these questions led Philips Lighting to look



The Leonard P. Zakim Bunker Hill Bridge in Boston, Massachusetts, is one of the widest cable-stayed bridges in the world. A recent IntelliPower LED lighting solution helps the bridge to shine brightly while saving energy consumption by more than 80 per cent. SUPPLIED

at how to integrate other data into lighting operations and data from lighting operations to facilitate other city programs.

An example of seeing this approach in action comes from Buenos Aires, Argentina. "There, we were able to take the data generated from the street lights about usage, outages and so on, and provide that to an asset management system, which then allowed the city to schedule maintenance and work crews more

### efficiently," he explains.

And Philips Lighting is currently partnering with the City of Los Angeles in a pilot project geared to exploring the value of granular environmental and lighting power grid data. Included in the study are acoustic sensing and environmental noise monitoring sensors with the capabilities to isolate different activities and provide granular continuous information about activities. In the future, these results could be used to provide timely information directly to

### INSIDE

GREEN4GOOD Innovation reduces waste, supports charity. SFS 2

### HAND-IN-HAND

Industry and environmental groups working together. SFS 3

### LIGHT THE WAY Setting an example with

product and practice. SFS 4 the city's communications dispatch system for police, fire and emergency response services to enable faster emergency response time and earlier patient intervention.

Collaborations are at the core of such endeavours, says Mr. Cassis. "A smart city is an ecosystem. From a technology perspective, you cannot really provide integrated solutions without interfacing and coexisting with many other applications."

A city can be a "living lab for experimenting in real time and getting immediate feedback," says Mr. Cassis. "Seeing what's possible and seeing what's next is all part of the process. We have a vision for contributing to greater sustainability, and the world is changing so fast – we have to be very nimble in executing that vision."

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### STRATEGIES FOR SUSTAINABILITY

#### INNOVATION

# Supporting charities and gaining carbon credits by extending life of IT assets

ver the past six years, Green-4Good's unique IT asset-retiring program has diverted more than a million computers, laptops, servers and printers away from landfills, raising more than \$2-million for charity in the process. Here's how it works: Green4Good, a division of Compugen Finance, collects "end-offirst-life" assets from businesses across Canada and transfers them to a secure facility where they are refurbished and loaded with a fully licensed Microsoft operating system prior to resale, often to schools and institutions needing IT assets but faced with financial challenges.

The unique part of the model is that instead of paying the corporation for the assets, Green4Good donates the cash it would have paid to either the charity of choice of the business involved or one Green4Good supports on behalf of the corporation. To date, the program has supported more than 80 different charities.

"They've been a huge supporter," says Canadian Centre for Abuse Awareness CEO Ellen Campbell. "In addition to providing computers to sell in our store, they have donated \$50,000, which is a lot of money for us."

However, Green4Good is about to take the benefits even further by im-

"In addition to providing a second life for their old IT assets and supporting charities, businesses will soon be able to reduce their carbon footprint by acquiring, or if they prefer, purchasing carbon credits from Green4Good."

**Steve Glover** is senior vice-president of Compugen Finance plementing a protocol in partnership with Green Knight Environmental that will allow companies donating assets to obtain carbon credits as well, says Steve Glover, Compugen Finance's senior vice-president. "Many wellknown businesses and organizations are voluntarily purchasing carbon offsets to reduce their carbon footprint. These include Google, TD Bank, HSBC, News Corp, the Vatican, Nike, Vancity, the Montreal International Jazz Festival, and Ben & Jerry's – to name just a few.

"The popularity of carbon offsets is only expected to grow as more and more people look for ways to reduce their climate impact. Obtaining carbon offsets gives individuals and businesses the responsibility for their own climate impact, and demonstrates leadership on climate change by going beyond existing government regulations or incentives."

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According to Green Knight president Brandon Holdsworth, Green-4Good is precisely the kind of partner his company is looking for. "Green-4Good fits all the categories that are important for environmental action," he says. "They're not looking for a magic bullet; they're making use of today's technologies to make a difference today, and it's a voluntary program that benefits all parties involved. Additionally, by refurbishing IT assets, they are not so much extending the life of a product as giving it a new life altogether, precluding the need to create replacement products from scratch, a much more emissions-intensive exercise." Mr. Holdsworth expects to have the first set of offsets verified and registered early in 2017.

"Previously we had a win-win situation, now we have a win-winwin situation," says Mr. Glover. "In addition to providing a second life for their old IT assets and supporting charities, businesses will soon be able to reduce their carbon footprint by acquiring or, if they prefer, purchasing carbon credits from Green4Good."



By giving IT assets a new lease on life, Compugen Finance reduces landfill, supports charities – a combination that won the company a CDN Channel Elite Award in 2016. SUPPLIED

## Voluntary market a vehicle for forward movement

arlier this summer, when the Royal Bank of Canada (RBC) announced its support for carbon pricing, it emphasized the need for long-term strategic thinking.

As John Stackhouse, a senior vicepresident at RBC, explains, "In our view at RBC, carbon should be priced at a level to create long-term behavioural change and to ensure polluters pay, as we all move toward lowcarbon targets."

Challenges like climate change, whose impacts are measured in de-

cades, require credible sustainability strategies that operate on a similar timescale.

Peter Simons, CEO of retailer Simons, says, "We understand that the actions we take today can impact future generations, which is why, when we think of our business, it's not in terms of the next quarter, but the next quarter-century."

Simons joins major businesses in Canada – RBC, Diageo and Shaw Communications, to name a few – using the voluntary market for renewable energy to help them to meet their sustainability commitments while reducing their emissions footprint.

"The voluntary market refers to choosing to support renewable energy through a private-sector company like ours," said Bullfrog Power CEO Ron Seftel. "Participating in the voluntary market enables companies looking to demonstrate leadership in the sustainability space to go beyond government action and directly address their own environmental impacts." With the present Liberal government pledging climate action that may see all Canadians living in a jurisdiction with a price on carbon, businesses will need to differentiate their own sustainability goals in order to signal that they are aiming for a leadership position in this area.

John Coyne, Unilever Canada's vice-president, Legal and External Affairs, stresses the need for business to emphasize and promote a coherent sustainability purpose. He explains that "for Unilever Canada, supporting renewable energy through the voluntary market fits with the long-term vision articulated in the Unilever Sustainable Living Plan and is an important way of demonstrating leadership and mobilizing other businesses and consumers to take action on climate change."

As government action on climate takes shape, the voluntary market looks poised to continue its role as a space for forward-thinking companies looking to take action on sustainability and greenhouse gas accountability.

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### **STRATEGY**

## 'The shoving match is over' – unlikely partners team up for co-ordinated climate action

![](_page_2_Figure_10.jpeg)

Meeting climate targets will require efforts on all levels of society, with leveraging regulation, investment, consultation, collaboration and education in order to achieve a common goal. SUPPLIED

s it possible to address climate change while at the same time maintaining a prosperous economy and ensuring energy security?

"It's not only possible, it's essential," says Steve Williams, president and CEO of Suncor Energy. "Every example of a healthy and improving environment happens in places where there is a healthy economy.

Industry leaders like Mr. Williams and others involved in energy extraction in the Alberta oil sands as well as environmentalists have been responding in recent months to targets set out in the Alberta Climate Leadership Plan (ACLP). It is an ambitious document that calls for the phasing out of emissions from coal-generated electricity and developing more renewable energy, implementing a new carbon

"We believe climate change is taking place, but the breakthrough with respect to cooperation came when we realized that neither industry nor the environmental movement had all the answers."

#### Steve Williams

is president and CEO of Suncor Energy

price on greenhouse gas emissions, legislating oil sands emissions limits, and employing a new methane emissions reduction plan.

All sides agree that meeting the targets is going to take co-operation and collaboration between industry and environmental non-governmental organizations (NGOs) alike. "We believe climate change is taking place, but the breakthrough with respect to co-operation came when we realized that neither industry nor the environmental movement had all the answers," says Mr. Williams.

Ed Whittingham, executive director of the Pembina Institute, a nonprofit think-tank focused on energy, says the new relationship between industry and NGOs is very real. "The endless shoving match is over," he says. "Industry and environmental groups realized they weren't getting anywhere and that in order to deal with energy and economic challenges as well as climate change, it was going to take some co-operation." Industry's willingness to accept targets in the ACLP, a "robust and comprehensive document that takes Alberta from being a laggard on climate change to one of the most progressive jurisdictions in the OECD," went a long way towards convincing Mr. Whittingham of industry's sincerity. "We understand that it isn't going to be easy to reduce methane emissions by 45 per cent by 2025, but they agreed to it."

Chris Ragan, a McGill University economist and the chair of Canada's Ecofiscal Commission, an economic think-tank advocating "putting a price on pollution," agrees that the ACLP is the right document to take Alberta forward. "The Alberta carbon pricing framework that is emerging is very much in the right direction," he says. "Broadly speaking, it is in line with our recommendations.

On the co-operative level, the Ecofiscal Commission is encouraged with the relationship it now has with industry. "Steve Williams of Suncor, who sits on our advisory board, stood up at an Ecofiscal event and said 'Bring on a carbon tax.' When something like that happens, it's hard for others in industry to say it doesn't make sense.

Andrew Leach, an associate professor at the Alberta School of Business who chaired the Alberta government's Climate Change Advisory Panel, says that it's important to avoid the "target trap" where a failure to meet overly ambitious goals gets painted as failure. However, "the new level of cooperation represents a hugely positive development and will make it easier to implement effective policy.

Arlene Strom, Suncor's VP sustainability and communication, adds that along with co-operation and consultation, technology will play a fundamental role in achieving results. "We have felt very comfortable with having an emissions limit in the oil sands because we have tremendous faith in technology.

Although the ACLP is unique to Alberta, the fact that it exists at all can serve as inspiration for other jurisdictions in Canada, and indeed around the world, facing similar problems. "Although every jurisdiction has its own situation, the ACLP addresses those who said there was no need to do anything in the rest of Canada until Alberta does something about the oil sands," says Dr. Leach. "Alberta has now done it, and the challenge that it faced now passes to Canada."

### **EDUCATION**

## Turning 'wicked challenges' into learning opportunities

ike other Canadian cities, Victoria has its share of woes, grappling with everything from finding shelter for a growing homeless population to curbing its dumping of raw sewage into the nearby Strait of

managers and professionals from the private and public sector who are enrolling in the certificate as part of their ongoing professional development.

The program idea arose after a former certificate with similar content experienced waning enrolment.

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While some Victorians despair over such seemingly intractable issues, a co-developer of a newly revised program at Royal Roads University talks about those issues with earnest zeal. That's because such problems are great learning opportunities for students taking the certificate, says Dr. Hilary Leighton, director of individualized studies at the university's College of Interdisciplinary Studies.

"Every city faces messy, wicked challenges, and there is rarely enough time or people to research and do these projects," she says. "This is just a wonderful response to contributing to this city while students are learning.

Within the six-month graduate certificate in Sustainable Community Development is a nine-week component that is a blend of residency and online study called Applied Community Development - Case Studies. It is being held off-campus at CityStudio, an innovation space or learning laboratory created by the city with Royal Roads, University of Victoria and Camosun College. There, city staff, community members and students will come together to learn about civic problems and in the case of this certificate, will discover real solutions "that contribute in a socially relevant way," she says.

The first course begins next March and will include a number of city

prompting Dr. Leighton to interview former students to find out why. 'They said the learning was valuable, [but] they really needed something that was more cohesively designed and practical," she said.

Needless to say, the concept has support from the city. "It's an opportunity for students to get university credit while working as a team on real city projects," said Victoria Mayor Lisa Helps.

Derek Masselink, an associate faculty member with Royal Roads' School of Environment and Sustainability, is teaching part of the Masters in Environment and Management program at CityStudio using the learning lab approach.

"It is not going to be me standing up in front of the class and lecturing," he says.

"We are going to find a problem that we can work on, and in the process of working on that problem, we will learn.

"A lot of it has to do with conflict resolution, working in teams, understanding the power dynamics and how to come at a problem from a positive point of view. That includes studying how humans get together to get things done."

Course details are available at royalroads.ca.

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Source: David Suzuki Foundation

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![](_page_2_Picture_70.jpeg)

At the CityStudio – an innovation space created by the City of Victoria with Royal Roads, University of Victoria and Camosun College – city staff, community members and students meet to tackle civic problems. SUPPLIED

### STRATEGIES FOR SUSTAINABILITY

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# **Illuminating the power of sustainability**

G rowing awareness of climate change challenges has spurred action across the country to improve the environmental performance of Canada's businesses, organizations and communities. While some measures – such as switching energy systems to low-carbon sources – can be challenging to implement, others are regarded as "low-hanging fruit."

Lighting is among the latter, says Jennifer Dolin, manager of sustainability and environmental affairs at LEDVANCE, provider of SYLVANIA illumination products in Canada and the U.S., which was known as OSRAM SYLVANIA until the name change earlier this year.

Using innovative lighting technology is known to bring considerable financial benefits due to energy savings – it can also do more, says Ms. Dolin. "We're an energy efficiency company, so our products are designed to save our customers energy, but we also work with them to meet additional environmental goals."

As an example, Ms. Dolin mentions a parking garage relighting project located in an area with frequent power outages. Operating the garage with traditional high-intensity discharge (HID) lamps was challenging since HID lights have to cool down before they can come back on, she says. "When the lights don't come back on quickly, this can be a safety concern for a facility like this."

Other concerns related to environmental issues, such as mercury content, and the fact that HID technology can't be dimmed, says Ms. Dolin. "Parking facilities only need lighting 20 per cent of the time, but often keep it on continuously."

on continuously." The relighting project addressed all those challenges. Integrating LED technology – with instant-on capabilities – means the lights come on immediately, even when powered by a back-up source during a power outage. LEDs can be dimmed and controlled so they come on when someone is going to a car. In addition, LED technology doesn't contain mercury and typically lasts longer. "With this project, our customer saved a large amount of money, and we were able to quantify "When you look at how much you have to spend from start to finish – including purchase, installation use and disposal – 86 per cent of those costs are generally in operating the lighting. So if you can reduce those operating costs by 85 per cent, that has a huge impact on your bottom line."

#### Jennifer Dolin

is manager of sustainability and environmental affairs at LEDVANCE

the benefits both in financial and environmental terms," she adds.

Energy savings can be substantial, according to Ms. Dolin, who quotes an 85 per cent lower energy consumption profile of some SYLVANIA LED products compared to traditional lights. "When you look at how much you have to spend from start to finish – including purchase, installation use and disposal – 86 per cent of those costs are generally in operating the lighting. So if you can reduce those operating costs by 85 per cent, that has a huge impact on your bottom line," she says.

Ms. Dolin also keeps track of regulatory changes, consumer rebate programs and incentives for commercial users that "encourage them to replace older technology and energy inefficient products," which can make upgrading lighting technology more affordable.

Running a cost-benefit analysis – which translates carbon emission numbers into terms that make sense, such as emissions from an equivalent number of cars – and providing case studies can help businesses and organizations communicate their sustainability efforts to stakeholders, clients and employees, says Ms. Dolin.

She knows first-hand that more and more employees are committed to making their places of work more sustainable. Spearheaded by a green team, LEDVANCE's Drummondville, Quebec, location, for example, has implemented a number of best practices in lighting control, recycling and other waste reduction, and energy reduction measures. Similar efforts are underway in all LEDVANCE plants, distribution centres and headquarters.

With an extensive background in industry, government and environmental organizations, Ms. Dolin matches her colleagues' passion for reducing the company's environmental footprint. "We always consider how we can improve the way that we make, package and transport our products," she says. When a customer asked LEDVANCE to reconsider packaging options since its signature orange shrink wrap wasn't recyclable, for example, the company didn't hesitate to eliminate the orange wrapping. While advances in LED technology can translate to energy savings, better environmental performance, longer lamp life and improved light quality, it doesn't end there, says Ms. Dolin. "People are starting to ask, what else can lighting do?" All buildings have an infrastructure for lighting, which can potentially support additional functions, such as pairing light with sensors, sound and cameras, says Ms. Dolin. "Things haven't been this exciting since Edison invented the light bulb," she adds.

![](_page_3_Picture_23.jpeg)

As a result of the Hôtel Le Crystal upgrading its lighting, an annual saving of 365,158 kWh – translating into \$24,985 in energy savings and avoidance of 265,013 kilograms of CO2 emissions from electricity plants – is projected. In addition, because of the long life of the lighting systems, the hotel also expects to save approximately \$27,159 in maintenance costs per year. SUPPLIED

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