

# RESEARCH NETWORK *for* BUSINESS SUSTAINABILITY



KNOWLEDGE PROJECT SERIES



## Knowledge Forum on Business Adaptation to Climate Change

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# RESEARCH NETWORK *for* BUSINESS SUSTAINABILITY

## Knowledge Forum on Business Adaptation to Climate Change

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Hosted by the Research Network for Business Sustainability, the International Resource Industries and Sustainability Centre at the Haskayne School of Business, and the Calgary Chamber of Commerce.

**TO LESSEN OUR IMPACT ON THE ENVIRONMENT, THIS REPORT  
IS ONLY AVAILABLE ELECTRONICALLY AS A PDF DOCUMENT.**

## Executive Summary

**Fifty managers, academics and policy-makers shared the insight of five expert speakers at the Research Network for Business Sustainability's *Knowledge Forum on Business Adaptation to Climate Change*.** The event was hosted by the International Resource Industries and Sustainability Centre at the Haskayne School of Business and the Calgary Chamber of Commerce, on November 28, 2009. The purpose of the Forum was to bring the communities of research and practice together to engage in a conversation on business adaptation to climate change. A few themes emerged from the presentations and discussions throughout the day.

First, current company practices, government policies and academic research are focused largely on mitigation and not adaptation. Across almost all sectors, firms have created carbon inventories, but few treat their inventories as a material financial risk. This behaviour may be the result of a general lack of agreement, noted throughout the day by Forum participants, on how organizations will be affected by climate change.

Second, to adapt to climate change, managers should conduct a vulnerability risk assessment across the supply chain to consider potential impacts, origins and timelines. Monika Winn, from the University of Victoria, stated that the development of an inventory of vulnerability across the organization is a key success factor to ensuring a firm's survival. Allan Amey, from ICF Consulting Canada, presented a three-stage screening framework that businesses can use to analyze climate change risks and assess the need for adaptive measures.

It is equally important to select a strategy and focus on either innovation or compensation. According to Jonatan Pinkse, from the Amsterdam Business School, to adapt to climate change, firms can undertake innovation strategies focusing on process improvements, new product or market development, or compensation strategies focusing on emissions reductions and trading.

Last, there is a need for more robust knowledge to base business and policy decisions. Robert Page, chair of the National Roundtable on the Environment and the Economy, said that until better climate change data are available, businesses must continue incorporating additional rough risk factors into technical designs and financial models. In the dialogue sessions, many participants noted there is a role for academics and governments to make available such data so that managers can make better-informed business decisions. To that end, the Network commissioned David Nitkin, president of EthicScan, to review the gamut of academic and practitioner literature examining business adaptation to climate change. His findings will be available in the summer of 2009.

All the presentations summarised in this report, as well interviews with the speakers are available on the event [website](#).

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## Forum Overview

This report summarizes the proceedings of the Knowledge Forum on Business Adaptation to Climate Change, hosted by the [Research Network for Business Sustainability](#), the [International Resource Industries and Sustainability Centre](#) and the [Calgary Chamber of Commerce](#) on November 28, 2008.

The day-long event brought together over 50 representative from business, government and academia. Attendees heard five presentations from respected academic and business authorities (see Appendix A for speaker biographies) on the topic of business adaptation to climate change. Delegates had the opportunity to share their views on challenges and opportunities in dialogue sessions. The report highlights the main ideas, provocative questions, and key take-aways from these sessions.

The purpose of this event was to advance our thinking by examining what we know and what we do not know within academia, industry, government, and non-governmental organizations. Each of these groups brings different knowledge of and perspective. Bringing them together created a tremendous learning opportunity.

The Forum fits into a larger initiative underway at the Network. Every year, the Network's [Leadership Council](#) (see Appendix B) identifies the greatest challenges facing sustainability practitioners ([2008-9 Knowledge Priorities](#).) Based on the top two priorities, two systematic reviews are produced. One of this year's projects is on business adaptation to climate change, led by David Nitkin from EthicScan Canada. His final reports will be available in the summer of 2009.

# Overview of the Business Adaptation to Climate Change Project

David Nitkin, President of EthicScan Canada Ltd.

Written by Erin White, Research Network for Business Sustainability

## KEY TAKE-AWAYS

- *Nitkin's project will determine what we know, what we think we know, and what we do not know about business adaptation to climate change.*
- *His findings will be available in the summer of 2009.*



Climate change is becoming a prevalent issue in Canadian business. Each year, companies are faced with new challenges. Until recently, the business focus has been on climate change

mitigation. In the future, the focus will need to include adaptation as well. David Nitkin, president of [EthicScan](#), was selected by the Network to review the gamut of academic and practitioner literature examining business adaptation to climate change.

Nitkin will examine management concerns related to the challenges of implementing adaptation to climate change, the associated costs and the potential risks to business. His systematic review will employ scientific methodology and rigour to produce transparent and replicable results and minimize bias.

Nitkin hopes to learn from the experiences of others—what has been done to adapt to climate change and why? Literature from academic and practitioner sources will be tapped but there are many sources of information beyond academia that may have more relevant and practical information. Nitkin will include different perspectives and assemble other research sources outside academia. He will examine what we know, what we think we know, and what we do not know about business adaptation to climate change.

The systematic review findings will be relevant across sectors. Nitkin will examine the risks and opportunities and present the findings by the following sectors: agriculture, finance, forestry, energy, fisheries, tourism and mining. He will include climate change impacts, current firm or sector strategies and potential adaptation strategies. His findings will be available in the summer of 2009.





# Climate Adaptation and Business Risks Context, Challenges and Potential Solutions

Dr. Robert Page, Chair, National Roundtable on the Environment and the Economy (NRTEE)

Written by David Van Den Assem, MBA Candidate, University of Calgary

## KEY TAKE-AWAYS

- *Mitigation addresses the causes of climate change and adaptation addresses its consequences.*
- *Climate change is introducing new types of uncertainty into organizations, which some businesses address through Enterprise Risk Management (ERM) systems.*
- *Until more robust climate change data are available, businesses must continue incorporating additional, rough risk factors into technical designs and financial models.*



According to Dr. Robert Page, respected nationally and internationally for his work on energy and the environment, climate change is introducing new types of uncertainty into organizations. Businesses can respond to climate change through mitigation

and adaptation, but to respond appropriately, they must understand the difference between the two.

Page defined adaptation as the “adjustment in natural or human systems in response to actual or expected climate stimuli or their effect which moderates harm or exploits beneficial opportunities.”<sup>1</sup> Adapting to climate change means decreasing vulnerability or addressing

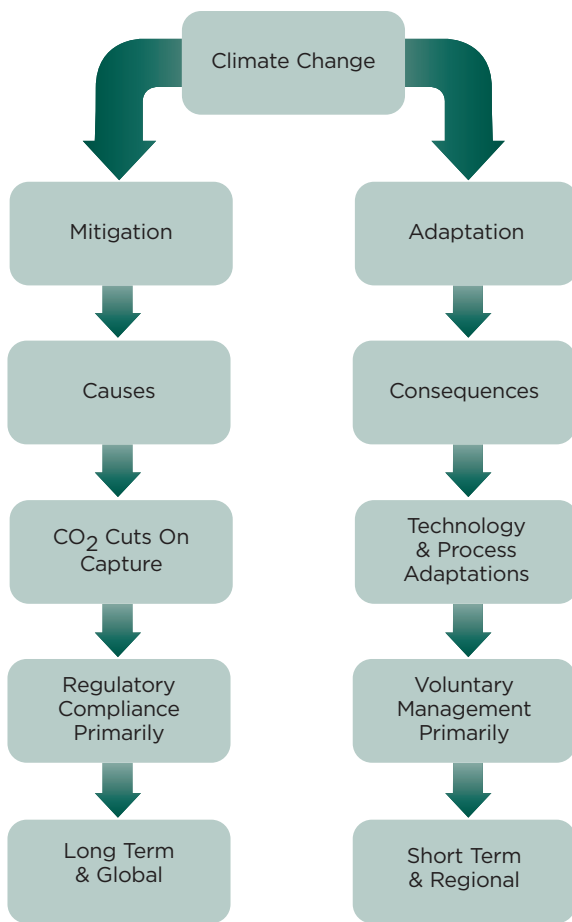
the consequences of climate change. On the other hand, mitigation focuses on preventing further change (see diagram). Both are essential but require very different types of policy responses. Until recently, regulatory and policy work has been predominantly focused on mitigation but in the long-term, adaptation activities may prove to be more important given the inevitability of climate change.

<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report – Working Group II



Figure 1

SEPARATING MITIGATION AND ADAPTATION PROCESS



BOTH ARE ESSENTIAL BUT VERY DIFFERENT TYPES OF POLICY CHALLENGES FOR ALBERTA BUSINESS.

Page explained the business risk from climate change is related to the rate and intensity of environmental change experienced. This change is not a continuous transition but is highly variable and random, complicating the ability of businesses to respond in a planned, consistent manner. Risk arises from a combination of exposure to environmental changes and vulnerability to these changes. Organizations with more built-in resilience can withstand greater environmental changes than those with a low tolerance for environmental change.

Identifying and incorporating environmental risks into business planning is critical for building resiliency. Enterprise Risk Management (ERM) is a useful method to incorporate environmental uncertainty into business planning. Some companies have already implemented ERM to account for increased fire risk in the forestry industry and decreased water availability for oil, gas and agricultural activities.

The utility of ERM and other business tools for managing climate adaptation is limited by the availability and reliability of data on climate change, without which informed business decisions cannot be made. Today's climate data sets, models, and detailed climate projections are too imprecise for rigorous decision-making. There is a role for governments and academics to make data available, which will help industry make more informed decisions.

Until more research becomes available, businesses will have to respond to climate-related stressors by incorporating additional, rough risk factors into technical designs of facilities, and applying adaptive management procedures to reduce vulnerability.

Page believes that Canada and other northern countries will experience the most dramatic changes from climate change and will need to become leaders in adaptation. To take that leadership position, government and business must increase their awareness to adapt to climate change, so that they can recognize their vulnerabilities and develop cost-effective solutions.

# An Overview of Business Responses to Climate Change

Dr. Jonatan M. Pinkse, Amsterdam Business School

Written by Connie Van der Byl, PhD Candidate, University of Calgary

## KEY TAKE-AWAYS

- *Organizations are pursuing mitigation and not adaptation strategies.*
- *Across almost all sectors, firms have created carbon inventories, but relatively few have developed emissions targets and fewer yet treat their inventories as a material financial risk.*
- *To adapt to climate change, firm can undertake innovation strategies focusing on process improvements, new product or market development, or compensation strategies focusing on emissions reductions and trading.*



According to the Amsterdam Business School's Dr. Jonatan Pinkse, author of *International Business and Global Climate Change*, companies are not concerned with adaptation to climate change, but are instead focusing their attention on mitigation. He

attributed this response partly to the fact that some companies still do not acknowledge or understand how adaptation to climate change is a business issue.

Pinkse claimed that regulation used to drive climate change agendas in companies. He suggested that factors such as stakeholder pressure and the risk of physical harm are now driving corporate responses. He described three self-regulatory approaches that firms presently take to climate change: voluntary agreements, multi-stakeholder initiatives and carbon trading.

Voluntary agreements create awareness but do not necessarily lead to real emissions reductions. If included as part of a climate policy, they create minimal pressure to exceed business as usual. Multi-stakeholder initiatives could result in target setting and best practices for emissions reductions. Some initiatives have shifted from

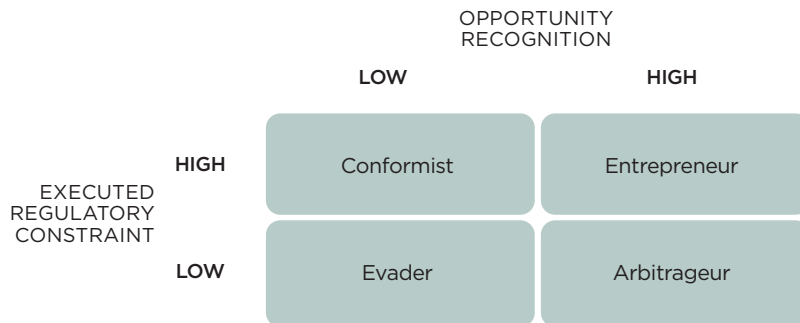
lobbying government to do less to lobbying the government to do more. Carbon trading begins with an inventory of emissions followed by setting a target, disclosure of carbon levels and ultimately the reduction of emissions. Across almost all sectors, firms have created carbon inventories, but relatively few firms have actually developed emissions targets and fewer yet treat their inventories as a material financial risk. One study showed that only six of 23 automobile firms disclosed carbon emissions in their Securities and Exchange Commission filings.

Pinkse suggested that firms have several options to adapt their strategies to climate change. Innovation strategies focus the firm on process improvements, new product or market development, while compensation strategies focus on emissions reductions and trading. In Pinkse's view, innovation holds the promise of win-win solutions but is more challenging to implement because of uncertainty and high costs.

Firms also have several strategic responses to emissions trading (see diagram). Conformists grudgingly respond to high regulatory expectations, while evaders feel no need to respond. Entrepreneurs take advantage and find value in responding to the inevitable. Some blame arbitrageurs for reaping value without investing in technology or emissions reductions.

Table 1

STRATEGIC RESPONSES TO EMISSIONS TRADING



Amsterdam Business School

Pinkse shared a number of lessons from Europe's experience in the emissions trading market. Most European companies are motivated to participate for compliance reasons. The price of carbon is a major problem because it keeps changing, leading to uncertainty and difficult decision-making. If carbon were priced higher, radical innovation would be more likely. Coal-fired plants are still being built and carbon capture and storage projects are being cancelled, which are indications that the market is not working.

Pinkse noted that firms in countries, like the Netherlands, have been living below sea level for more than fifty years, will adapt more readily than others. However, he worried that firms in developing nations such as Bangladesh, which has little adaptive capacity, will face much more serious adaptation challenges. Similarly, firms in northern regions such as Canada, which will see a more drastically changing climate—a call to action for Canadian managers.

# Organizational Resilience to the Physical Impacts of Climate Change

Dr. Monika Winn, Professor, University of Victoria

Written by Charles Backman, PhD Candidate, University of Calgary

## KEY TAKE-AWAYS

- *Extreme weather events will severely challenge business as usual and may threaten firm survival.*
- *The development of an inventory of vulnerabilities across the organization and its supply chain appears to be a key success factor to enhance the firm's adaptation and resilience.*
- *To adapt to climate change, better climate change data are required to understand the nature, type, severity and probability of direct climate impacts.*



Dr. Monika Winn, professor at the University of Victoria, has focused much of her research on one big question: how can organizations adapt to and build resilience against the physical impacts of climate change, such as extreme weather events? She believes that once managers understand the risks,

their origins and timeline (see diagram), they can adapt by minimizing the impacts or by taking advantage of the changes.

Direct climate change impacts may include floods, storms, droughts or rising sea levels. Indirect impacts may include changing stakeholder behaviours, and shifting regulatory, legal and competitive landscapes.

Abrupt changes such as extreme weather events and sudden changes in consumer behaviour stress a firm's adaptive mechanism. More gradual changes, such as rising sea levels or regulatory changes, call for different types of adaptation, but may also threaten firm survival.

The combination of routines, capabilities and resources within a firm will enhance its ability to withstand shocks from the external environment. A firm's resistance to

failure and the ability to recover from an external disturbance helps reduce its vulnerability.

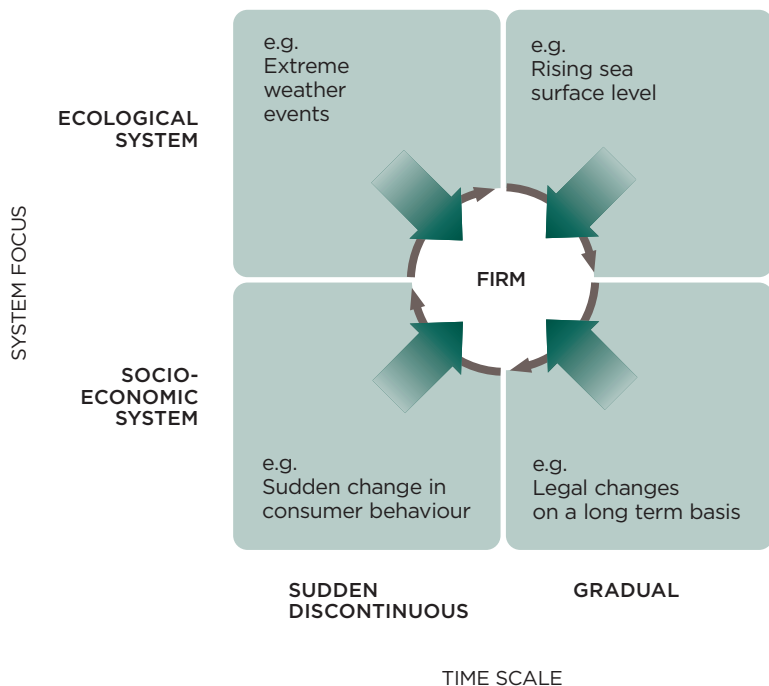
Academic research often informs business decisions with robust knowledge. Unfortunately, research on business adaptation to climate change is in the early stages and slowly developing from strands of research in various fields including risk management, and has only recently begun incorporating the challenges of climate adaptation.

The organizational adaptation literature discusses some processes and approaches but tends to concentrate on incremental adaptation to predictable change. It offers some insight on adaptation of industry structures or institutional conditions as a result of technological discontinuities, but it has not focused on the more systemic threats stemming from climate change.

The sustainability literature focuses on the firm's impact on the natural and broader social environment. Very little work looks at how the natural environment impacts the firm. The crisis management literature examines the identification, forecasting and prevention of low probability, high impact events. It focuses on defensive capabilities rather than building long-term adaptation and resilience.

Table 1

STRATEGIC RESPONSES TO EMISSIONS TRADING



Some research is examining mechanisms built into an organization that allow it to adapt to outside influences and ensure its survival following extreme events (e.g., hurricane Katrina and the 9/11 terrorist attacks). The development of an inventory of vulnerability across the organization and its supply chain appears to be a key success factor for enhancing the firm's adaptation, resilience, and even chances for survival.

To adapt to climate change, then, it will be necessary to better understand the nature, type, severity and probability of climate related events and their impacts on firms. Presently, a lack of information makes probability assessments difficult to produce. Better climate change data and a better understanding of organizational processes are needed to effectively adapt to and reduce the impacts from climate change.

# Policy, Technology and Economics of Adaptation

Allan Amey, Senior Fellow, ICF Consulting Canada, Inc.

Written by Zane Westerbeek, MBA Candidate, University of Calgary

## KEY TAKE-AWAYS

- *Interest and attention to adaptation is an emerging trend.*
- *Adaptation should begin with an assessment of the risks posed by climate change across the entire value chain, which frameworks can facilitate.*
- *Understanding and analyzing climate risk may also reveal new business opportunities.*



Recently, the [Carbon Disclosure Project](#), an independent not-for-profit organisation with the largest corporate greenhouse gas emissions database in the world, identified four industries most concerned about the impacts of climate change. These include the insurance, oil and gas, electric utilities, and the

beverages, tobacco, and food products industries. With different business sectors facing serious impacts due to extreme events, the need for a framework to identify and assess meaningful risks is required to deploy appropriate adaptation strategies.

Allan Amey, from [ICF Consulting Canada](#), described a framework that businesses can use to analyze climate change risks and assess the need for adaptive measures.

When considering adaptation strategies, firms first need to identify and address whether action is required. Amey discussed the need for businesses to understand clearly the risks of climate change, suggesting that risks may be divided into three categories:

**Category 1** refers to potentially significant climate risks, requiring immediate, short-term management.

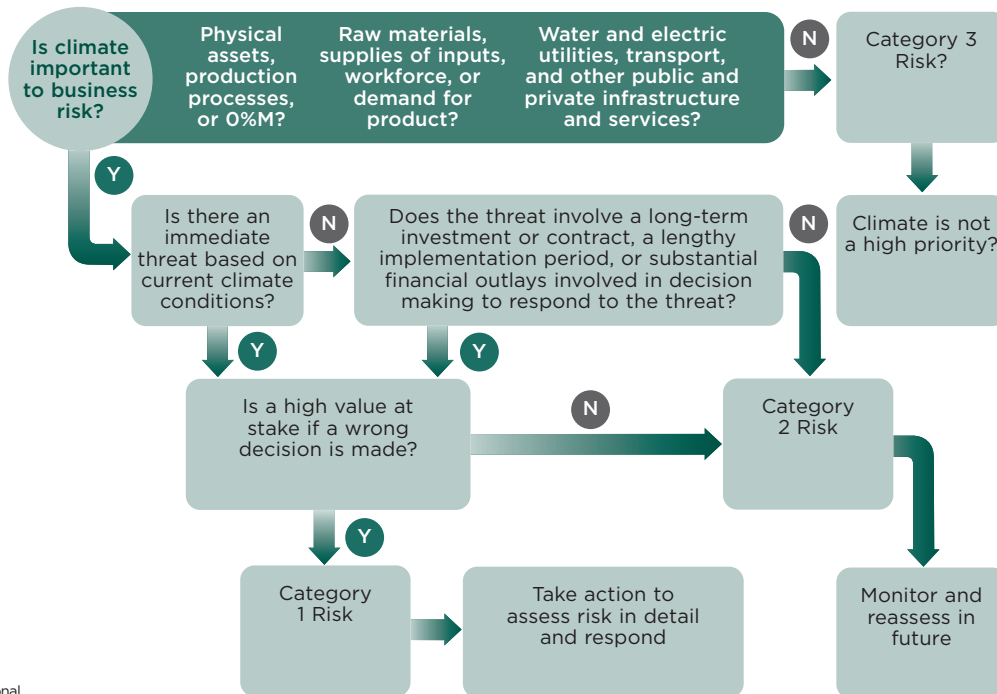
**Category 2** includes potential climate vulnerabilities, which do not require immediate action, but instead require monitoring and assessment over the longer-term.

**Category 3** risks are insignificant, requiring no further consideration.

The classification of risks allows firms to focus specifically on areas that require action and develop risk management strategies to address each one in the longer term. Once the risks have been identified and classified, firms should undergo a three step screening process to assess whether adaptive strategies are required (see diagram).

Figure 1

THREE-STAGE SCREENING



ICF International

In the first screening stage, it is important to assess whether climate change poses a serious impact on business risk. The second stage involves formulating an understanding of the risk timing and horizon—assessing the immediacy of the risk as well as the financial investments required to negate the risk—so that appropriate anticipatory measures are taken. Key considerations include the need for long-term investments or contracts, location decisions and required capital costs.

In the third stage, it is important to gauge the costs of poorly or inadequately addressing the risk, in order to quantify the costs of a wrong decision. By conducting this screening process, businesses can identify the severity of climate change risk to their business. Should all three stages pose serious business risk, the firm should then conduct an assessment to determine appropriate action.

According to Amey, interest and attention to adaptation is an emerging trend. Climate change implications reach beyond the direct effects of weather changes. Amey urged businesses to consider the need for climate adaptation and conduct a screening to determine susceptibility to climate risk.

Lastly, companies should examine the entire value chain when assessing risk susceptibility as well as consider how the actions of other organizations, such as government, will impact their business risk. Understanding and analyzing climate risk may also reveal new business opportunities so adaptive measures may be of great value to businesses.



# Summary of Dialogue Sessions

Written by Natalie Slawinski, PhD Candidate, Richard Ivey School of Business

Dialogue sessions at the Forum provided participants with the opportunity to share ideas and to debate issues. This is a summary of the dialogue among conference delegates in small break-out sessions and open group discussions.

## WORST PRACTICES IN BUSINESS

When uncertainty exists, the tendency is to do nothing. Business **may operate in fear** of making the wrong decision. Yet, this **inaction** may be creating the inertia that **could lead organizations to be unprepared** for a future changed by extreme climate events.

## CHALLENGES & OPPORTUNITIES FOR COMPANIES

Arguably, the biggest challenge facing decision-makers is **the uncertainty surrounding climate change**. This uncertainty is driven in part by a lack of understanding around how organizations and governments will be impacted by climate change. Companies look to governments for direction on how to act, and what future regulations will look like and express frustration when there is a lack of direction.

**Many businesses grapple with measuring carbon emissions**. It is expensive and time consuming. It is also unclear whether firms will receive carbon credits in the future. Adaptation to climate change requires “gambling on the future” and letting go of the need for hard numbers and working with reasonable assumptions. However, without hard and accurate numbers, climate change simply does not enter into the decision-making equations for some organizations.

Many companies are acting, but it is mostly shorter-term risk management rather than thinking long-term and considering adaptation strategies. **These firms often respond to climate change by setting up sustainability departments**, but it is unclear whether or not they inform strategy.

The **lack of agreement regarding climate change remains a challenge**. Some senior executives are unconvinced that climate change is anthropogenic, while others may believe it is but do not know how to take action.

**Vague definitions of sustainability** may lead to disagreement about what actions to take, or whether climate change actions should take priority over more commonly practiced activities like health and safety.

## CHALLENGES & OPPORTUNITIES FOR GOVERNMENT

Governments can create more **regulatory certainty** and provide **incentives for early action** on the part of firms. They can also assist in technology research and invest in green industries.

There is a need for governments to work together **to address concerns about jurisdictional differences in regulations**. They need to take long-term action and create awareness.

Governments are putting some resources towards climate change, but are **often uncertain in where to invest tax-payers' dollars**. For example, some believe that carbon capture and storage may be part of the solution to climate change, but it remains unproven and government is wary to invest, putting initiatives on hold.

Governments need to develop a **greater understanding of the constraints faced by companies**. For example, imposing a five-year plan for a new technology may not be realistic.

## THE BIGGER CHALLENGES

With increases in the number of catastrophes, people, organizations and governments must **change their behaviours in order to adapt**. Drawing on multiple stakeholders to generate more realistic solutions may provide the best hope for the future.

**Despite many obstacles, solutions exist** if leaders are willing to take bold steps and if people, organizations and governments have the will. Leaders can think about the future in spite of short-term pressures. Scenarios can help with **long-term planning** and get people to think about the bigger picture.



## Appendix A: Speaker Biographies



### **ALLEN AMEY** **ICF Consulting Canada**

Allan Amey has more than 25 years of energy engineering, technology development, marketing, economics, and planning experience and nine years of experience in the issues related to climate change economics, technology implementation and policy development. Mr. Amey's main area of interest lies at the intersection of energy development, environmental sustainability, and economic growth. He is interested in the interaction and interdependency of these three key societal drivers. He has spoken at numerous forums on the challenges related to accelerating global growth and concerns related to these factors.

Mr. Amey has worked in over 20 countries on energy development

projects, headed up an energy technology development and R&D department in a major energy company. He has also headed up a non-profit public private partnership working with multiple stakeholder groups in the development of appropriate emission reduction programs, and has provided consulting services to a wide variety of industries on climate change strategies.

Mr. Amey has extensive experience in strategic planning, scenario planning, game theory, technology assessment, and growth options valuation. He has worked with a variety of clients in the areas of carbon capture and storage, energy efficiency, and intellectual property ownership.



### **FRANCES BOWEN** **Haskayne School of Business and International Resource Industries and Sustainability Centre**

Dr. Frances Bowen is an Associate Professor in Strategy and Global Management. Her main research interests cross strategy and organizational theory, focusing on corporate environmental strategy. She has examined firm's environmental decisions in a variety of complex decision-making contexts. Current and recent research projects have focused on how different theories of the firm explain firms' environmental strategy choices, and how firms might induce suppliers to participate in environmentally sound supply chain management.

Before joining Haskayne, Frances held appointments at both Sheffield University Management School (1999-2003) and at the University of Bath (1995-1999). She became the Director of the International Institute for Resource Industries and Sustainability Studies (IRIS) at Haskayne on July 1, 2007.

Dr. Bowen's research has been published in journals such as the Journal of Management Studies, British Journal of Management, Journal of Business Ethics, Production and Operations Management and International Journal of Operations and Production Management.



**TOM EWART**  
**Research Network for  
Business Sustainability**

Tom Ewart is Managing Director of the Research Network for Business Sustainability. The Network enables business sustainability by using evidence-based knowledge to foster collaboration between research and practice. Tom has worked at the Network since its inception, helping to conceive the idea, develop funding proposals, recruit over 500 members, and manage its activities from funding research to hosting dialogue events.

Tom has taught business sustainability courses in the University of Western Ontario's Masters of Environment and Sustainability program, and in the University of Waterloo's Centre for Environment and Business. He graduated from the University of Western Ontario as a gold medalist in the Engineering Faculty and as an Ivey Scholar in the Honours Bachelor Administration program.



**DAVID NITKIN**  
**EthicScan Canada Ltd.**

Mr. David Nitkin is the President of EthicScan Canada, and is a full-time corporate ethicist. He does original writing, teaching, consulting and research on corporate social accountability, ethics auditing, and enhancing ethical management. He will be leading the knowledge project on Business Adaptation to Climate Change.

David consults and trains widely with a variety of clients, including industry associations (on topics like the ethics of stakeholder management; external expectations of business); the public

sector (values and conflict of interest training; strategic planning in government; and managing with integrity); corporations (ethics audits; updating corporate codes of responsible business practice; and benchmarking best practice sustainable business); social agencies (donor screening; ethical partnering; fundraising management in not-for-profits); and non-governmental organizations (ethical investment strategies; demographic and social futures).



**ROBERT PAGE**  
**National Roundtable on the  
Environment and the Economy**

Dr. Bob Page is the Chair of the National Roundtable on the Environment and the Economy, and also the TransAlta Professor of Environmental Management and Sustainability and the University of Calgary. He is known nationally and internationally for his work on energy and the environment in areas such as climate change, emissions trading, environmental impact assessment, and policy and regulation. As vice-president, sustainable development at TransAlta, he was responsible for the corporation's

proactive approach to addressing greenhouse gas emissions that contribute to global warming and climate change.

Page is a member of the environment committee of the National Chamber of Commerce. He is chair of the Board of BIOCAP Canada, has served as a member of the Canadian delegation to negotiations on the Kyoto climate change treaty, and is a member of the Board of the Canadian Water Network and the ENMAX Corporation.



**JONATAN PINKSE**  
**Amsterdam Business School**

Dr. Jonatan Pinkse is an Assistant Professor at the Amsterdam Business School. His research has focused on sustainability reporting by multinational corporations, and strategic responses of multinational corporations to global climate change. His interests lie in climate change, sustainable management,

corporate social responsibility, multinational corporations and strategic management.

He has published in journals such as California Management Review, Business Strategy and the Environment, Business and Society, and Journal of International Business Studies.



**MONIKA WINN**  
**University of Victoria**

Dr. Monika Winn is an Associate Professor of Business Strategy and Sustainability at the University of Victoria. Dr. Winn's research and teaching interests focus on the many aspects of sustainability strategy.

Her primary research focus is on organizational and institutional change related to the challenges of sustainability. Recent research streams focus on (1) climate change impacts for business; (2) implications of sustainable "Base of the Pyramid" approaches for marketing to

the poorest of the poor; (3) transformation of social into business issues deserving strategic attention and action.

Her research is published in such journals as the *Academy of Management Review*, *Organization Studies*, *Business and Society*, *Journal of Business Venturing*, *British Journal of Management* and others. Prior to attaining her PhD in 1995, Dr. Winn founded and ran a successful business in Southern California.

## Appendix B: Leadership Council Members



The Network was created with generous funding from the Richard Ivey School of Business, the Leadership Council members, the Social Sciences and Humanities Research Council of Canada, and the University of Western Ontario.



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