Strategies for Success:

Supporting Leadership Towards a Low Carbon Economy

Energy
Climate
Communication
Collaboration

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Key Terms

The following terms and acronyms are used throughout this report. These definitions provide context for how they are used in this document.

Low carbon economy A state of economic productivity and growth where resources are used as efficiently as possible and greenhouse gas emissions are minimized, but quality of life is not compromised.

Market Leaders Workshop The event on August 26, 2009, in Woodbridge, Ontario, Canada, where over 45 leaders from industry and government gathered to explore strategies for a low-carbon economy.

EC3 The emerging concept of organizing around Energy, Climate, Communication and Collaboration. This is the working title of a future forum to facilitate information transfer and dialogue around strategies for sustainability.

LEED Leadership in Energy and Environmental Design. A third-party certification and an internationally recognized benchmark for the design, construction and operation of high performance green buildings.

PPP Public Private Partnership. A cooperative venture between the public and private sectors, built on the expertise of each partner, to meet public needs through the appropriate allocation of resources, risks and rewards.

Smart Grid An upgraded version of the electrical grid that is internet-enabled to be communicative and responsive, maximize efficiency and optimize demand and supply, while lightening the environmental impact of electricity production and transmission.

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We would also like to acknowledge the thought leadership of the various contributors, whose commentaries are disbursed throughout this report. These contributions ensure the ideas expressed are grounded in everyday business reality.

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Image on page 6 provided by NASA http://visibleearth.nasa.gov

Executive Summary

The time for change has arrived. Our economic models must evolve to overcome unprecedented turmoil in global markets and to simultaneously reverse the pending environmental crisis. Leaders around the world are absorbing the scale and scope of the economic, environmental and social challenges before us, and recognize the need for bold, swift action.

On August 26, 2009, a group of over 45 Canadian executives representing a wide variety of industries and government agencies attended the first Market Leaders Workshop in Woodbridge, Ontario, Canada. The event was organized to explore realistic, market-based opportunities for marrying economic prosperity and environmental stewardship. Participants identified areas that need developing in order to successfully build the low carbon economy of the future, and exchanged ideas on specific contributions that individual industries could make to advance the sustainability agenda.

Low carbon economics is an evolving concept. However, there are recognized foundational elements needed to drive a true transformation of the market from today's linear model, to a system that embraces long-term targets and treats sustainability and economic growth as mutually reinforcing objectives. Current models of collaboration need to adapt to capitalize on the ripeness of the environmental movement with its attendant policies (i.e. Ontario's Green Energy Act) and engaged consumers. We are beginning to see greater cooperation across and within industries where sustainability is a driving force, but these models need to be formalized and replicated to fully take advantage of the creative capital available.

In order to set targets that satisfy the recommendations of the scientific community as well as the needs for economic growth, we must be able to quantify and measure progress. Comprehensive metrics allow for comparison and objective observation of achievements and shortcomings. Developing these tools requires broad consensus on priorities and, frequently, the voluntary participation of industry. Measurement is an opportunity to apply modern information technology to the climate change debate and increase our understanding of the gap between where we are now and where we need to be.

Developers of the Market Leaders Workshop:
Garrick Ng, Andrew Bowerbank, Anthony Watanabe, Mark Salerno

Continued dialogue at the global, national and local levels is critical to moving forward on strategies to manage the climate risk. An ongoing, multi-tiered discussion will ensure that the unique constraints of individual jurisdictions are recognized and leveraged for strategies to mitigate climate risk. Policy that is tailored to the specific characteristics of different regions will augment the overall participation in a global effort to fight climate change, but customized policy does not preclude the need for an aggregate and coordinated approach.

Drivers of this revolution will be both technical and behavioural. The technological innovation needs are great: investment in "cleantech" promises that the next wave of groundbreaking inventions will be geared toward sustainability. Revolutions are inherently costly, and the financial sector is devising new mechanisms, from environmental loans to carbon markets, to encourage sustainable behaviour and mitigate the risk of environmentally responsible investments. Many in this arena consider a price on carbon inevitable in the near future. This is certainly one way to affect behaviour, but the organic growth of public awareness and concern for our planet's future is also changing attitudes. Sustainability is quickly becoming the unifying cause for today's youth, and markets are responding by offering new products that cater to the demands of these environmentally conscious consumers, not to mention a new category of employment in the sustainability industry.

Low carbon economics are complex and the challenges daunting. However, we are witnessing the beginning of one of the largest market shifts in history, and opportunities abound. Existing infrastructure can be leveraged to provide an impressive foundation on which to build a low carbon future. Preparing for the change ahead requires a concerted planning effort and the willingness of leaders from around the world to share and act upon their visions for a sustainable economy. This report prepares readers to engage in meaningful discussion that leads to action for building a vibrant low carbon economy.

"All countries will have to reorient their economies, both to strengthen resilience to the inevitable effects of climate change and to lessen the use of carbon in order to reduce substantially those risks in the future...

Our actions in the next thirty years, through investments, the generation and use of energy and electric power, the way we organize transport and our treatment of forests, will determine whether or not we can keep climate change risk manageable..."

LORD NICHOLAS STERN, *THE GLOBAL DEAL*

Table of Contents

Introduction

Recent global issues have demonstrated that a transformation in the marketplace is upon us. I have been witnessing this market shift towards models derived from European-based notions of *low carbon economics* and American strategies of *clean energy economics* for the past several years. These terms, among others, relate to "green" initiatives that can provide real economic opportunities. They also speak to the importance of collaboration around a common cause in such a way that regional values can be supported and diverse industries can participate.

The only way we will be able to successfully manage the climate risk we face is if we can demonstrate economic opportunities in our pursuit of environmental and social solutions. "Green" as we know it must move beyond a means for brand recognition and become integrated with financial levers. Product developers will need to evaluate their strategies over the coming years so that manufacturing processes automatically adopt practices designed to reduce or eliminate carbon intensity and waste. In order to achieve this, industry leaders will need confidence that there are economic opportunities associated with the required changes.

Through my international networks, I have witnessed how leaders across Europe, Asia-Pacific, the United States and South America are addressing concerns such as declining oil reserves, decentralized energy, carbon emissions, natural resource depletion and degradation, overpopulation and more. As a member representative to the United Nations Environmental Programme (during my time with the WorldGBC), I have also experienced firsthand the difficulties in achieving international consensus on issues as complex as climate change.

Among the multitude of challenges before us, I have noticed that there are three key elements global leaders feel we are failing to address:

1. The need for a common voice in the marketplace and a centralized location to get the right information that can build confidence and support the decision making process.
2. The need for a more aggressive strategy designed to improve market awareness and support the adoption of new technologies.
3. The need for stronger collaboration across industry sectors in response to key issues of our day. Leaders need to find new ways to grow markets, sustain resources and support community development.

I hosted a Market Leaders Workshop on August 26, 2009 with the support of the Toronto and Region Conservation Authority, PowerStream, Canada Mortgage and Housing Corporation, and The Innovolve Group to explore opportunities in low carbon economics, clean energy technologies and the application of systems protocols in support of collaboration. Senior executives from over 45 leading corporations as well as local and federal government officials gathered to review potential strategies for the Canadian marketplace. The robust attendance of high-profile individuals and the insightful discussion at this workshop confirmed my confidence and drive to develop a new strategy for integrated market development called "EC3."

Energy, Climate, Communication, and Collaboration make up the elements of the EC3 initiative. Each element represents core areas of opportunity in support of a changing economy for Canada and across North America. Building on the strategic efforts of our European counterparts, EC3 will strive to establish a Canadian response to the concept of the *Third Industrial Revolution*.* Sector leaders will be engaged to transcend common barriers and short-term targets, and offer their insight in support of Canada's evolving economy.

This report outlines the thoughts brought forward during the Workshop on August 26th and presents comments by a number of the participants as well as from industry leaders across Canada and around the world. I look forward to our collective next steps as we continue to explore strategies that will provide the tools needed to ensure economic security, social development and environmental responsibility for Canada.

Andrew Bowerbank

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Founding Executive Director, World Green Building Council Secretariat (2007-9)
Honourary Board Member, Canada Green Building Council GTA Chapter
Board Member, EcoSmart Foundation

* The "Third Industrial Revolution" is a term coined by Jeremy Rifkin, president of the Foundation on Economic Trends in Washington, D.C. He describes this movement as a "wholesale reconfiguration of the transport, construction, and electricity sectors, creating new goods and services, spawning new businesses, and providing millions of new jobs" in the renewable energy and hydrogen power industries and their offshoots.

Mobilizing Change

Both the planet and the world's economy are at a crossroads. There is alarming urgency to address the global economic crisis as well as the global environmental crisis. Never has there been a better time to link the environment and the economy to ensure the sustainable recovery and future prosperity of both.

Historically, wealth creation was founded on resource consumption. This linear approach severed the connections between the economy and the cyclical nature of the environment. Since recovering from the turbulence of the 1920s, our economic system was thought to have evolved to the point where it is self-correcting, but recent events have proved this untrue. Similarly, the planet we believed to have limitless assimilative capacity is frighteningly close to exceeding its ability to sustain us. Reversing the momentum towards ecological catastrophe and simultaneous economic disaster requires nothing short of a market transformation.

Our current market strategies encourage progress through sector-focused silos, when we should be emulating the successes of leading industries that have engaged in meaningful communication between business, government and civil society. Failing to do so will hinder our flexibility to design solutions appropriate for the realities of the 21st century.

In addition, we are limited by an industrial model appropriate for a time when resources were seemingly endless. The relative abundance experienced during our development period gave us the luxury of designing products, processes and communities that were cost effective at the time, but deeply resource-intensive. As a result, our behavior became remarkably profligate.

A true market transformation demands reframing our metrics of success, integrating the full life-cycle costs of products or activities and leveraging all of the intellectual capacity at our disposal. Staging a revolution this dramatic carries its own risks, to be sure, but it is also replete with opportunity.

Symbiosis of the Economy and the Environment

It is only now, with both our natural and economic systems reaching their breaking points, that decision-makers are beginning to recognize the inherent need to reengineer our approach to recovery, fusing environmental integrity with economic stimulus. (See CASE: A [Green] New Deal)

The deluge of bad news on climate and on the economy is enough to overwhelm, and can paralyze action; however, history shows how reacting to adversity can lead to new opportunities. Countries decimated by war across Europe and Japan in the 1940s, or by severe depression, like the United States in the 1930s, emerged stronger from their respective crises. These experiences should inspire and inform our strategies for addressing today's challenges. We now have a once-in-a-generation opportunity to craft a future in which the environment and business are no longer in conflict.

New industry sectors are developing as a result of a widespread concern for the fate of our shared planet, and a growing interest in doing something to ensure it is preserved. For example, an increasingly educated public has a newfound curiosity about the natural world, and the eco-tourism trend is bringing economic activity to underdeveloped, but ecologically rich regions. A powerful ancillary benefit to an explosion in this sub-sector is the strong motivation to protect these areas, such as rain forests or coastal regions, so that they can continue to deliver prosperity to the communities that depend upon them. By shifting to non-consumptive use of resources, we are able to limit the damaging effect of human activity on natural resources, while still profiting from them.

The agriculture industry is on the brink of another revolution. Earth's expanding population is putting pressure on the global availability of food. So-called factory farming has taken over agri-business, and farmers produce ever-fewer varieties of crops. The effects of these issues are exacerbated by large-scale experimentation using food crops and quality farmland to produce biofuels and reduce our reliance on diminishing fossil fuel reserves. However, the bio-fuel industry is the subject of strong criticism, backed by scientific fact, for rejecting the benefits of crop diversification and rotation, being responsible for upward pressure on food prices and for the overall inefficiency of many biofuels, particularly corn-derived ethanol. The backlash has led to a miniature revolution of its own; consumers are demanding transparency from the food industry and the popularity of organic products has skyrocketed, becoming a veritable industry in its own right.

As the popularity and viability of many traditional sectors wanes, new opportunities are exposed. While some industries may vanish entirely, others will experience an evolution through innovation.

CASE STUDY

A [Green] New Deal: International Strategies for a Sustainable Recovery

The collapse of financial markets around the world that began in 2008 wreaked havoc on the economy at large; the availability of credit vanished, confidence in the most venerable bastions of free markets spiraled to an all-time low, and enthusiasm for sustainable growth was eclipsed by a focus on stability at any price. "The Great Recession" deserved a response as dramatic and pervasive as Roosevelt's strategy for propelling the American economy out of depression back into a period of growth. A 21st century economic recovery, however, is subject to two additional constraints that the architects of the original New Deal were not: An evermore globalized economic and political system and an urgent ecological crisis.

Governments, industry and civil society are beginning to absorb the enormity of the environmental challenges we face, and while most agree on the need to hitch sustainability to economic stimulus and demonstrate an accelerated ROI, only some agree on the reverse. Globally, governments will spend an estimated $3.1 trillion* to restart the economy. According to a recent HSBC report,† more than $470 billion is allocated for investments to manage climate change, leveraging a total of $980 billion.

China is leading the charge—the environmental component of the Chinese stimulus package is the largest among major economies with 8% of $586 billion allocated for environmental initiatives, in addition to 22% for rail improvements and 25% for electrical grid upgrades. China has a tradition of long-term planning, and has focused its investments on transportation and energy infrastructure. The impacts of these choices will be realized much later than those generated from the European emphasis on efficiency—heralded as "the single most important action until 2020"—but will set the course for lower emission intensity compared to a business-as-usual scenario as Chinese industries develop over the next several decades.

Despite an advanced market in renewable energy production, the EU has allocated only 6% of its stimulus package to energy. The United States, however, retains its drive toward "energy independence" and local procurement as components of economic stimulus, and has earmarked $21 billion for the development and deployment of various forms of renewable power. Meanwhile, Canada is the only developed country that has incorporated investment in nuclear power as part of its environmental stimulus package. Improving transportation is also a priority area across North America, where past investment in transport infrastructure has lagged compared to other regions.

Political and business leaders are less able than ever before to act unilaterally, yet their actions affect increasingly more people. Our globally integrated reality is partially to blame for the speed with which economies contracted, but it is also the most effective tool we have for creating an equally rapid economic and environmental recovery.

* All figures in this report are in US currency unless otherwise indicated.

† Robins, Nick, Robert Clover and Charanjit Singh. "Building a Green Recovery." HSBC Global Research, May 2009.

Version 2.0: Exploring the Next Steps in our Industrial Evolution

It is time to build a better mousetrap: with all the human capital in the world, we can move beyond the current practice of providing short term, poorly-designed systems to solve problems that continue to increase in complexity. Forward-thinking organizations are beginning to take these ideas to heart, and they are finding that redesigning their products is not only responsible, but that the cost savings they are able to realize amount to good business. (see CASE: Less Waste=More Profit) Re-engineering products and processes to reduce environmental impact is also prudent planning for the future, when regulations on environmental impact are expected to be much more stringent. Today, leaders recognize that the term "green" has become a desirable brand attribute. Beyond cost savings and mitigating regulatory risk, companies are flaunting their green credentials as a way to connect with increasingly eco-conscious consumers and differentiate themselves from competitors.

We have come a long way over the past few years as green branding becomes a more mainstream marketing concept but we need to quickly find the next step. Our economies need to move beyond marketing opportunities for short-term returns on investment and discover a method of adapting to environmental issues that can reach across sectors in support of long-term sustained growth.

CASE STUDY

Less Waste = More Profit

Waste costs money. Some industries have a long history of squeezing every last bit of value out of inputs. The restaurant business, for example, has always shunned waste—chefs are endlessly inventive with ingredients that most would consider unusable. This trend is spreading, and more and more savvy businesses are finding ways to trim waste, if not rethink it entirely.

Ontario Lottery and Gaming (OLG) recently reduced the size of their paper lottery tickets. According to insiders, in its first year this small change led to savings of almost C$2 million on paper costs. With the world losing up to 13 million hectares of forest cover each year, and deforestation accounting for roughly 20% of greenhouse gas emissions contributing to climate change, reducing the use of paper and other forest products is one of the most immediate ways we can forestall the worst effects of climate change.

IKEA, the Scandinavian purveyor of stylish and affordable furniture, is constantly looking for ways to modify their products to reduce emissions resulting from shipping. Since 1996, many of IKEA's product lines have been packed in thin, flat boxes to optimize palate loads. They have since redesigned a host of products—from candleholders to sofas—to make them easier to stack, increasing the number of items per shipment, and decreasing the number of shipments.

These efforts to reduce costs are yielding benefits in increased sales as well. Being green is increasingly trendy, and consumers are also becoming wary of companies that can't demonstrate their eco-credentials.

Sustainable Communities

Cities represent an amalgam of decisions and products that influence our relationship with resources and the environment. Urban communities blossomed rapidly in the Post War period, especially in North America, but cheap fuel and massive investment in road infrastructure allowed cities to quickly mushroom outward into low-density suburbs. This urban planning legacy is at odds with the carbon-constrained world of the future.

Retrofitting and building new urban infrastructure around the world will need massive investment, and the decisions made by planners today will have a very long-term impact on the future sustainability of a community. Design decisions with high capital costs lock in patterns of emissions for many years. A renewed emphasis on rail in many countries' economic stimulus packages is an encouraging sign that policy makers are working on a longer time horizon, and that sustainable transportation systems are becoming a priority.

There are many examples of communities, such as Freiberg in Germany, and Masdar City in the United Arab Emirates, Dongtan in China, BedZED in the UK, and the Dockside Green Project in Victoria, Canada that are test beds for extremely low carbon living. Many established cities are experimenting with design elements that encourage more sustainable lifestyles. For example, 36% of Copenhagen's residents cycle to work, and 55% of trips under 7.5km in Amsterdam are taken by bicycle. These penetration rates of alternative transportation have been achieved partially by taking measures to make driving inconvenient, such as severely restricting parking, while simultaneously investing in infrastructure that supports non-automobile transportation. In addition to simple city planning solutions that include predominant cycling paths, major commitments need to be made to include complex actions such as future planning for higher density and improving public transit designs.

There is great variety in the scale of change cities are willing and able to make, but this trend at the municipal level gives hope that these efforts can be linked together to engender an irreversible shift from so-called "green" planning to simply good planning.

55% of trips under 7.5km in Amsterdam are taken by bicycle

Behaviour

We must be willing to embrace long-term targets in order for real change to occur. Humans, like any other species, adapt to changing conditions over multiple generations. There are few examples to demonstrate that we can mobilize a response to adversity within a generation, but the time pressure of a climatic catastrophe requires that we act much faster than our natural evolutionary cycle. Transforming within a generation is a question of attitude as much as it is of technical capacity.

The very best technology, the most comprehensive city planning and the largest injections of government money in history cannot alone triumph over our environmental and economic challenges. We must learn to embrace a multi-sector, systems thinking approach in order to accomplish the change within the shrinking window of time science permits. One critical element that will drive us toward either success or failure is how we effectively engage through human behavior.

A behavioural shift could happen in two ways: through the implementation of various policies that incent or punish behavior related to environmental impact, or through a grassroots movement calling for change at the citizen level. More likely, though, behavior will shift with a combination of these forces.

An upwelling of youth concern for the environment underscores the issue's relevance today. Sustainability is being established as the common cause for the current generation of youth. This trend, like the anti-war sentiment among youth in the 1960s, has the potential to radically change the direction of politics in the not-so-distant future. New cohorts of voters are demanding action, and the next generation of investors is more concerned with the sustainability of business than their predecessors. There is immense pressure on youth to reevaluate their social mores; unsustainable lifestyles have a growing stigma attached to them, and youth are openly critical of their peers whose purchasing choices are flagrantly unsustainable.

First-time homebuyers are well versed in the efficiency lexicon of buildings, and environmental performance can influence decisions. Likewise, today's youth are far less inclined to purchase cars as their parents did. Young drivers, new to disposable income, are more interested in pay-as-you-go mobility rather than owning depreciating assets. Jobs in the environmental industry are now considered legitimate and increasingly popular career choices, and the business of sustainability is attracting a great deal of young talent away from traditional sources of employment. These changes in the values of consumers are having serious effects on industries that have long been the backbone of the Western economy.

Despite the challenges of navigating the new priorities of consumers, businesses are warming to the opportunities the shift presents. Companies are beginning to offer products directed at this new segment of eco-conscious consumers, from the option to telecommute to creative iterations of mortgages that give homeowners credit for making efficiency upgrades to their homes. Similarly, educational institutions recognize the pending shortage of people trained in green industries and practices, and they are designing a host of new programs to prepare future workers for a "low carbon" or "clean energy" economy.

In addition to creating new products or modifying existing ones to cater to the new priorities of consumers, companies are adjusting internal processes and practices to provide a greener work environment. Key areas targeted for improvement are emissions resulting from business travel, paper use, waste creation, environmental performance of office space, and procurement. Environmental policies have become a serious consideration for a company's potential employees; changes to these policies are often driven by staff requests (see Perspective: Debbie Baxter).

The executives that participated in the Market Leaders Workshop touched upon these trends, indicating that similar discussions about capitalizing on such attitudinal shifts are taking place in boardrooms and lunchrooms across the country.

PERSPECTIVE

Debbie Baxter VICE PRESIDENT
CORPORATE SUSTAINABILITY AND FACILITIES MANAGEMENT
LoyaltyOne

LoyaltyOne, known for its popular consumer rewards program, Air Miles, demonstrates its commitment to sustainability in two ways: through its membership and by answering employee calls for an environmentally friendly corporate culture.

In 2009, Air Miles launched the "My Planet" program, where collectors earn extra points for shopping green. This initiative was designed in collaboration with Terrachoice and with LoyaltyOne's many retail partners. It responds to research showing that customers are more influenced by bonus reward points than other forms of incentives, including cash discounts.

LoyaltyOne has embraced employee-driven change to make the company more green. It has focused on reducing carbon emissions created by business-related travel by implementing a ride-sharing program, offering discounted transit passes to employees, increasing the use of teleconferencing and allowing 15% of employees to work from home up to 95% of the time. LoyaltyOne is also concentrated on moving its offices into LEED-certified spaces . By the end of 2010, 40% of staff will work in LEED-certified offices.

LoyaltyOne recognizes that its customers are increasingly environmentally aware and that purchasing decisions can be swayed to reflect this shift in priorities. Internally, employees of LoyaltyOne are more satisfied with an environmentally responsible work culture. This experience shows that responding to the demands of multiple stakeholder groups is an effective way to make business operations more sustainable, while also building the perceived value of products and employee engagement.

Canada's Reality

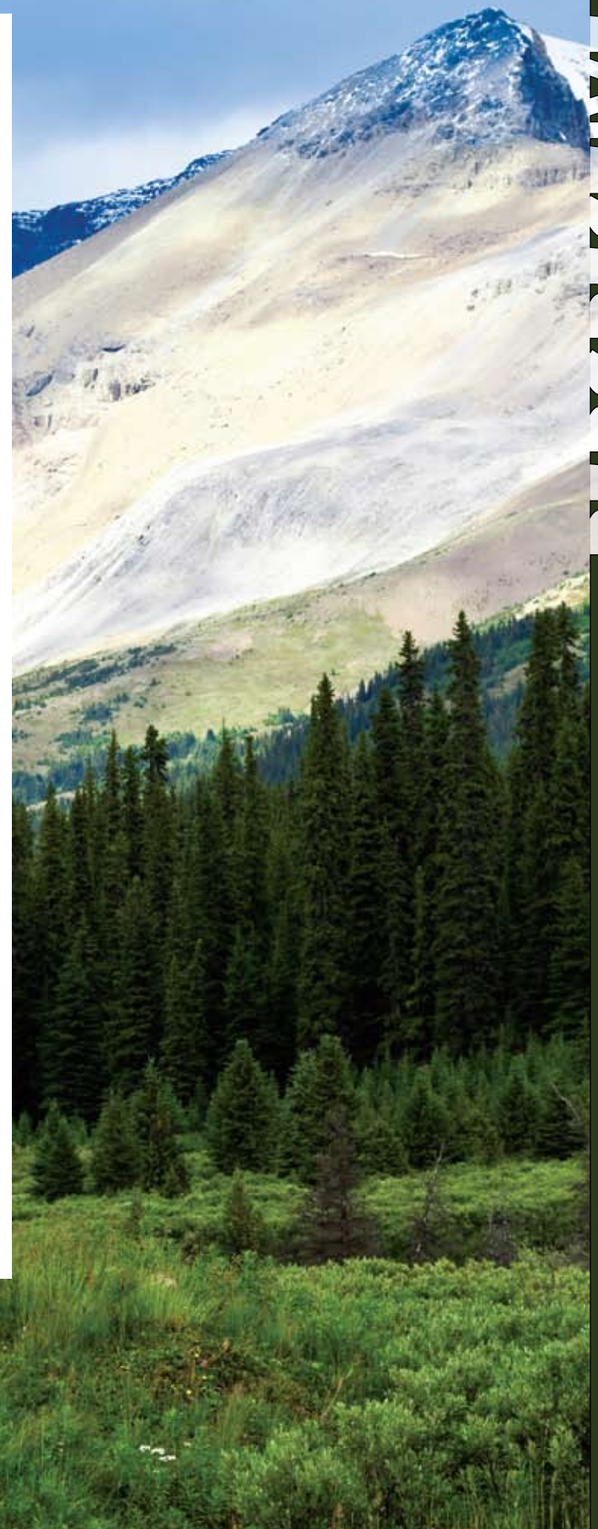
Each country has its own set of parameters to consider when developing new strategies in response to the global issues of our day. In efforts to adapt to climate change, Canada has a particularly unique challenge to overcome: Canada's core industries are carbon-intensive by nature, however our relatively advanced technological state means that there is less opportunity for proportionate improvements in efficiency given currently available processes. Transforming from a resource-based economy into a low carbon economy is a significant challenge for Canada.

Natural resources are the lifeblood of the national economy. Lumber, minerals, agriculture and certainly petroleum products are key drivers of prosperity in this country. These resources are tremendously valuable, and it is in our best economic interest to manage them in such a way that Canadians can reap protracted benefits from them. For decades we have invested heavily in these industries and developed world-class expertise; abandoning profitable resource industries on strictly environmental grounds is not a viable option. Instead, it falls to government and industry leaders to devise strategies for sustainable exploitation of our natural resources and to diversify into new industries that have an inherently lighter environmental footprint.

The energy industry is Canada's largest hurdle, especially with the enormous capital investments already made in the extremely carbon-intensive tar sand operations in Alberta. Demand for oil is rising almost as fast as alarm for petroleum's contribution to climate change. Oil's status as a non-renewable resource leads to expectations that the price of a barrel of oil will be on an upward trajectory over the long term. The challenge for Canadian oil producers is to develop credible and effective technologies to manage emissions. Governments and oil companies are investing seriously in technology research and development to achieve the geological sequestration of carbon as a means of curbing climate change.

The sobering truth about carbon capture and storage (CCS) is that the technology is not yet proven on the required scale and stimulus funding for projects will likely fall short of what this technology would need to be effective. Nonetheless, Canada remains enthusiastic about CCS. CCS is seriously discussed at multiple levels of government as a potential solution to the ecological impact of the tar sands. Natural Resources Canada's C$1 billion Clean Energy Fund to support research in clean energy is heavily weighted toward developing CCS technology, with at least 65% committed to projects of this nature.

All resource-based industries in Canada are looking for ways to reinvent processes and reduce environmental impact, but the country faces other challenges in its broader sustainability strategies. Canada's immense territory affects the set of realistic options for transportation. For example, our small but disbursed population can make rail an unrealistic way of moving people and goods across the long distances between most cities; energy-intensive air travel frequently makes more sense. Likewise, the inhospitable winters of our Northern geography negate the likelihood that residents of cities like Winnipeg will embrace cycling as a year-round mode of personal transportation. Given these facts of Canadian life, solutions like plug-in hybrid electric vehicles, powered by the abundance of emission-free hydroelectricity, or new varieties of efficient and clean aviation fuels, deserve thorough consideration.



PERSPECTIVE

Michael Singleton
PRINCIPAL
SeeLine Group

The move to a low carbon economy is inherently an international initiative and one where the philosophy of "think globally and act locally" clearly applies. In this context, Canada must be seen to be doing both. Our reality is that we are a relatively small economy on the global scale and the kinds of technological investments that are likely implicit in the move to a low carbon economy may be beyond the scale of our economy. That said, the low carbon economy brings unique opportunities to Canada – in particular as it relates to a number of our strengths, including:

- Our unique and proven ability to act as a bridge between North America and Europe and North America and the Far East;
- Our advanced economy, stable political infrastructure, well educated citizenry and multicultural perspective;
- Our strong communications infrastructure, including ubiquitous use of information systems and technologies; and
- Our immense geography and northern climate that serve to both characterize us and remind of us of our obligation to protect our environment.

Building on these strengths, Canada can position itself not only as a safe and reliable place to do business, but also as a place where new and creative ideas will be given real opportunities to thrive. This vision requires a marriage of private sector capability with public sector support and funding.

Recently the Ontario government passed a very progressive piece of legislation focused on developing a green economy. The "Green Energy Act" is intended to jump-start investments in new green infrastructure in the province. Through its use of relatively generous incentives coupled with local content rules, the Act can be expected to garner immediate interest and investments in renewable energy (among other things) in the province. What remains to be seen is the size and nature of those investments. Ultimately, one of the goals is to have large-scale investment in manufacturing in the province, however the relatively small size of the Ontario economy on the global scale will mean that potential investors will still need to have access to international markets. The "think globally, act locally" paradigm shifts to one of "invest locally, sell globally". To realize this vision, local manufacturers will require support for world product mandates and easy access to foreign markets – something that likely goes beyond the specific powers of a provincial government.

The Ontario government has made a good first step in creating an atmosphere that will support and foster investments in the green economy. Ontario could become a launching point for international companies wishing to break into the U.S. market – a place to test new technologies and new approaches to the marketplace. Ontario could also see the development of home grown capability that responds first to the local opportunity and ultimately to a larger international opportunity. In either case, the benefits are multiple and obvious: job creation, economic growth and a stronger environment.

New Models of Collaboration

In order to maximize the potential return from a paradigm shift in planning, design and behavior, we need to adapt our business models. Participants at the Market Leaders Workshop explored a variety of options for rethinking their partnership strategies, and the lesson that emerged was that by expanding the definition of partners, businesses open up new opportunities for low carbon and cost-effective growth.

Public-Private Partnerships

When government and the private sector work together, the results can be fantastic. In North America, we have much to learn from our counterparts across Asia-Pacific and Europe, as they demonstrate the true potential of successful public-private partnerships (PPPs). Although PPPs are not a new concept, the model is worth revisiting as a powerful tool for incenting the private sector to address concerns of the greater social and environmental good.

Compared to Western Europe, Canada ranks low in the proportion of companies in active collaboration with public or other private entities. According to the Canadian Technology and Innovation Council, less than 25% of large companies, and less than 15% of small and medium sized enterprises are taking advantage of partnership opportunities.

Canadians are receptive to the idea of privately tendered contracts for many public works projects like road maintenance or building large power plants, however private operation of some essential services incites great controversy. We seem to be remarkably hostile, for instance, to proposals for private sector management of essential services like water, despite the successful experiences of other countries (see CASE: Australia's Private Water). A culture of collaboration between the business community and government has not yet fully flourished in Canada.

There are legitimate concerns about quality assurance and transparency in PPPs, but much of the opposition to these arrangements is overstated and not validated by the actual experiences of the users of most PPP's products. The Canadian Council for Public Private Partnership rejects criticism from organized labour that PPPs result in job loss and do not have sufficient oversight. Evidence from other jurisdictions more accustomed to joint endeavors indicates that PPPs can actually increase the quality of service due to the separation of responsibility for monitoring quality from delivery of services.

Making PPPs Work for Canada

The Market Leaders Workshop participants expressed a common belief that better public-private partnerships are a mechanism to explore as Canada moves towards a low carbon economy. Businesses recognize the intrinsic value of reducing emissions as part of their preparation for the carbon-constrained environment of the future. They are also anxious to gain a better understanding of the pending policy response to climate change at all levels of government. Meanwhile, governments are searching for ways to cover the costs of the political and physical infrastructure of a comprehensive strategy to address climate change.

The necessary ingredients for building PPP's to manage climate change in Canada clearly exist: an urgent public need and the availability of private financing and ingenuity.

A Natural Fit for PPPs

Transfer of risk is the most fundamental element of a public-private partnership. In an effective PPP, the private entity must be able to capture a commercial return on the capital deployed. While the business of climate change and low carbon economics are in their nascent stage, sometimes making forecasting difficult, there are many creative financing mechanisms that make low carbon strategies economically viable pursuits unto themselves. Government's role as a regulator and a buyer could harmonize with the private sector's ability to provide services and develop products.

The most significant and transformational trend in carbon finance is the evolution of a carbon market. Canadian business leaders are in broad agreement that in order to make real and effective changes to our environmental record, putting a price on carbon is unavoidable. A PPP for the carbon market is distinct from typical PPP models because there is only minimal physical infrastructure involved, but nonetheless there is destined to be substantial government intervention as this mechanism is imposed. Dialogue between public and private entities is needed to streamline the system and regulate to the point where industry is given sufficient policy certainty, especially on the price of carbon, to build confidence in the viability of a carbon market.

The development of large infrastructure is an ideal place for governments and business to collaborate on climate solutions. The transportation and building sectors will require a staggering injection of capital for both retrofitting and new construction to meet the needs of growing populations in a sustainable way. The high capital costs of infrastructure development make these projects excellent candidates for PPPs. Public transit in many cities, such as San Diego and Boston, operates under a PPP arrangement. In the case of public transit, governments have experience working with limited budgets for these very costly projects, while the companies involved in building the physical infrastructure and providing services are able to secure major long-term contracts.

CASE STUDY

Australia's Private Water

As an arid, agriculturally focused country with a growing population, Australia's water concerns are top priority. Widespread campaigns to enhance awareness of water scarcity have been effective at reducing urban water consumption in Australia since 2001, but the increase in irrigation and other industrial uses of water are straining the system's capacity. The local government is keenly aware of the perilous effects if these trends continue, and has been very creative in cultivating a response.

The anticipated capital expenditures on water and wastewater infrastructure for South East Queensland, Sydney and Melbourne alone are over A$12 billion over the next 20 years. Under the Australian Constitution, water management has traditionally been the responsibility of government, but if these costs were to be absorbed by government alone, the strain on taxpayers would be too great to bear.

As seasonal temperature increases regularly set new records, feeding the concern over the increasing frequency of brush fires and droughts, Australians will need to continue to come together through partnerships to respond to growing adversities caused by water shortages. By 2030, the number of drought months in Australia is expected to rise by as much as 20% across most of the country, and by up to 80% in Southwestern Australia. The financial burden of water shortage is tremendous—a 2002-2003 drought was estimated to have cost the country A$10 billion, including A$2.3 billion in government assistance to affected farmers. Responding to risk of this magnitude requires innovative and dramatic action, and recent reforms transfer some of this responsibility to the private sector.

Australians are familiar with the privatization of essential commodities; the gas and electricity industries are open to competition from the private sector, and the result has been much lower costs to consumers. In the case of the transportation industry, service quality improved after competition was introduced to the industry more than a decade ago.

Privatization of the water industry in Australia has been progressive. Prior to the 1990s, almost all elements of the water system were public. Private companies like Veolia Water are now involved in delivering, managing and operating water and wastewater infrastructure, however private operators are still subject to regulation in terms of pricing and quality.

The dire water situation in Australia serves both as a warning and as a model for global leaders to prepare for extreme circumstances by engaging with more diverse partners. Australia's experience in the water industry indicates that private companies can be active participants in reaching long-term public goals.

PERSPECTIVE

The UK Low Carbon Transition Plan

Francisca Quinn

BUSINESS MANAGER & SUSTAINABILITY PRACTICE LEADER

Loop Initiatives

Since the establishment of the Climate Change Levy in 2001, the U.K. Government has introduced a long list of proactive climate change measures, targeting its 2020 34% and 2050 80% carbon emission reduction goals. On July 9, 2009 The U.K. Low Carbon Transition Plan was published, a five point plan to meet the carbon budgets outlined in the Climate Change Act of 2008. This plan is an integrated approach that outlines more than 40 major climate change policies and their anticipated impacts across the economy 2008-2022, covering the first 3 carbon budget periods. It allocates responsibility to each government department, making it necessary for them to adapt their decision making to climate change regulation. Each government department is given a carbon budget for the part of the economy that their policies affect and must publish their own individual plans how to meet the budgets by spring 2010.

The Low Carbon Transition Plan will radically transform the U.K. economy. By 2020 it is anticipated that:

- 1.2 million Britons will be in green jobs
- 7 million homes will have benefitted from green makeovers
- 1.5 million households will be supported to produce their own clean energy
- 40% of electricity will be from low carbon sources
- Natural gas imports have been cut in half
- An average car will emit 40% less than now

A major implication is that businesses need to create their own plans to manage this transition. They will have to adapt their decision making to new regulation and understand how to exploit the opportunities that climate change creates in the transition. At a minimum, it is essential that every firm understand the investment it would need to make to achieve different levels of energy efficiency, to install different amounts of on-site renewable energy and to reduce different volumes of their process emissions.

Companies that consume large volumes of electricity may see electricity prices rise by 20% and natural gas prices rise by 35% from today's level by 2020. Cost effective energy efficiency measures can mitigate much of this, at least in the short term. From 2010, large organizations will need to pay for the carbon emissions from the energy they consume through the Carbon Reduction Commitment at approximately $25/tCO2. The money that companies spend to adapt to these changes will be refunded in proportion to a company's position on a "carbon reduction league table". Companies will also be paid for installing onsite electricity.

Companies that operate buildings may feel the impact of gradually tightening building regulations. New 2010 building regulations will require all new buildings to be 25% more energy efficient compared to the 2006 regulations and 44% more efficient by 2013. New non-domestic buildings will have to be zero-carbon by 2019 and companies will begin to see an increased use of energy performance certificates and be expected to display energy these certificates at point of sale.

Companies that produce energy intensive equipment may find that customers will become more sensitive to energy consumption through smart meters and energy performance labels and certificates. Manufacturers will need to prepare when the number of products that must achieve energy performance standards will increase as the E.U. European Energy Using Products directives expand their coverage. In addition, companies that produce waste or operate waste disposal facilities will see an increase in the types of products banned from landfill (such as food and agricultural waste) and could be mandated to install methane capture technologies.

The transition will create opportunities for new growth and new jobs through the development of renewable energy technology and new energy infrastructure, with billions of dollars being allocated to incentive schemes, research and other government support. The cost of carbon emissions applied to more companies will increase the pressure to invest in energy efficiency and low carbon initiatives. Energy performance certificates on properties will also increase the motivation for landlords to invest in equipment and buildings.

Sources: HM Government "The UK Low Carbon Transition Plan, National strategy for climate and energy", 2009; The Carbon Trust "Carbon Trust Briefing: Plan for meeting the Carbon Budgets", 2009.

Cross Sector Collaboration

Often, the most revolutionary products come from ideas originally conceived for a different purpose. For example, when the Chinese invented gun powder, they were trying to make fireworks. When vast reserves of oil were discovered beneath the Saudi Arabian desert, prospectors were hoping to find stores of fresh water. Preparedness and creative thinking can turn these accidental discoveries into economic powerhouses and axes of market transformation

Building on this idea of repurposing discoveries, there is great potential for businesses operating in previously unrelated sectors to find common ground on environmental issues. (See CASE: Innovation Makes for Strange Bedfellows). For example, Nike has designed materials for running shoes that could be used by tire manufacturers to extend the life of their products, thus alleviating pressure on the waste management industry.

Sustainability is driving new models of collaboration in the marketplace. Such collaboration is very quickly becoming the norm in jurisdictions with a culture of innovation (see Figure 1).

As the concept of Partnered Innovation takes hold, Canada has much to gain by more fully embracing its approach and reaping its innovation benefits (see Figure 2).

Figure 1: Innovation Awards for U.S. Private, U.S. Public and Mixed, Foreign Organizations

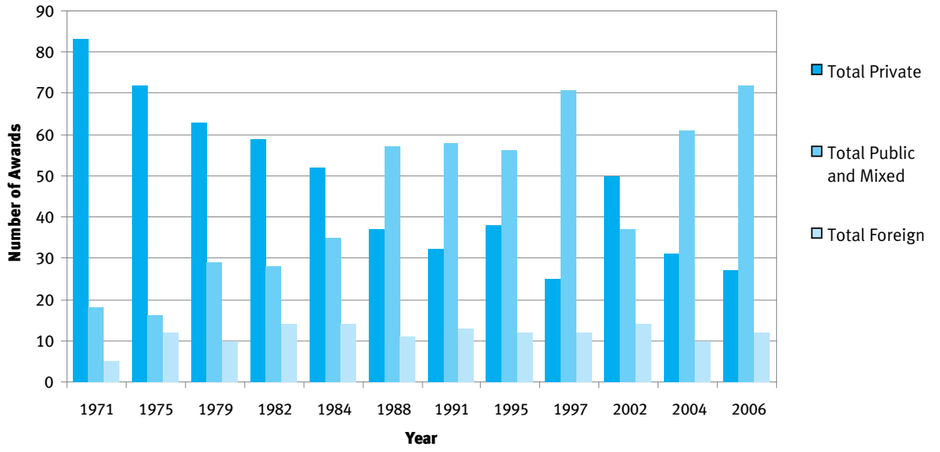
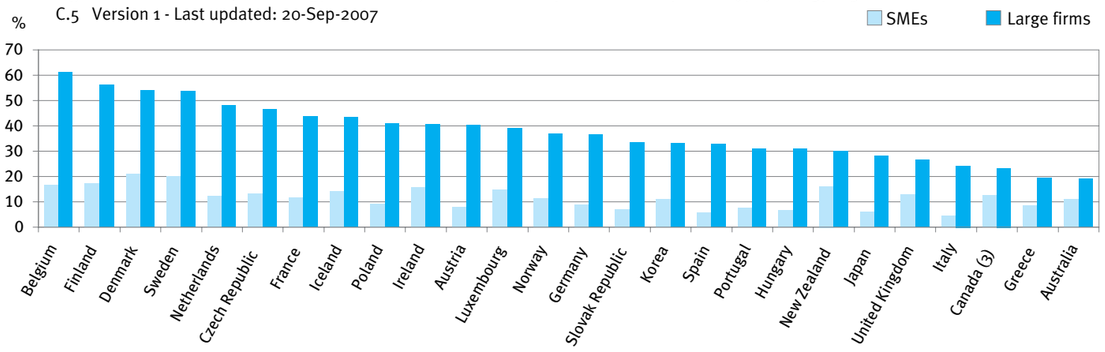


Figure 2: OECD Science, Technology and Industry: Scoreboard 2007 - OECD © 2007 - ISBN 9789264037885
C.5 Version 1 - Last updated: 20-Sep-2007



CASE STUDY

Innovation Makes for Strange Bedfellows

To be competitive in today's rapidly changing economy, business must be adaptable, and that means reaching out to new partners in industries previously deemed unrelated, and therefore void of opportunities. The rules of the 20th Century's business community are less applicable in a world of instant information, often available for free. Changes in the application of an attitude toward intellectual property have evolved, exposing businesses to new risks, but also opening the doors to unprecedented opportunity.

The World Business Council for Sustainable Development (WBCSD) launched the Eco-Patent Commons to serve as a forum for exchange of ideas between companies. Participating companies pledge one or more non-strategic environmental patents to the commons for free. Other companies are then able to search the database for relevant technology. Current members include industry heavy-hitters like IBM and DuPont.

The Eco-Patent Commons idea has been adopted by Creative Commons , a not-for-profit organization focused on leveraging the creativity of companies while still respecting intellectual property provisions. It facilitates and mediates collaboration and provides information on a series of legal mechanisms that are appropriate for a business environment where information sharing is the norm. This organization has partnered with the athletic apparel brand, Nike, and the electronics retailer, Best Buy, to create an initiative known as Greenxchange.

Similar to Eco-Patent Commons, Greenxchange is a sharing initiative where companies can make their environmentally focused intellectual property available to the masses. Greenxchange is a more complex mechanism than the WBCSD's tool. Users of Greenxchange are required to register to keep track of the use of technology. It is also possible for contributing companies to charge a licensing fee for the use of their patent, or to screen interested licensees to protect competitive advantage.

The willingness of companies from such a variety of industries to form these coalitions is proof positive of the green movement's pervasiveness. It is also a model for how innovative ideas can be shared across sectors, advancing the state-of-the art in non-competitive industries, and enhancing returns for multiple parties simultaneously. As more new models of collaboration are born, participating companies may have to retool internal processes so that legal, R&D and sustainability groups work more closely to create value. In this way, external collaboration begets more internal collaboration and magnifies the associated benefits.

Astute businesses will find that the increased quantity and quality of information in the public domain is full of opportunity. The challenge lies in establishing strategic partnerships that extend the application of core competencies and creative ideas, while ensuring proprietary information is protected. A truly growth-focused economy seeks to replace incremental improvements with exponential growth. Open innovation can accelerate that process.

Breaking Down Borders

In the context of most environmental problems, international borders are artificial. As we know, GHG emissions, air pollution and other challenges cannot be contained by political parameters. So why do international borders play such a central role in the debate over solutions? If PPPs, intra-industry and cross-sector collaboration supplant traditional models of business and policy, could we also reinvent the way national interests interact with each other in their response to environmental issues? Would federal governments be more effective in achieving simultaneous economic growth and environmental protection if the business community were more engaged in their international activities?

There are numerous examples of consortia of national governments working toward solutions for shared environmental issues. In North America, the Commission for Environmental Cooperation complements the North American Free Trade Act and works to enforce environmental law in a regional setting. The European Union has centralized many aspects of environmental policy, and the environment is a top priority at the United Nations. These organizations are important for their role in synchronizing policy, however the national level is in many cases not the most effective forum in an environmental or economic context.

To illustrate, consider the "smart grid." The smart grid could be an effective platform to demonstrate the potential value in dismantling international barriers and using PPPs to achieve greater economic and environmental efficiency. Utilities, government regulators, private investors and IT firms must work collaboratively to design, build and monitor an interactive and highly efficient electricity system. Components of the smart grid, such as the ability to maximize the share of renewable power in the electricity mix at times when this power is generated in excess, need not be restricted by political boundaries.

Governments are under immense time pressure to roll out comprehensive strategies for combating climate change. Meanwhile, the rapid proliferation of technology (especially technology that enhances efficiency) is one of the fastest ways to make measurable progress on reducing emissions. According to analysis by HSBC's Global Research division on green stimulus spending , 66% of government funds for environmental projects will be allocated to efficiency measures,* spurring huge demand for high-efficiency products. Removing trade barriers on environmental technology would stimulate the economy, give further support to the sense of global responsibility for climate change and allow consumers to participate in the solution. Fostering these positive feedback loops is critical to a successful outcome of economic stimulus programs.

* Robins, Nick, Robert Clover and Charanjit Singh. "Building a Green Recovery." HSBC Global Research, May 2009.

PERSPECTIVE

Laurent Tainturier
PRESIDENT
BASF Canada Inc.

In order to find real avenues for change and have real results, we need to work with new models of cooperation. Accelerating development toward a low carbon economy will only come from the joint effort of the public and the private sectors.

Opportunities for collaborating in new ways come in many varieties. At BASF, we started by breaking down the "silos" internally and increasing collaboration between the different business divisions of our own organization. This collaboration is giving us more sophisticated insights into how we can create customer-oriented solutions to enhance our energy efficiency.

The chemical industry serves a wide range of other industries, and we see the need to maximize the cooperation of the different stages of the value chain within each sector. Developing low carbon solutions will work better if we can align the approaches of multiple players in the chain. For example, the R&D team should be in communication with the marketing department throughout the process.

Beyond new models of cooperation between and within industries, the cooperation between industry in general and other stakeholders—public authorities, associations and communities—is also important. We need to make sure that everyone has the same understanding of what a low carbon economy could be in order to prepare our actions.

Quantifying Action

Climate policy and low carbon economics are evolutionary, and that is both their blessing and their curse. Arranging existing climate change frameworks in a logical way that also supports the vision for a new system is a necessary yet complex task. Reliable standardized measurement tools will facilitate this process.

A Moving Target

The public's mounting frustration over inconsistent information and fears of "greenwashing" are entirely legitimate . Environmental issues often incite great emotion in people. There is a tendency to make bold claims about the merits and drawbacks of various proposed solutions, but Laurent Tainturier, President of BASF Canada Inc. notes that too often these statements are divorced from scientific analysis. Further complicating the information landscape, the amalgam of programs and green claims are fragmented and seem to at best overlap and at worst contradict one another.

The proliferation of labeling and certification programs is indicative of the drive to legitimize sustainability. There are ancillary benefits to these efforts, such as the enhanced consumer awareness that was created by widespread adoption of programs such as the Energy Star label for household appliances or LEED for buildings. Labeling and certification programs are a useful way to educate and engage a wider base of consumers, but their utility as a mechanism for comparison is woefully inadequate.

There is a need for comparison at every level—from the complex task of building a "green" city (see CASE: Race to the Bottom) to the efficiency of a light bulb. Developing metrics and benchmarks for key indicators is a critical first step. This must be done at the very least at an industry level. The broader the participation in these regimes, the more credibility they will have.

A Common Language for Proactive Dialogue

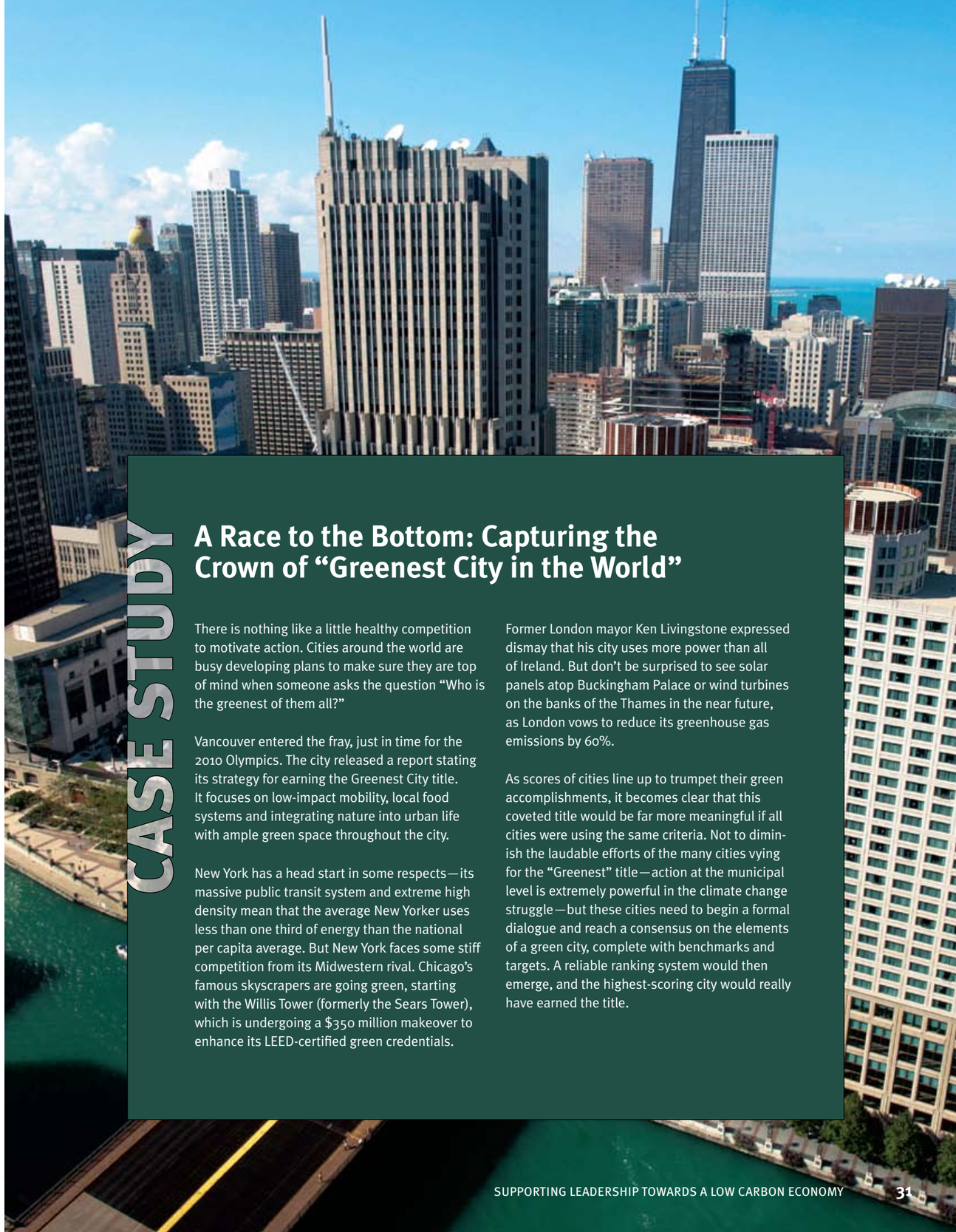
The Market Leaders Workshop proceedings focused heavily on the challenges and benefits of establishing useful and universally accepted metrics. The participants explored the theory that framing low carbon economics in a common language would be a first step in developing a universal set of metrics.

Buildings were cited as a useful example because of their universality, their massive contribution to the climate problem, and their tremendous potential as a source of greenhouse gas abatement. In many ways, the building industry is leading the charge to create metrics that are universally understood. At the 2009 Greenbuild conference in Phoenix, Arizona, consensus was reached on carbon measurement for buildings through a single metric, approved by the UN Environment Program's Sustainable Building and Climate Initiative. This groundbreaking achievement will improve communications across "building rating tool" providers and will pave the way for other industries to follow suit .

Carbon itself is another consideration as the foundations of a common language. Carbon has already infiltrated public discourse and understanding of it as a unit of measurement is growing. The advantage to using carbon in these terms is that it is easily commoditized, and indifferent to the location where it was produced. Yet it remains an intangible product, and the public may relate to something more concrete (like buildings) with greater ease.

According to Ted Simpson at Philips Lighting, "a simplified language would allow more stakeholders to join the discussion; jargon-heavy dialogue alienates people and causes them to disengage." Climate change is a global issue and framing it in terms that are relevant to more people aids the creation of a global solution.

PHILIPS



CASE STUDY

A Race to the Bottom: Capturing the Crown of "Greenest City in the World"

There is nothing like a little healthy competition to motivate action. Cities around the world are busy developing plans to make sure they are top of mind when someone asks the question "Who is the greenest of them all?"

Vancouver entered the fray, just in time for the 2010 Olympics. The city released a report stating its strategy for earning the Greenest City title. It focuses on low-impact mobility, local food systems and integrating nature into urban life with ample green space throughout the city.

New York has a head start in some respects—its massive public transit system and extreme high density mean that the average New Yorker uses less than one third of energy than the national per capita average. But New York faces some stiff competition from its Midwestern rival. Chicago's famous skyscrapers are going green, starting with the Willis Tower (formerly the Sears Tower), which is undergoing a $350 million makeover to enhance its LEED-certified green credentials.

Former London mayor Ken Livingstone expressed dismay that his city uses more power than all of Ireland. But don't be surprised to see solar panels atop Buckingham Palace or wind turbines on the banks of the Thames in the near future, as London vows to reduce its greenhouse gas emissions by 60%.

As scores of cities line up to trumpet their green accomplishments, it becomes clear that this coveted title would be far more meaningful if all cities were using the same criteria. Not to diminish the laudable efforts of the many cities vying for the "Greenest" title—action at the municipal level is extremely powerful in the climate change struggle—but these cities need to begin a formal dialogue and reach a consensus on the elements of a green city, complete with benchmarks and targets. A reliable ranking system would then emerge, and the highest-scoring city would really have earned the title.

Metrics

Developing metrics is yet another opportunity for cross-sector collaboration. The scientific community, spearheaded by the United Nations' Intergovernmental Panel on Climate Change has completed exhaustive research on the subject. Various measurement tools could be based upon this publicly available data, thereby ensuring universality and impartiality.

Government-led regulation of industry often features measurable standards. The automotive industry in the United States is subject to the CAFE (Corporate Average Fuel Economy) standards to measure the efficiency across the entire line of products of a single company. Enacted by Congress in 1975, this program was a response to the 1973 oil embargo and part of a suite of policies to make the nation more energy independent. The CAFE program has since been championed by environmentalists as a tool for reducing transport-related emissions. There are benefits of such a simplistic measurement, such as transparency, ease of enforcement and international compatibility. In fact, the bulk of criticism of the CAFE standards has been that they are either too strict or not strict enough, not that they measure the wrong things or are open to subjectivity. Despite inevitable disagreement over the degree of prescription, this is yet another replicable model that could be adopted by other industries.

Self-imposed standards and accreditation programs are an alternative to government regulation. Industry-specific measurement tools are beginning to take shape in some areas. Programs in the building sector around the world, such as LEED and BREEAM, GreenStar, CASBEE, DGNB Certificate, and others are growing in popularity and uptake (see CASE: Green Building Rating Tools). The experience of the building sector demonstrates that it is often most natural to develop metrics through industry expertise at the regional level.

Industry professionals have the most detailed and nuanced understanding of the unique sustainability challenges and opportunities of their sector, but reaching a consensus within an industry can be very difficult. Consultative processes in which major industry players have significant input into these self-imposed regulations can help manage this reality (See CASE: Packaging Sustainability). However, broader initiatives that establish sustainability priorities, standards and targets spanning multiple sectors are still needed.

CASE STUDY

Green Building Rating Tools

The global property industry has experienced an important shift over the course of the past decade thanks to increasing recognition of building performance rating tools (such as LEED, BREEAM, Green Star, etc.) in the marketplace. Rating tools have effectively drawn attention to the potential for reduced energy consumption and GHG levels through improved building design. This has allowed for market innovators to emerge and drive the transition away from 'business as usual' approaches to construction.

The real estate industry is deeply affected by the sustainability trend in building construction. Although capital costs tend to be higher for "green" buildings, owners are finding that they can promote certification through quality of design and performance cost savings as a differentiating feature. Tenants are actively pursuing office or residential space that can prove its environmental credentials through these recognizable programs, and landlords can therefore charge more for the right to lease these properties.

Rating tools are administered through Green Building Councils (GBCs). GBCs are industry-led organizations that advocate green building practices and provide support to this growing industry. In addition, GBCs often work with governments to facilitate the development of policies specific to sustainability in the built environment. GBCs are an important link between the various stakeholders in the building and environment sectors.

The construction and real estate industry, though actively making use of these tools, are frustrated by the inconsistencies between the different systems. Recognizing this shortcoming, the UK-based Building Research Establishment (BRE) in partnership with GBCs in the United States, the U.K. and Australia undertook an unprecedented initiative in early 2009 to develop a common carbon metric across BREEAM, LEED, and Green Star rating tools. This metric will allow for the measurement of carbon emissions from certified green buildings and eliminate a major source of discrepancy and confusion surrounding building performance ratings. This initiative is an important first step in support of market transformation across the construction sector. International collaboration between these market leaders will result in benchmarking tools that will allow delegates at the United Nations Framework Convention on Climate Change to recognize areas of potential carbon savings through city buildings. If collaboration proves successful, the next step will be to look at other opportunities (such as water use and treatment) to establish further international benchmarks.

CASE STUDY

Packaging Sustainability and Industry Collaboration

Packaging plays an important role in ensuring product integrity in consumer goods, safety in pharmaceutical products and longevity in food products. However public perception of the packaging industry is increasingly one-sided concluding only that it generates unnecessary waste. Comprised of the world's largest consumer packaged goods and retail companies such as Procter & Gamble, Tesco and Wal-Mart, as well as their suppliers, the Global CEO Forum is actively working to change this image.

For instance, the goal of the Global Packaging Project, an initiative of the CEO Forum, is to develop a set of universal metrics that are well documented in terms of their relevance to packaging, the algorithms and methodologies used to calculate them and guidance for the type of information needed to support them. This has the potential to create useful guidance for the supply chain and contributes some much-needed standardization to a global industry with a complex value chain. Such an approach is progressive in its focus on full lifecycle analysis of the environmental, social, and economic impact and benefits of packaging.

The collaborative spirit demonstrated by the members of the Global CEO Forum indicates industry's preparedness for change. The Global Packaging Project embraces a consultative approach, and is working with others to ensure that the multiple metrics required to measure the sustainability of packaging reflect the best knowledge and practices available.

The Sustainable Packaging Coalition (SPC), an initiative of the environmental not-for-profit group, Green Blue, undertook a detailed 18-month study of over 50 sources of sustainability metrics to determine those most applicable to the packaging industry. And with SPC being one partner of the Global Packaging Project (GPP), the outcomes of the SPC initiative are used as a basis and to fuel further development in this collaborative approach.

The GPP exemplifies the complexity of developing appropriate metrics to measure sustainability. It is also a model that could be replicated in other industries with a real commitment to lighten their environmental footprint and improve their sustainability performance.

In working on complex systems like metrics, it is clear that collaboration can help transform markets and, a corollary benefit, help market the transformation.

Tools for an Adapting Market

The Market Leaders reached a consensus during the Workshop that the time for change is here, but there was also a unified sentiment that some of the elements of a true market transformation were lacking. The key components of a low carbon economy—technology, policy, public support and financing—are incomplete in today's market. However, there are existing tools that can be further developed and leveraged effectively.

Ideas to Action

A low carbon economy needs low carbon physical attributes. Large-scale infrastructure development to serve a low carbon future is often best managed by PPPs, but how can the activities of thousands of SMEs contribute to reducing emissions while enhancing prosperity? Many small companies do not have the capacity to manage government contracts for infrastructure projects, however their products could nonetheless be useful in reducing emissions and bolstering the economy.

Good ideas come from many places, including university laboratories, R&D departments at companies of all sizes, and discussions at conference such as the Market Leaders Workshop, but turning an idea into a saleable good is risky. The research and innovation spectrum needs mechanisms to encourage people to take these risks and develop the next generation of green technology.

In Canada, there are gaps in the research-to-commercialization spectrum, particularly at the demonstration stage. NGOs and some government agencies such as the Ontario Centres of Excellence (OCE) and Sustainable Development Technology Canada (SDTC), and the organizations working at the MaRS Discovery District in Toronto have programs in place to fill these voids and support early-phase research so that more technologies survive to the point where an investor is willing to acquire them and bring them to market at scale. While OCE and SDTC and MaRS are lauded for their efforts and achievements, many of the technologies they support are only now coming to market, even after many years of direct support.

In sectors as diverse as zero energy housing and water, discussions are afoot about the need for demonstration projects. New technologies and new processes require testing, fine-tuning and promotion. Demonstration lends credibility to innovation, mitigates risk and helps promote new initiatives.

Examples abound of demonstration sites in Canada and abroad (see Perspective: Paul Golini), however they also suffer from a disjointed approach. Better promotion of these initiatives would enhance public understanding of the environmental problems green technology is capable of addressing, while a systematic approach to building and operating demonstration sites would ensure transparency of the environmental performance of competing technologies.

Technological development is a critical component of economic recovery and of managing our environmental footprint. It is also a tangible, measurable step in the drive for a low carbon economy. Past technological revolutions, from the invention of the automobile to the creation of the Internet, provide lessons for a green tech revolution. Going forward, the research-to-commercialization continuum must be strengthened and reoriented to focus on low carbon innovations. Technologies that can conserve energy and reduce GHG emissions need to be adopted by the marketplace in a very short period of time. Adoption strategies will need to have funding to support marketing and communications efforts and better public relation opportunities to ensure return on investments and encourage consumer confidence.

PERSPECTIVE

Paul Golini Jr. CHAIR ELECT
BUILDING INDUSTRY AND LAND DEVELOPMENT ASSOCIATION (BILD)
& EXECUTIVE VICE PRESIDENT
Empire Communities

The Toronto and Region Conservation Authority (TRCA) is a regulatory agency that provides an active role in the planning and development of the Greater Toronto regions, with a primary focus on protecting the health of the watersheds that flow into Lake Ontario. The organization also operates the majority of the natural parks around Toronto. The TRCA had a vision to build the “Archetype House” at their Kortright Centre for Conservation, a public access site that is already recognized as the location for Canada’s largest renewable energy training centre. The Archetype House was imagined as a demonstration site for low-impact residential building.

In 2006, the TRCA launched a national competition for the design of a green home that could be used to influence production builders across Ontario. Seventeen teams from across Canada submitted designs; the winning design was chosen in 2007. The next step was to build the project to demonstrate affordable green home opportunities.

In implementing their vision, the TRCA faced a sizable problem: they needed a partner to lead the construction process and engage the building community. They found this partnership in the Building Industry and Land Development Association (BILD). For years, BILD has been recognized as the largest local homebuilders association in Canada.

The project is now complete and the workshops and tours are regularly at maximum capacity, but the collaboration between these two well-established organizations is the real success story. For the first time, the leading environmental organization in Ontario partnered with the leading home building association to demonstrate an effective opportunity for the local construction market. Both sides believe that the Archetype House project is only the first of many leadership projects to be developed together. Insight and confidence developed through this collaboration sets the stage for what is possible in the coming years, in the building industry and beyond.

Innovation Priorities

In stark contrast to the general apprehension between government and business, participants at the Market Leaders Workshop repeatedly called for immediate and comprehensive government policy for the environment. Industry has recognized the need for government oversight in this arena and is anxious for clear policy directives that will guide business decisions.

The division of green stimulus spending indicates that governments are starting to establish a hierarchy of priorities. Efficiency is the most valuable “low-hanging fruit” of low carbon economics, both financially and in terms of its environmental returns. Efficiency overarches many other areas where governments and businesses see environmental gains.

Subsets of efficiency that are garnering attention for their dual environmental and economic payoff include building retrofits and information technology. Buildings, thought to account for up to 40% of greenhouse gas emissions in developed countries, have an abatement potential of up to 30% by 2030, compared to business-as-usual projections. According to a recent McKinsey report on low carbon prosperity, such potential can be realized through the widespread adoption of advanced efficiency technology. This report anticipates that the specific actions that will have the largest impact include replacing ageing HVAC and water heating systems with high-efficiency models, improving the air-tightness of the building envelope on existing structures, and installing low-energy appliances and lighting. In order to achieve maximum abatement, relevant and enforceable policies must be instated to support these changes to the building sector and to help defray the increased capital costs of adopting high-efficiency components of buildings.

Grid electrification, arguably one of the most transformative innovations in history, has been a primary driver of robust economic growth in the developed world. However, this infrastructure is antiquated and no longer able to keep up with the demands on it. We need to harness the sophisticated capacity of information technology applications to overhaul our primitive grid. Greater interactivity between energy providers and energy users will enable policy makers and businesses to reorganize price signals in such a way that they incent conservation of energy and deter wasteful use, as well as increase the role of renewables in the energy mix. The all-encompassing nature of electricity use makes the “smart grid” and excellent tool for dramatic changes to our energy consumption patterns.

Future Ready

The potential return on investment in building and electricity sectors is extraordinary. It is surprising, then, that these areas receive so little attention compared to industries which experts agree have very little potential as possible cures to our climate ills. For example, the ailing North American auto industry was the beneficiary of tens of billions of dollars of federal aid in 2009, as its largest players teetered on the brink of bankruptcy. These injections of cash come with conditions that recipient companies must invest in producing more efficient vehicles. Similarly, much fanfare has surrounded potential gains from carbon capture and storage—a process supported by the oil, gas and coal industries, all of which are under intense scrutiny for their energy-intensiveness and high emissions.

Investing in the next generation of automobiles or in methods to extend the longevity of fossil fuel based industries is both costly and risky. Alternatives are needed but must be managed through an effective stepped approach as quickly as possible. The 21st Century requires new mobility solutions, power produced from closed-loop systems, and support by decentralized supply systems. If we are going to undertake high-risk and expensive research and development, it should be focused on investing in the future rather than salvaging the past.

The executives in attendance at the 2009 Market Leaders Workshop embraced this forward-looking approach, evident in their broad enthusiasm for new models of collaboration and willingness to share their visions for a low carbon economy.

Finance

The most commonly used argument against taking dramatic action to combat climate change is that the cost will be too high and the return uncertain. Undeniably, action on the scale needed will not come without a cost. The widely cited Stern Review states that the cost of action strong enough to stave off the worst effects of climate change would be approximately 1% of annual global GDP. A concern among global leaders is that commitments to meet this target would be unevenly distributed.

However, Lord Nicholas Stern's analysis also notes that the cost of inaction is estimated to be equivalent to losing a minimum of 5% and up to 20% of global GDP, every year, "now and forever." Furthermore, there is mounting evidence that investing now will not only save money in the future, but will put our economy on an aggressive growth trajectory as our climate warms, our population grows and our available resources dwindle.

In the near term, we need financing mechanisms that encourage conservation, cultivate partnerships and absorb risk for research and development of low carbon technology demonstration and implementation.

A carbon market is indiscriminate—all businesses and individuals will be affected when carbon is commoditized. As such, a well-designed market will be able to impact behaviour by penalizing excessive consumption and rewarding efficiency improvements. This institution will play an important role in quantifying the effects of resource use, but it must be complemented by more specific strategies for financing a low carbon economy.

Strategic government spending will be necessary. This may be provided in the form of grants, tax incentives or loan programs. Increasing the budgets of government-funded not-for-profit organizations in the environment space is another means by which governments can promote the development of low carbon products and ideas.

Taxes are the most straightforward mechanism available to governments to influence behaviour. Within some jurisdictions, there is still discussion about the possibility of using a carbon tax to combat climate change. Businesses recognize that information is power as this policy debate unfolds, and they are closely following updates on potential government decisions in this area.

The private sector has various tools at its disposal as well. The housing industry is exploring ways to reorganize mortgages to promote low impact buildings (see Perspective: Mark Salerno). The current incentive structure in the power sector, where revenues are directly related to the quantity of power consumed, is in contradiction to conservation objectives. This system could be redesigned to disconnect consumption and revenue.

PERSPECTIVE

Green Mortgages

Mark Salerno NATIONAL SALES TEAM LEADER
MUNICIPAL INFRASTRUCTURE LENDING PROGRAM
Canada Mortgage and Housing Corporation (CMHC)

Buildings are responsible for up to 40% of greenhouse gas emissions. Meanwhile, buying a home is the largest investment most individuals will ever make. To unify the GHG abatement potential embedded in buildings and the major financial responsibility of homeownership, the housing industry is exploring ways to utilize existing mortgage financing rules to capitalize the incremental costs associated with low impact buildings.

Lenders use the Gross Debt Service (GDS) ratio as a basic affordability rule for mortgage qualification. Essentially, monthly housing costs should not be more than 32% of gross household monthly income. Housing costs include monthly mortgage principal and interest, taxes and heating expenses — known as P.I.T.H. for short.

Lenders, developers and design professionals are beginning to recognize that through design and use of appropriate technologies, a home can actually increase revenue for the homeowner. This can be achieved through improvements like installation of an on-site/grid-tied renewable energy system with a Feed-In-Tariff Contract from the Government of Ontario. At the same time, the homeowner can reduce heating costs with a tighter building envelope, increased insulation, more efficient appliances and mechanical systems, solar thermal preheat, and other efficiency measures.

These approaches attack both sides of the equation and have the net effect of increasing the mortgage amount for which one can qualify, and therefore allow a purchaser to actually capitalize the incremental cost of those very upgrades.

↑ 32% Gross Monthly Income = ↑ Principal + Interest (Mortgage) + ↓ Taxes + ↓ Heating

The mortgage industry has other notable inducements, incentives, grants and rebates that further enhance this scenario. One example is the CMHC GreenHome Product where a purchaser will receive a 10% rebate on Mortgage Loan Insurance for the purchase of energy efficient housing (meeting a particular energy target) as well as a waiver on premium surcharges associated with longer amortizations (such longer amortizations may be necessary to allow qualification given the current greater cost of green housing). Other incentives exist for upgrading existing housing including grants tied to specific efficiency measures, tax credits, etc.

Financial products are areas of opportunity to quantify the value of efficiency and sustainability and to enhance people's ability to make environmentally responsible investment decisions.

Low Carbon Prosperity for Canada

As one of the wealthiest countries in the world, Canada has both greater responsibility and greater capacity to take action on climate change. It is important to note that the developing global response to climate change as coordinated through the United Nations could place a heavy burden on Canada's financial resources. We need to be ready to embrace our commitments and in turn, benefit as a nation from the leadership we can provide.

Furthermore, stewardship of our surrounding environment is a matter of culture as much as it is of economics or ecology. Canada is very much defined globally by our natural riches. The quality of our expansive land is integral to Canadian identity; it is also the cornerstone of our resource-based economy. Canadians have a deep and long-term interest in protecting this natural heritage and also our ability to prosper from it.

Scientific consensus indicates that we must take action now, and the longer we wait the more difficult and costly it will be to manage the effects of our carbon-based legacy. Working within this ever-shortening timeframe requires us to leverage existing resources in addition to building new capacity.

Where Can We Lead?

Canadian research capacity is unparalleled worldwide. This feature is a tremendous asset in the face of a challenge as complex as climate change. We need to maximize the output of quality research in the energy and environment area at Canadian academic institutions to bolster our chances of success. Canadian researchers are able to position their work to take advantage of the groundswell of interest and the feeling of collective responsibility to combat climate change around the world. Countries where the technical expertise is not as advanced as it is in Canada, but where governments are nonetheless committed to taking action, could prove to be huge markets for exports of homegrown green tech.

Canada's consultative culture is another asset that could be useful in meeting the environment and economic challenges we face. While there is room for improvement in Canadian PPPs, the general willingness of Canadian companies to communicate with one another gives domestic industry an advantage in implementing the new models of collaboration that fit the needs of a more integrated global economy. The participants at the Market Leaders workshop—all prominent business decision makers with a common interest in sustainable growth—exemplified this Canadian trait. Participants were forthright about the challenges faced by their industry or company, and also about the changes they see as most needed and most feasible. If honest dialogue is missing from the global climate debate, the world could learn by observing Canadian business leaders.

Good to Green

The vocabulary that has developed to describe the modern environmental movement, anchored by climate change and sustainability, has made its way into mainstream dialogue. This is a significant sign of progress. It shows that people are willing to evaluate these ideas through the lens of their business practices and lifestyles.

The productive and pro-active discussion at the Market Leaders workshop indicates that more of this kind of event is needed. More frequent and formalized opportunities for informed people to articulate their vision for a sustainable future and to share best practices is a critical step to taking real action. Another critical step is reframing the dialogue. (see Perspective: Gord Kerr)

Broad reaching buy-in to the green movement, founded in a solutions-oriented approach, validates the incredible focus on sustainability in government stimulus spending, as well as industry's efforts to reduce its ecological footprint. The path forward includes: actually creating and using performance and benchmarking metrics; removing financial and policy barriers to clean technology development and deployment; ongoing evaluation of policies and consumer demands; and encouraging collaborative approaches and information sharing.

PERSPECTIVE

How Does Canada Participate in the Low Carbon Economy?

Francisca Quinn BUSINESS MANAGER
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Loop Initiatives

Following the U.S., Canada has the second largest carbon emissions per capita in the world. The footprint is largely driven by energy demands from buildings, transport and industry. While emissions from many developed countries have stopped growing, Canadian carbon emissions have risen 24% since 1990, the baseline for Kyoto protocol compliance, leaving it 30% short of its 6% Kyoto reduction goal.

Also noteworthy are the positive economic developments that carbon emissions reduction policy is driving across the world. The low carbon economy is a fundamental engine behind value-added industry change. It is creating innovation, "green" jobs and new export industries. It is putting a focus on resource efficiency and supply chain transformation. China is now the largest manufacturer of wind turbines in the world after Denmark, a small European country with long-standing green energy incentive programs, which has held this position for the past 10 years. Large, multinational companies are revealing cost savings obtained from carbon management strategies and supply chain partnerships. Progressive power utilities and oil and gas producers are investing in future energy solutions, recognizing that their traditional business model may not be viable 20 years from now. Consumers are starting to ask questions about the environmental impact of the products and services they are buying and are rewarding the early movers.

Canada can choose to participate in the low carbon economy. Two factors drive change – regulation or market demand. The benefits of regulation are that there is one rule book, less risk around potential scenarios and that transformation happens more quickly. If the market is driving change, change may take longer.

In either case, losers will surely be separated from winners through the market mechanisms. A good illustration of this is what happened to the North American auto industry 2008-2009. The U.S. had many opportunities to change vehicle fuel efficiency standards as Europe and Japan tightened their standards during the 1990's. Responding to the auto industry lobby, the U.S. chose not to. As a consequence of improved fuel standards in Europe and Japan, their manufacturers focused on high-efficiency motors, smaller/lighter models and alternative fuels sources. These companies had the product the American customer desired when gasoline prices rocketed in 2007-2008. Regulation is not always a "bad thing".

While the Canadian government chooses not to participate, Canadian businesses need to take action themselves. As they are competing on a global basis, Canadian business leaders need to prepare to compete in a low carbon economy. This requires integrating carbon and energy risk management into their business processes, supply chains and investment decisions. It will involve setting voluntary product efficiency standards compatible with leading international best practice. Energy intensive companies may even want to participate in the carbon markets on a voluntary basis to prepare for carbon trading. As companies undertake internal efforts, they should collaborate with peers and jointly engage with government to inform decision makers about desired policy instruments. Canadian industry cannot afford to wait. They need to get on the bus today. Otherwise, the bus will run them over tomorrow.

How Will We Know We Have Arrived?

What does success look like? Will we be able to touch it and feel it? We are discovering low carbon economics as we go, so these questions do not have clear answers. There is some uncertainty in building a strategy to manage climate change, but this should not preclude us from moving forward.

There is a tendency for emotion to overcome realistic strategies in the climate change debate. Without losing motivational force of lofty aspirations, climate change solutions must be couched in practicality, encompassing a degree of acceptable risk in the definition of success. Working toward a low carbon economy is like the concept of limits in mathematics: we can get closer and closer to zero without ever crossing the axis. Success will be reached when we are able to maintain a high standard of living with the absolute minimum impact on the environment. Success will be when the terms “green” and “sustainable” become redundant because the spirit they embody is so deeply integrated into our systems that there is no longer an option of making unsustainable choices.

PERSPECTIVE

Same Cause, New Approach

Gord Kerr HEAD OF MARKETING
HOME EQUITY AND LENDING
Royal Bank of Canada

At the Market Leaders Workshop, we explored the idea of framing the climate cause differently to garner broader and more emphatic support. There is plenty of historical evidence that people are very good at rallying around an issue with a perceived positive outcome; together, we put a man on the moon and we fought for freedom in World War II. But we’ve proven to be much less capable of working toward a goal of “less” of something.

We need to reposition our dialogue on climate in such a way that we are building toward something better than we have today. We are working toward a cleaner, more livable world with breathable air, clear skies and abundant clean water. We are setting the stage so that our children, grandchildren, and great grandchildren will look back at our generation and view us as people who saved the planet from certain peril.

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