

Business practices are changing as a focus on the environment becomes increasingly linked to bottom-line success

A climate for action

Global warming is changing the climate, not only environmentally, but also in terms of policies and other action designed to curb greenhouse gas (GHG) emissions.

In anticipation of changing regulations and the emergence of GHG-curling market mechanisms such as emissions trading, companies, municipalities and governments are taking action.

In the corporate sector, the Carbon Disclosure Project (CDP) is helping spur activity by collecting emissions data from corporations in 60 countries. "Our overall mission is to accelerate solutions to climate change by putting relevant information at the heart of business policy and investment decisions," says Zoe Tcholak-Antitch, director for North America.

The 2011 request to the world's largest companies (by market cap) was sent on behalf of 551 signatories who collectively hold \$71 trillion of assets under management. In addition to helping institutional investors manage risk, the comprehensive questionnaire helps companies strategically review their climate impact, identify opportunities and set targets for risk and impact reduction, says Ms. Tcholak-Antitch.

One of the most important themes emerging from recent reporting from more than 3,000 of the world's largest corporations is the shift toward moving climate change responsibility to the highest executive and board levels, she says. "Within the companies we see leading the way, climate change is now seen as a critical element of strategic planning."

Energy efficiency is also a focus of a wide number of corpo-

rations in various industry sectors, she says. "It improves sustainability, but also drives dollars for the bottom line."

That view is shared by BMO Financial Group, one of Canada's largest companies and a CDP participant. "We've been measuring our carbon footprint for the last four years," says Jim Johnson, director, Environmental Sustainability and Compliance. "Real estate comprises about 90 per cent of our total carbon footprint, so that's where we focused our efforts."

The organization, which occupies about 14.6 million square feet of branch and office space in North America, has introduced a mobile workplace pilot. "I'm now a mobile worker," says Mr. Johnson. "I don't have a permanent space to call my own, but work from various office locations."

So far, the initiative has enabled BMO to reduce the space

used by about 120 employees in one location by 40 per cent.

Through more than 350 energy audits, the company has identified numerous opportunities for greater efficiency, including simple changes such as light and heat automation in branches.

Driving these changes is the company's commitment to carbon neutrality as well as recognition that efficiency drives both sustainability and the bottom line, says Mr. Johnson. "If we're doing the right thing from an environmental perspective, we're also going to save the corporation money. The biggest challenge is ensuring we look at lifecycle costs rather than just up-front project costs."

That longer-term view is being adopted by municipalities, as well. Vancouver currently has the smallest carbon footprint among major North American cities, but under the leadership of Mayor

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Gregor Robertson, the municipal government has an even more audacious vision: to become the "greenest city in the world" by 2020.

Vision Vancouver city councillor Andrea Reimer, chair of the Standing Committee on Planning and Environment, says, "It was a major, well-defined part of Mayor Robertson's campaign platform, so the overwhelming majority of votes we received was seen as a very strong mandate from the citizens of Vancouver."

Immediately after the election, the city created a panel of 16 sustainability experts, the Greenest City Action Team. "The answer to the question, 'What will it take to be the greenest city in 2020?' is not relative or a matter of opinion - there are scientific bottom lines," says Councillor Reimer. "We're very blessed in Vancouver in that one of our biggest exports is sustainability experts."

The resulting 10-year plan developed by the team includes extensive public engagement. "So far, we've connected personally or through social media with more than 35,000 people," she says.

As of January 2011, the city has introduced more than 50 Greenest City projects. "It's really required rethinking the way we do our work as a city," says Cllr. Reimer. "You can't have a waste management department that doesn't interact with the social planning department, the animal control department and the business licensing department, for example, because all have expertise, knowledge and solutions to contribute to more sustainable waste management."



Jim Johnson, BMO's director, Environmental Sustainability and Compliance, says among its efforts BMO is using energy audits and other tools to help reduce the bank's carbon footprint associated with its office space. PHOTO: SUPPLIED BY BMO FINANCIAL GROUP

online? Visit the Carbon Disclosure Project at www.cdproject.net for more information.

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INNOVATION

Carbon credit project to fund conservation efforts

The Nature Conservancy of Canada (NCC) has announced North America's largest forest carbon project yet. In addition to helping offset carbon emissions, the initiative is expected to contribute some \$4 million towards NCC's long-term conservation work.

To meet international standards, NCC - Canada's leading private land conservation organization - developed the carbon-credit pilot project in conjunction with numerous advisors. Centred on a 136,000-acre (55,000-hectare) project area in southeastern

British Columbia known as Darkwoods, the initial sale of carbon credits to Pacific Carbon Trust (PCT) and ERA Ecosystem Restoration Associates are the equivalent of 700,000 tonnes of carbon dioxide emissions.

"We are always looking for unique strategies to fund the protection of Canada's natural heritage," says NCC president and CEO John Lounds. "By harnessing the power of the carbon market, the Darkwoods Carbon pilot project represents an innovative new avenue for helping to fund great conservation projects."

To learn more, visit natureconservancy.ca.

ADAPTATION STRATEGIES

Persistent warming putting heat on adaptation strategy development

On the basis of widespread evidence of accelerating climate change, organizations are looking more closely at how their operations and stakeholders will be affected.

ACT, the Adaptation to Climate Change Team at Simon Fraser University, brings leading experts from around the world together with industry, community and government decision-makers to generate policy recommendations and resources designed to assist in sustainable adaptation. In their efforts to address the primary issues of climate change adaptation, ACT has partnered with Zurich Financial Services, one of the world's pre-eminent insurers, as well as organizations such as BC Hydro, AMEC (a renowned engineering consultancy) and

Aboriginal Affairs and Northern Development Canada.

"Climate change impacts extend to health and fresh water supply, energy production, crops and food, sea level rise - even to potential population displacement within Canada and outside our borders," says Deborah Harford, executive director. "Many industries are already feeling that impact - for example, it's costing the insurance industry an enormous amount of money. In 2010 alone, the worldwide economic loss from natural disasters was \$150 billion."

As a result, insurers are taking action to encourage organizations and governments to help mitigate and adapt to climate change and the subsequent cost burdens, she says. "For example, they are urging municipal gov-

ernments to consider appropriate zoning and building standards, and urging all governments to acknowledge the fact that they have a critical role to play."

The agriculture industry is another that has been significantly affected by climate change and is responding with adaptation efforts, says Ms. Harford. "The prairie drought in 2005 cost Canada's economy about \$5 billion. Seed producers and growers are therefore looking at shifting to new crops that will be resilient to extreme heat, and developing crops that can grow in drier conditions."

In the engineering sector, Engineers Canada undertook a cross-country study that revealed that, as infrastructure standards today are based on historical data rather than future climate

projections, vulnerability is being built into new infrastructure, she says. "Engineers are therefore looking at ways they can help to raise awareness and reduce vulnerability in construction projects."

Many organizations are also looking at ways they can leverage the opportunities that stem from a lower carbon economy. "The EPIC Vancouver Sun Sustainable Living Expo features products and services that are smart and stylish, but that are Earth-friendlier than their competitors," says Nancy Wright, vice-president, Marketing, for the Globe Foundation, EPIC's creator. "For 20 years, our mandate has been facilitating the business of the environment. We have always believed that business will ultimately solve environmental

challenges because by doing so, they'll do better economically."

Over the five years since the first EPIC show was launched, the green economy has grown significantly, she says. "There are a lot more companies offering products and services that fit our criteria, and a lot more people incorporating sustainability into their lifestyles."

One of the leaders in that shift is Walmart, an EPIC participant, she says. "They have transformed the way they do business in so many respects, and a company that size has so much market power that they can push change down their supply chain. That's when you really start to see change: when suppliers start manufacturing, packaging and transporting more sustainably."

A climate for action

Canada vying to capitalize on clean-tech markets

Canada is rapidly emerging as a global leader in the development and deployment of clean and green technologies.

Among the efforts, smart metering is optimizing and rationalizing energy use at a time when carbon-capture technologies are evolving to minimize greenhouse gas emissions. Niche industrial operations are using bioenergy to transform waste products into green power and clean water, and dependence on fossil fuels is being addressed by exciting developments in the electrification of personal transportation and the development of hydrogen-powered public transit.

All this activity in clean technologies is generating investment and job creation, says Vicky Sharpe, president and CEO of Sustainable Development Technology Canada (SDTC), who says clean-tech enterprises represented only four per cent of Canadian venture-capital investing in 2004 and 2005, but 17 per cent by 2010.

"It comes in behind only what Canada is globally recognized for being really good at, which is software IT and life sciences," says Dr. Sharpe.

SDTC, whose mandate is developing and demonstrating clean technologies and building companies contributing to the green economy, currently has \$1.7 billion in projects under management representing more than 200 "solutions" in every market sector, says Dr. Sharpe, who is well positioned to recognize promising technologies in development.

Emerging solutions, she says, include unique membranes from Whitefox technologies that not only reduce water waste and greenhouse gas emissions in ethanol plants, but do so in a lower-

cost environment.

Equally "disruptive technology" is a desalination process being developed by Saltworks in British Columbia utilizing 80 per cent less energy than conventional methods.

"Desalination used to be thought of as a rich nation's solution, so this is a technology that has enormous export potential," says Dr. Sharpe.

Disposing of waste while maintaining water quality is a huge problem globally, but a straightforward solution is being developed by Tarragon Environmental

Technologies of Quebec, which is working on a Micro Auto Gasification System designed to convert mixed waste into carbonaceous ash and a clean fuel that is then used to power waste treatment systems as well as provide excess energy for other uses.

Equally compelling are advanced, modular, self-anchoring and "highly robust" in-river turbines being developed by RSW-RER Ltd. and ABB Inc. that will bring power to isolated communities here in Canada and around the globe.

If Canada is proving a leader in

the international sphere, Alberta is forging ahead in the green-tech arena domestically, says Eddy Isaacs, CEO for Energy and Environment Solutions at Alberta Innovates. As the home of the oil sands, the province is taking a leading role in developing technologies mitigating the environmental impacts of this important energy resource.

"There are a couple of things we're working on in Alberta that are demonstrating huge potential for reducing greenhouse gas emissions," says Dr. Isaacs. These include a suite of steam-solvent and hot-solvent processes, as well as the application of both electrically generated heat and even electromagnetic sources to reduce water consumption and natural gas use in oil sands operations. At the same time, systems based on nano-membranes and "nano-fluidic sensors" are being developed that will help reduce industrial fresh water use as much as 30 per cent by 2020.

There's no silver bullet for solving environmental and economic problems – answers are going to come as much from legislatures as laboratories – but in Canada, indicators are pointing toward innovative solutions.



Sustainable Development Technology Canada president and CEO Vicky Sharpe says recognition of Canadian leadership in environmental solutions is supported by statistics that show a sharp rise in Canadian venture-capital investing in clean technologies since 2005. PHOTO: SUPPLIED

ALTERNATIVES

Saskatchewan aiming to become a clean coal powerhouse

Clean coal might sound like an oxymoron, but Saskatchewan's Boundary Dam Integrated Carbon Capture and Storage Demonstration Project proves that King Coal can

still play an important role in Canada's energy future.

Like it or not, says SaskPower vice president Mike Monea, with almost 80 billion tonnes of reserves, coal will continue to be

an important energy resource in Canada for many years to come; 60 per cent of SaskPower's electricity comes from coal-fired plants. The trick is to build and maintain clean-operating facilities

like Boundary Dam, where 90 per cent of the CO₂ will be captured and recycled for use in oil and gas recovery.

"Water vapour may be the main component coming out of

the BD3 stack," says Mr. Monea, who adds that Boundary Dam will prove that you can clean up coal emissions to an acceptable environmental level, and do it at a price that makes sense.

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We see the possibilities.

Sean LeBlanc cares about climate change. That's why this Renewable Energy Engineer is part of the Suncor Energy team that develops new sources of energy for the future. Building on our pioneering development of Canada's oil sands, Suncor is also investing in renewable energy as part of our longstanding climate change action plan. Suncor has four wind farms today with two more in development. We also run Canada's largest biofuels plant, which has been expanded to double production capacity. Investing in new energy sources begins with seeing the possibilities. And we're just getting started.

\$750 million actual and planned investments in renewable energy

1 million tonnes of CO₂ emissions avoided per year through combined renewable energy portfolio when new projects are completed in 2011

147 megawatts combined generating capacity through our four wind farms

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It's time to refocus the restructuring of AECL

By Don MacKinnon
President,
Power Workers' Union



India all recognize that nuclear generation is needed to reduce GHG emissions while growing their economies. That's why their governments have, or are working to develop, policies

and plans supportive of nuclear generation. Canada needs a nuclear plan that builds on and grows our successful CANDU technology – a plan that recognizes the true

value of this technology. A smart, strategic and timely approach to the restructuring of AECL will allow Canada and the world to benefit from our CANDU nuclear advantage.

The restructuring of Atomic Energy of Canada Limited (AECL), initiated four years ago, has bogged down and moved Canada's successful nuclear industry into limbo. AECL's ability to compete in international markets is hamstrung, Ontario's new nuclear build plans are delayed, and Canada's entire nuclear supply chain is in a state of uncertainty.

With a renewed electoral mandate, the government can now proceed with the restructuring. However, it's important that the restructuring does not squander a national technological asset and the stated restructuring goals are achieved. While the restructuring poses many challenges, if the process is managed well, it offers Canada tremendous opportunities.

Government and industry players must take this restructuring opportunity to develop a comprehensive Canadian nuclear strategy that better positions AECL to compete in the global marketplace. There is a lot at stake: a \$6.7-billion-a-year industry; a supply chain of 160 companies; over 70,000 direct and indirect high-value jobs; and millions in R&D at Canadian universities.

The strategy must take into account Ontario's need to move forward with new nuclear units now. This Ontario plan provides an opportunity to put AECL's new Enhanced CANDU 6 reactor design on track for commercial success. New units in Ontario offer an essential boost to Canada's nuclear manufacturing supply chain, much of which resides in the province.

In developing a nuclear industry strategy, Canada should address critical questions such as: the ongoing role of government; the role of nuclear electricity generation in Canada; the fate of AECL's intellectual property; foreign ownership; and benefits vs. liabilities.

Although AECL is a relatively small reactor design company, it has a solid, proven track record in the marketplace. For over 47 years, CANDU reactors have safely and reliably provided electricity for Canadian homes and businesses. Our domestic CANDU fleet has helped Canada avoid 2.4 billion tonnes of GHG emissions since 1972. Annually about 90 million tonnes of GHG emissions are avoided. That's equivalent to the exhaust from about 18 million cars, or about 12 per cent of Canada's total emissions.

Worldwide, Canada's nuclear technology has an impressive safety record spanning over 1,000 reactor years. Also, AECL has successfully competed for reactor sales against government-backed giants like AREVA, of France. AECL's success can be attributed to CANDU's "safety-in-depth" design, use of natural rather than enriched uranium; its ability to reuse fuel from other reactor technologies; its ability to use thorium (a big advantage in the Chinese market); and its suitability for small grid systems.

AECL's current customers include Argentina, China, India, Pakistan, Romania and South Korea. Besides domestic sales, exports of AECL refurbishment and reactor products and services opportunities include Argentina, China, Romania, South Korea, Jordan, Lithuania and Ukraine. AECL's current foothold in international reactor sales and CANDU's unique advantages solidly position the company to succeed in the trillion-dollar global marketplace.

Analyses by organizations such as the Canadian Manufacturers & Exporters indicates that refurbishing existing nuclear plants and building new enhanced CANDU reactors will help sustain existing economic benefits and create tens of thousands of new jobs and economic spinoffs.

France, the United States, the United Kingdom, China and

GETTING AECL'S FUTURE RIGHT MEANS BIG BENEFITS FOR CANADA

Atomic Energy of Canada Limited's (AECL) track record is impressive.

CANDU reactor sales at home and abroad have created a \$6.7 billion a year nuclear industry, tens of thousands of high value jobs and millions in research and development at Canadian universities.

Worldwide, Canada's nuclear technology has an impressive safety record spanning more than a 1000 reactor years while providing reliable, affordable, greenhouse gas emission free electricity.

Independent analyses show that CANDU's unique design features solidly position AECL to secure some of the trillion dollar global market.

Selling AECL now, at "fire sale" prices, would mean billions in lost value.

Now is the time for the federal government to develop a value-focused restructuring plan for success.

The plan should: ensure AECL completion of the Enhanced CANDU 6 reactor design; finalize the sale of two new reactors to Ontario; and, develop a sales program for the lucrative international market.

This is the best way to maximize the value of AECL, secure reliable clean energy for Canadians, and add tens of thousands of high value jobs through world class innovation.

Canada needs a plan that positions AECL's unique CANDU reactor technology for the benefit of Canadians.

For more information please go to www.abetterenergyplan.ca

From the people who help keep the lights on.