



**CANADA SCHOOL
OF ENERGY AND ENVIRONMENT**

DRAFT

Canada



**The Search for a Canada U.S. Climate
Change Accord: the Road to
Copenhagen and Beyond**

June 4th-6th 2009

Banff, Alberta



Table of Contents

Arrival Procedure	Page.3
Contact Information	Page.4
Agenda	Page.5
Background Paper	Page.8
Attendees List	Page.36
Maps	Page.42

ARRIVAL PROCEDURE

Calgary International Airport:

Upon arrival Proceed to Luggage carousel and collect your Belongings. Once your Luggage has been collected Proceed to Meeting Place C where a CSEE representative (Abbi O'lynn) will you and escort you to the Banff Airporter. In the event there is a problem with lost/late luggage please notify us so we can get it to you as soon as possible.

**Note: the Banff Airporter is a multi stop service. We ask you to not leave the vehicle until it arrives at the Banff Centre.*

Upon your arrival to the Banff Centre, the shuttle will deliver you to the **Professional Development Centre** (Star on map pg.42). There you will be met by a member of our hospitality team who will assist you with your luggage and registration then escort you to your room.

Driving & Parking Instructions

Head west on the Trans-Canada Highway 1 and eventually this will take you through the park gates to the exit for the town of Banff. Traveling westbound on the Trans-Canada Highway 1 from Calgary, take the first exit to Banff.

Make a left-hand turn at the base of this exit ramp. Follow this road (Banff Avenue) into the town of Banff. Continue on Banff Avenue.

At Buffalo Street, (before the bridge) turn left and follow Buffalo Street, continuing up hill where the street becomes Tunnel Mountain Drive

Turn left at St. Julien Road into The Banff Centre

CONTACT INFORMATION

Our goal is to make your stay during the conference convenient and stress free. Feel free to contact any of the following Representatives for your needs. This list includes the Banff Centre Team as well as The CSEE Team.

Banff Centre Team

Jim Oliver

Director, Customer Services

Tel. 403.762.6234

Toll Free. 1.877.760.4595

Email:

jim_oliver@banffcentre.ca

Matt Chantry

Guest Services

Tel. 403.762.6289

Cell. 403.760.5911

Email:

matt_chantry@banffcentre.ca

CSEE Team

Catherine Khan

Event Coordinator

Tel. 613.314.0388

Email:

Catherine.khan@sympatico.ca

Abbi O'Flynn

Executive Assistant

Tel. 403.880.9606

Email:

Joan Smart

Executive Assistant

Tel. 403.700.3230

Email:

joan.smart@canadaschool-ee.ca

Alisha Khan

Executive Assistant/ Events
Coordinator

Tel. 403.481.7466

Email: aatkhan@gmail.com

Andrew Stewart

Executive Assistant/ Events
Coordinator

Tel. 613.863.0116

Email:

astewar1@connect.carleton.ca

Agenda

For two vitally important days at the beginning of June, 2009, influential policy makers and academics, energy industry CEO's, Environment Ministers from across Canada, as well as representatives from the United States and Europe will gather at the Banff Centre to discuss "The Search for a Canada U.S. Climate Change Accord: the Road to Copenhagen and Beyond."

This inaugural conference, hosted by CSEE is designed to provide serious, meaningful advice to decision makers such as the Honourable Jim Prentice, Minister of the Environment, as well as others in attendance. That advice will be designed to influence the negotiating platform for a Canada-U.S. Climate Change Accord. It could form the basis of what may possible become – a joint Canada-United States approach to the upcoming international negotiations both leading to, and at Copenhagen, in December 2009, as the world moves beyond the Kyoto Agreement. The high quality of attendees at this conference will ensure a lively, informed and intellectual dialogue, focused on real and tangible results.

We have also partnered with the Canadian American Business Council (CABC) to continue the conversation in Washington D.C. on June 19. This will support the necessary cross-border dialogue and advice that is required to achieve a Canada – United States Energy and Climate Change Accord. The conclusions reached in Banff will inform the subsequent Conference in Washington.

All meetings and meals and accommodation will be at the Banff Centre, 107 Tunnel Mountain Drive, Banff AB.

Thursday 4 June – Evening

7:00 PM – Welcome Reception – Banff Centre
9:00 PM 8 PM - Opening Remarks – Dr. Harvey Weingarten, President, University of Calgary
– Bruce Carson, Executive Director, CSEE

Friday 5 June

- 8:00 AM – WELCOME – The Honourable Jim Prentice, Minister of the Environment, Government of Canada
9:45 AM KEYNOTE SESSION: Importance of this Dialogue and Importance of Cooperation
Between our two Countries as Evidenced by Acid Rain Treaty and Free Trade Agreement.
- Round Table Discussion
 - Honourable Jim Prentice, Minister of the Environment
 - Ambassador Gordon Giffin, Former US Ambassador to Canada
 - David Collyer, President, Canadian Association of Petroleum Producers
 - David McLaughlin, President and CEO, National Round Table on the Environment and Economy
- 9:45 AM – BREAK
10:00 AM
- 10:00 AM – WORKING SESSION 1 - Pricing Carbon and a Canada – US Cap and Trade System
NOON
- Opening Remarks by Panel, then Round Table
 - Gerry Ertel, Shell Canada Limited, Manager, Regulatory Affairs
 - Ann McCarthy, Montréal Climate Exchange, Vice President, Business Development
 - Dr. Robert Page, University of Calgary, TransAlta Professor of Environmental Management and Sustainability
 - Janet Peace, Pew Center on Global Climate Change, Vice President for Markets and Business Strategy
 - Marlo Raynolds, Pembina Institute, Executive Director
 - Kathy Sendall, Petro-Canada, Senior Vice-president, North American Natural Gas
- 12:15 PM – LUNCH – Joe Stanislaw, Founder, The JAStanislaw Group
1:30 PM
- 1:30 PM – WORKING SESSION 2 – Modernizing the Canada – United States Electricity System
2:45 PM
- Opening Remarks by Panel, then Round Table
 - Nancy Southern, President and CEO, ATCO Limited
 - Honourable Ken Cheveldayoff, Minister of Crown Corporations, Saskatchewan
 - Don Lowry, President & CEO, EPCOR
 - David Manning, Executive Vice President, Nationalgrid
 - François Taschereau, Hydro-Quebec, Directeur principal - Communications
- 2:45 PM – BREAK
3:00 PM
- 3:00 PM – Ambassador David Wilkins – Update from Washington
3:15 PM
- 3:15 PM – WORKING SESSION 3 – Harmonization – Within Canada and between Canada and the United States
4:45 PM
- Opening Remarks by Panel, then Round Table
 - Colin Robertson, Carleton University, Norman Patterson School of International Affairs
 - Honourable John Gerretsen, Minister of Environment, Ontario
 - Honourable Line Beauchamp, Minister of Sustainable Development, Environment and Parks, Quebec
 - Honourable Rob Renner, Minister of Environment, Alberta
 - Bruce March, Imperial Oil Ltd., Chairman, President & CEO
- 4:45 PM – END OF DAY WRAP UP – Bruce Carson
5:00 PM Programme Closes



6:00 PM RECEPTION

7:00 PM DINNER

Introduction: Brian Heidecker, Chair, Board of Governors, University of Alberta

Remarks by the Honourable Ed Stelmach, Premier of Alberta

Thank you: Bob Turner, Chair, Board of Governors, University of Lethbridge

Saturday 6 June

8:00 AM – Bruce Carson – Summary of Previous Day

10:00 AM THE ROAD TO COPENHAGEN – The Honourable Jim Prentice – a Canadian Perspective

– Roundtable Discussion of key negotiating issues, such as:

- Should developing countries be forced to accept targets for GHG reductions?
- How should new technology be financed so as it is accessible to developing countries?
- What accountability mechanisms should be put in place to ensure spending on GHG reduction?
- How to ensure that an agreement in Copenhagen is an environmental instrument rather than a wealth transfer instrument
- What should be Canada’s bottom line for signing an agreement in Copenhagen?

10:00 AM – BREAK
10:15 AM

10:15 AM – THE IMPORTANCE OF TECHNOLOGY – Hal Kvisle, President and CEO, TransCanada PipeLines
10:30 AM

10:30 AM – WORKING SESSION 4 – Developing and Deploying Clean Technology Today
12:30 PM Charlie Fischer, Co-Chair, Alberta Climate Change Central Board
Jim Carter, Chair, Alberta Carbon Capture Development Council
Rick George, President and CEO, Suncor Energy
Dr. David Keith, University of Calgary, Director, Institute for Sustainable Energy, Environment and Economy (ISEEE) Energy and Environmental Systems Group
Dr. David Lynch, Dean of Engineering, University of Alberta

12:30 PM – Advice to Both Levels of Government (Working Lunch)
12:45 PM

12:45 PM – Closing Remarks – Bruce Carson, Executive Director, Canada School of Energy and Environment
1:00 PM – Dr. Indira Samarasekera, President, University of Alberta

Background Paper

Date: May 5, 2009

To: ALL DELEGATES TO THE BANFF DIALOGUE

From: Bruce Carson

RE: CSEE – Banff Dialogue

The purpose of this Background Paper is to help stimulate and frame discussion around the various strategies and regulations driving sustainable energy development, primarily in North America.

We have attempted to set out the range of issues integral to the climate change debate by organizing topics in the same order as the “Working Sessions”, and with reference to technical details on various aspects of climate change included in the Annex, for ease of reference. Given the broad scope and complexity of the subject matter, each section also contains a series of questions aimed at guiding discourse.

It is my hope that through thoughtful dialogue, many of these questions will be addressed and some answered. These answers will lead to conclusions and recommendations that will benefit the group, especially the various Ministers and Premiers in attendance.

The importance of this meeting and meetings like this on the subject of Climate Change was I believe best expressed by John Holdren, Chief Science and Technology Advisor to President Obama at the April Major Economies Forum. He said:

“The energy-economy-climate change challenge is central to the human condition because:
Without energy, there is no economy.
Without climate, there is no environment.

Without economy and environment, there is no material well-being, no civil society and no security.

At the present time, the world is getting most of the energy, its economies need, in ways that are wrecking the climate, its environment needs.”



KEYNOTE Session – Over the next few months and years, it is important for Canada and the US to cooperate on climate change and energy. The engagement between our two countries now is as important as it was two decades ago when high level engagement and brokering resulted in the Acid Rain Treaty and Free Trade Agreement. The challenges facing us today require a similar coordinated effort to balance complex economic and environmental outcomes in a new low-carbon energy era.

The immediate challenge is how to align and work toward common energy security and climate change objectives in North America while respecting jurisdictional differences between Canada and the US.

- **The key principles enunciated by the Canadian government on climate change are:**
 - Balance environmental protection and economic prosperity
 - Maintain a long-term focus
 - Develop and deploy clean technologies
 - Engage all major emitting countries
 - Constructive participation in international negotiations
- **Principles on securing America’s Energy Future as set out by the Institute for 21st Century Energy/U.S. Chamber of Commerce**
 - Aggressively promote energy efficiency
 - Reduce the environmental impact of energy consumption and production
 - Invest in climate science to guide energy, economic and environmental policy
 - Significantly increase research, development and demonstration of advanced clean energy technologies
 - Immediately expand domestic oil and gas exploration and production
 - Commit to and expand nuclear energy use
 - Commit to the use of clean coal
 - Increase renewable sources of electricity
 - Transform the transportation sector
 - Modernize and protect U.S. energy infrastructure
 - Address critical shortages of qualified energy professionals
 - Reduce overly burdensome regulations and opportunities for frivolous litigation
 - Demonstrate global leadership on energy security and climate change

WAXMAN-MARKEY DRAFT BILL

Excerpts from the Discussion Draft Summary of “The American Clean Energy and Security Act of 2009,” relevant to the topics of the Banff Dialogue appear in the Annex to the Background Paper. For the full electronic version of the summary go to:

http://energycommerce.house.gov/Press_111/20090331/acesa_summary.pdf.

Note: This is a summary of the Bill prior to amendments being proposed.

The Waxman-Markey discussion draft, “The American Clean Energy and Security Act of 2009,” is comprehensive energy legislation – Summary – Introductory Section:

The legislation has four titles: (1) a “clean energy” title that promotes renewable sources of energy and carbon capture and sequestration technologies, low-carbon transportation fuels, clean electric vehicles, and the smart grid and electricity transmission; (2) an “energy efficiency” title that increases energy efficiency across all sectors of the economy, including buildings, appliances, transportation, and industry; (3) a “global warming” title that places limits on the emissions of heat-trapping pollutants; and (4) a “transitioning” title that protects U.S. consumers and industry and promotes green jobs during the transition to a clean energy economy.

One key issue that the discussion draft does not address is how to allocate the tradable emission allowances that restrict the amount of global warming pollution emitted by electric utilities, oil companies, and other sources. This issue will be addressed through discussions among Committee members.

ISSUES AND

QUESTIONS:

Are these two sets of principles compatible? What effect does the Waxman-Markey Bill have on Canadian – US discussions?

- **What are the benefits of an agreement between Canada and the U.S.?**
 - Oil sands / coal states
 - Ensures industrial competitiveness
 - Credible approach to climate change policies
 - Both countries work together to ensure trading partners have similar climate change regimes
 - Ensures that new cross-border infrastructure carrying energy from Canada will be built in a more timely fashion – harmonized regulatory approach
 - Continued access for the U.S. to secure, reliable Canadian energy sources
 - A coordinated approach will make it easier to deal with countries such as China and India
 - Should there be a deal “at any cost” – what are the limits?
Realistically – how would Canada influence the design of a U.S. GHG reduction proposal?

WORKING SESSION ONE – PRICING CARBON AND A CANADA – U.S. CAP AND TRADE SYSTEM

Policies and regulations are under development in Canada and the US and are on their own, asymmetrical timetables. While some areas of policy alignment are emerging, others will take longer to align. The question is how to engage a continental dialogue that considers the implications of both systems – and that neither country inadvertently disadvantages the other.

- Both the Governments of Canada and the United States appear committed to some form of Cap and Trade System and carbon pricing although the detailed design is unclear in either jurisdiction
- Notably, neither the “Clean Energy Dialogue” established between Prime Minister Harper and President Obama nor the Waxman – Markey “American Clean Energy and Security Act of 2009” mention “cap and trade” The US Bill leaves it to individual congress members to propose the system as amendments to the Bill
- Some aspects of a Canadian federal system have been proposed but not finalized, Some provincial and state jurisdictions have made public commitments to cap and trade as well as a number of regional initiatives such as the Western Climate Initiative.
- Design of a cap and trade system and price signal is complex with significant economic and environmental implications. This was clearly demonstrated in the early period of the EU trading system. We should be conscious of lessons learned from that experience.
- Various provinces, states and regions have formed together to adopt standards which may have to be addressed in any federal trading system – California’s potential adoption of a low-carbon fuel standard and the Western Climate Initiative, for example.
- Implementation – in both jurisdictions and on a continental basis – could be through a pilot stage before 2012.

ISSUES AND

QUESTIONS:

- Does it have to be one system – or can it be two separate domestic systems with common offset rules and credits trading between the two systems?
- How do we avoid the pitfalls of the system that was introduced in the EU?
- How quickly could a continental system be in place?
- What are the benefits and risks of a continental system?

Core Design Elements

- To which type of emitters should the system apply? All large emitters, all large industry and all emissions from fuel combustion? Should consumers bear some of the load?
- What targets would be appropriate? Can we still use intensity targets to allow growth?
- How does a cap and trade system incent technology change?
- Are the allowances or permits free to emitters or auctioned by governments or should there be a mixed system? When should this start? Should it be 100% auctioning?
 - If they are to be auctioned – where should the revenue be spent?
 - How are allowances or permits to be fairly and equitably allocated among emitters?



- If auctions, how is the revenue recycled A) back to taxpayers B) back to consumers or C) incentives for technology change? D) All of the above?
- Banking and borrowing of allowances?
- When traded is there a floor price to protect project developers or a ceiling price to protect emitters?
- Which GHGs should be covered? Which sectors?
- What oversight bodies need to be put in place to monitor the regime?

Creating a Liquid and Viable Market

- Is the trading system capable of generating sufficient liquidity to be an effective market?
- What are the eligibility rules for offset credits entering the market? Limit on offsets? Should there be offsets? Do they simply credit reductions that would occur “anyway”?
- What role, if any, should international credits play for domestic regulatory compliance?
- What are the consequences of varying prices of carbon throughout the world? – Should there be a common price? How, and at what level should a carbon price be set? Or should it depend on market demand?

International Trade/Border Measures

UNFCCC (United Nations Framework Convention on Climate Change) signatories support an “open and supportive international system”; recognize “the common but differentiated responsibilities” of developed and developing nations; and pledged to “avoid discriminatory measures that are a disguised restriction on trade”.

Nevertheless, developed countries are concerned about “carbon leakage” – (industry migrating to jurisdictions with weak environmental regulations) and both the EU and US have expressed interest in the imposition of measures that would act as a border tariff to countervail the perceived advantage of imported goods that were not produced in a jurisdiction with comparable carbon regimes.

- What border measures would be consistent with the various UNFCCC and existing WTO obligations? Should nations contemplate the use of “unfair trade laws” with causation and injury tests?
- How would a continental system be designed to ensure that carbon leakage was minimized through harmonized standards and regulations?

WORKING SESSION TWO – MODERNIZING THE CANADA - U.S. ELECTRICITY SYSTEM



- The two largest North American power grids function on a regional basis that transcends national borders.
- The Western Interconnect involves 14 American States, British Columbia and Alberta. The eastern encompasses literally two-thirds of the United States and Canada, with Saskatchewan and Manitoba members of the “Midwest” portion and all provinces from Ontario – east being members of the “Northeast” organization.
- A “smart grid” can lead to greater integration of renewables and other sources of electricity that require improved storage and other backup systems because of their intermittent nature. ^{12/43}
- The single largest source of GHG emissions is North America Emanate from Fossil-fueled electricity generation.
- The challenge for both Canada and the United States is to increase the reliability and efficiency of the grid; replace and refurbish existing power generation capacity; develop additional power generation and transmission capacity; and accomplish all these objectives while reducing power plant carbon emissions through the development and deployment of clean coal technologies and cleaner, renewable power.
- Waxman/Markey Bill proposes a standard that stipulates that retail electricity suppliers must meet a certain percentage of their load with electricity generated from renewable resources, defined as wind, solar, geothermal, biomass, landfill gas, qualified (i.e., small-scale) hydropower, and marine and hydrokinetic power. The requirement would begin at 6% in 2012 and reach 25% in 2025.

ISSUES AND

QUESTIONS

- How will a harmonized and cooperative North American market for electricity be developed to ensure a smooth transition for changing generation, transmission and infrastructure needs.
- Would regulatory harmonization across jurisdictions in Canada and the U.S. and between Canada and the U.S. help to encourage the development of “Smart Grid” technology?
- How do governments incent the building of a “bigger, better and smarter” electricity grid system?

Generation Issues

- Siting Issues: solving regulatory delays and protests from local landowners against the location of transmission lines is necessary as they present a major obstacle to the installation of power generation and increasing transmission capacity in both Canada and the United States.
- Ontario is in the process of closing its coal fired power plants. Nuclear plants are at least a decade away so this places Ontario even more dependent on U.S. imports.
- What modifications or alliances, if any, should be made to a Canada – United States cap and trade system to provide for or incent the capital stock turnover from coal fire generation to cleaner fuels?
- How can storage capacity for electricity be increased?
- How can we improve federal collaboration with U.S. on matters related to electricity trade – trade in environmentally preferred power?



Canada



13/43

Page 14 of



WORKING SESSION THREE – HARMONIZATION WITHIN CANADA AND BETWEEN CANADA AND THE UNITED STATES

- As both Canada and the United States are federal jurisdictions and the environment is an area of shared jurisdiction in both countries, the question always arises as to the role of existing provincial and state plans in the design of a federal cap and trade emissions reduction program
- In Canada, natural resources fall under the purview of provincial governments. In the United States, there are a number of state climate change initiatives. Both Canada and the United States need coherent and aligned policies, at both government levels, whereby energy development and environmental protection can co-exist – and so industry is not met with many, varied, potentially contradictory regulations governing these areas.
- Alberta has regulated industrial GHG emissions. BC and Quebec are already taxing them. Ontario and Quebec are considering some form of cap and trade. Saskatchewan will soon follow.
- The legislation in force in Alberta establishes a “Clean Technology Fund” which is accumulating resources. The federal government proposal contains a similar entity.
- Arguably in Canada, the ideal situation would be for the federal, provincial, territorial and regional systems to unify under a common set of rules.
- This will be essential to ensure a unified carbon pricing policy across all jurisdictions and prepare Canada and the US for linking with international trading.

ISSUES AND

QUESTIONS:

- What would be the effect of multiple jurisdictions within the same country having different prices for carbon?
- How closely aligned should the cap and trade regimes within Canada and the United States be to ensure they are effective, do not result in carbon leakage, and do not put industries in either country at a disadvantage – in North America or globally?
- Should the federal technology funds be split into a number of subgroups to ensure money paid to the fund by members of a specific industry is spent on technology for that industry? And should it be harmonized with similar provincial funds?
- Should there be special treatment for specific energy sources from specific parts of the country i.e., a carve-out within a cap and trade system for the “oilsands” and for the coal-fired electricity sector in the United States? What are the long term implications of not doing this?
- How do we ensure the competitiveness of Canadian resource industries in the design of this system?



CANADA SCHOOL
OF ENERGY AND ENVIRONMENT

Canada



KEY ISSUES IN INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS – THE ROAD TO COPENHAGEN

- A seamless regulatory framework for Canada and the United States would help achieve concrete greenhouse gas reductions in North America and assist in pursuing a strategy for meaningful global action.
- Canada and the US share common objectives in the current round of international climate change negotiations – we both recognize that while developed countries must lead, such action will be futile without the participation of the developing world, particularly China and India.
- As G8 nations, Canada and the United States are key players internationally, both from an economic and environmental standpoint. Our combined greenhouse gas emissions are currently 25.7% of the global total. Specifically, the combined total emissions of the U.S., Canada and Mexico represent 27.1% of global emissions, equivalent to emissions from all Annex 1 countries under the Kyoto Protocol.
- Mexico is a member of NAFTA and the WTO. It is a member of the OECD, but not of the International Energy Program. It is a member of the Major Emitters Forum but is not an Annex 1 industrialized nation for climate change purposes. An aligned North American approach to reducing greenhouse gas emissions through regulation and investments in technology would be a concrete demonstration of collaborative initiative and success to others. It will showcase our ability to achieve real action on a North American scale, deliver early environmental benefits of global significance, and serve as an invitation for effective partnership with others under a future global regime.



ISSUES AND

QUESTIONS:

- Should Canada and the United States sign on to an agreement in Copenhagen which provides absolute targets for OECD countries – but not for major emitting developing countries like China and India?
- Should the Clean Development Mechanism of developing country credits be retained, and, if so, how should it be reformed so it accurately reflects monies invested and work done?
- Should the International agreement provide for technology funds to help developing countries – how should the fund be financed and how should monies accumulated be distributed?
- Should developing countries be required to implement new technology on a sector by sector basis through targeted funding mechanisms which result in the introduction of new technologies in these countries?
- What accountability mechanisms need to be put in place?
- How should the “carbon leakage” issue be addressed in relation to countries which do not agree to adopt emission targets?
- How should international targets be approached?
 - Should developed countries use the regulatory technique deployed by the EU – a base commitment with higher contingent target?
 - In the event major emitting nations do not take on a meaningful commitment, should greater resources be allocated towards adaptation measures?

WORKING SESSION FOUR – DEVELOPING AND DEPLOYING CLEAN TECHNOLOGY TODAY

- This session combines two elements of the “Clean Energy Dialogue” – research into and development of new technologies and the implementation of new clean technologies that exist today.
- Technological advancement and innovation are critical to achieving significant, long-term reductions in GHG emissions.
- Need for collaboration on advanced biofuel research, expand collaboration on clean engine research and expand research on energy efficiency in buildings and communities.
- Need for collaboration and coordination of public and private investment in carbon capture and sequestration at coal fired facilities as well as in the oil sands.
- Challenges of making major capital investments in current economic and regulatory uncertainty
- Waxman/Markey Bill promotes the development and deployment of CCS by requiring a task force to report on recommendations regarding the commercial deployment of CCS, and establishes a “demonstration and early deployment” program.



CANADA SCHOOL
OF ENERGY AND ENVIRONMENT

Canada



ISSUES AND

QUESTIONS:

Investments in Technology

- How does a clean technology fund accumulate under a cap and trade system and how do the monies accumulated get spent and on which type of technology?
- Will revenues from auctioning of allowances be used to fund technological investments?
- Other than a technology fund – what other measures could be used to drive early investments in clean technologies?
- The cap and trade system must be accompanied by complementary policies for technology research, development and deployment; clean coal technology development, lower carbon transportation technologies and systems and improved energy efficiency in buildings and industry – What are these policies – grants, tax incentives, etc.?

Carbon Capture and Storage (CCS)

- What form will North American cooperation take on CCS and possibly nuclear development?
- Is CCS limited in its application – should it just be considered to be one of a suite of policies to reduce carbon?
- Need for development of a cross-border protocol for the sequestration of carbon which is captured outside the sequestering jurisdiction.
- What is the appropriate scale for public investment in CCS? Is CCS a suitable candidate for a P3 investment model?

Research, Development and Deployment

- What are the most effective and efficient ways to move clean energy scientific research from the laboratory to implementation in the field, in either demonstration or real projects?
- How to incent research into elimination of carbon beyond carbon capture and sequestration?
- Are there elements of our own present regulatory framework which inhibit the deployment of new technologies?



CANADA SCHOOL
OF ENERGY AND ENVIRONMENT

Canada



CONCLUSION

The possibility of a joint Canada-United States approach to climate change and energy policy presents an exciting scenario for both countries as they approach the international discussions in Copenhagen in December. This win-win-win possibility would ensure the United States access to a secure, stable, clean source of energy. Canada secures large and attractive market. All stakeholders, including the public win with effective environmental policies.

All of this is worth working towards and presents some important opportunities for aligning and leveraging policy, investment and environmental outcomes in each countries national interest.

In addition, the successful engagement of both countries in the “Clean Energy Dialogue” should bring about significant technological developments. It is only through such technological changes that the climate change challenge will be overcome.

These are the opportunities and challenges that face industry, governments and policy makers as they balance all of this while respecting the need to allow for sustainable economic growth.

It is my hope that we move closer over these two days to finding solutions so that the environment obtains the climate that it needs to flourish.

We look forward to the dialogue with you in Banff.

ANNEX TO BACKGROUND PAPER

The Waxman-Markey discussion draft, “The American Clean Energy and Security Act of 2009,” is comprehensive energy legislation.

For the full text of the summary go to:

http://energycommerce.house.gov/Press_111/20090331/acesa_summary.pdf.

Note: This is a summary of parts of the Bill relevant to the Banff dialogue prior to amendments being proposed.

TITLE I – CLEAN ENERGY

Renewable Energy. The draft promotes renewable energy by requiring retail electricity suppliers to meet a certain percentage of their load with electricity generated from renewable resources, like wind, biomass, solar, and geothermal. The renewable electricity requirement begins at 6% in 2012 and gradually rises to 25% in 2025. The governor of any state may choose to meet one fifth of this requirement with energy efficiency measures.

Carbon Capture and Sequestration. The draft promotes development of carbon capture and sequestration (CCS) technologies to ensure a continuing place for coal in our nation’s energy future. CCS is a method of reducing global warming pollution by capturing and injecting underground the carbon dioxide emitted from electricity generation plants that use fossil fuels. The draft includes a CCS early demonstration program, incentives for the wide-scale commercial deployment of CCS, and performance standards for new coal-fired power plants.

Clean Fuels and Vehicles. The draft establishes a new low-carbon transportation fuel standard to promote advanced biofuels and other clean transportation fuels. It authorizes financial support in the form of grants or loan guarantees to cities, states, or private companies for large-scale demonstrations of electric vehicles. A related provision authorizes financial support to car companies to retool their plants to build electric vehicles.

Smart Grid and Electricity Transmission. The draft contains provisions to facilitate the deployment of a smart grid, including measures to reduce utility peak loads through smart grid and demand response 2 applications and to help promote smart grid capabilities in new home appliances. It also directs the Federal Energy Regulatory Commission to reform the regional planning process to modernize the electric grid and provide for new transmission lines to carry electricity generated from renewable sources.

Partnering with the States. The draft creates a program to allow each state energy office to establish a State Energy and Environment Development (SEED) Fund, which will serve as a common repository for federal financial assistance for clean energy and energy efficiency projects.

Federal Purchases of Renewable Electricity. The draft authorizes federal agencies to enter into long-term contracts to purchase renewable electricity.

TITLE III – REDUCING GLOBAL WARMING POLLUTION

The global warming provisions in the discussion draft are modeled closely on the recommendations of the U.S. Climate Action Partnership (USCAP), a coalition of electric utilities, oil companies, chemical companies, automobile manufacturers, other manufacturers and energy companies, and environmental organizations.

Global Warming Pollution Reduction Program. The draft establishes a market-based program for reducing global warming pollution from electric utilities, oil companies, large industrial sources, and other covered entities that collectively are responsible for 85% of U.S. global warming emissions. Under this program, covered entities must have tradable federal permits, called “allowances,” for each ton of pollution emitted into the atmosphere. Entities that emit less than 25,000 tons per year of CO₂ equivalent are not covered by this program. The program reduces the number of available allowances issued each year to ensure that aggregate emissions from the covered entities are reduced by 3% below 2005 levels in 2012, 20% below 2005 levels in 2020, 42% below 2005 levels in 2030, and 83% below 2005 levels in 2050.

Supplemental Pollution Reductions. The draft directs EPA to achieve additional reductions in global warming pollution by entering into agreements to prevent international deforestation. By 2020, these supplemental reductions will achieve reductions equivalent to 10% of U.S. emissions in 2005. These are low-cost reductions in global warming pollution that can be secured by devoting approximately 5% of the allowance value to the program.

Offsets. The draft allows covered entities to increase their emissions above their allowances if they can obtain “offsetting” reductions at lower cost from other sources. The total quantity of offsets allowed in any year cannot exceed 2 billion tons, split evenly between domestic and international offsets. Covered entities using offsets must submit five tons of offset credits for every four tons of emissions being offset.

Banking and Borrowing. To provide additional flexibility without compromising environmental goals, the draft permits unlimited banking of allowances for use during future compliance years. The draft also establishes a rolling two-year compliance period, effectively allowing covered entities to borrow from one year ahead without penalty. Allowances from two to five years in the future can be borrowed under limited circumstances.

Strategic Reserve. The draft directs EPA to create a “strategic reserve” of about 2.5 billion allowances by setting aside a small number of allowances authorized to be issued each year thereby creating a cushion in case prices rise faster than expected. The draft directs EPA to make allowances from the reserve available through an auction when allowance prices rise to unexpectedly high levels. The proceeds of the auction will be used to purchase additional offsets that will replenish the strategic reserve.⁴

Carbon Market Assurance and Oversight. The draft provides for strict oversight and regulation of the new markets for carbon allowances and offsets. It ensures market transparency and liquidity and establishes strict penalties for fraud and manipulation. The Federal Energy Regulatory Commission is charged with regulating the cash market in emission allowances and offsets. The President is directed to delegate regulatory responsibility for the derivatives market to an appropriate agency (or agencies), based on the advice of an interagency working group.

Additional Greenhouse Gas Standards. The draft directs EPA to set emission standards on sources that are not covered by the allowance system. In addition, it creates special programs to reduce emissions of two pollutants that contribute to global warming: hydrofluorocarbons (HFCs) and black carbon. HFCs are chemical products that are used in refrigeration, air conditioning, and insulation,

among other things. The draft adds HFCs to the list of similar substances that EPA currently regulates because they deplete the ozone layer. Under this regulatory program, EPA will be directed to phase down the production of HFCs. Black carbon, or soot, is the product of incomplete combustion of fossil fuels or biomass. It is a major contributor to warming in the Arctic. EPA is directed in the draft to use its existing authority under the Clean Air Act to reduce emissions of black carbon domestically and study opportunities for reductions internationally.

Clean Air Act Exemptions. The draft provides that CO₂ and other greenhouse gases may not be regulated as criteria pollutants or hazardous air pollutants on the basis of their effect on global warming. The draft also provides that new source review does not apply to these global warming pollutants.

The United Nations Framework Convention on Climate Change (UNFCCC)

In the *United Nations Framework Convention on Climate Change (UNFCCC)* of 1992, Canada, the US and 190 other nations agreed on a long-term objective to achieve stabilization of greenhouse gas concentrations in the atmosphere at non-dangerous levels.

The UNFCCC covers six greenhouse gases (GHGs) that produce a greenhouse effect – carbon dioxide, methane, nitrous oxide and three fluorocarbons. Carbon Dioxide accounts for approximately 75% of the greenhouse effect attributable to the 6 “UNFCCC GHGs”. Over 70% of this man-made CO₂ is generated through the combustion of fossil fuels (primarily the use of coal to produce electricity and of oil-derived transportation fuels), while about 25% of the CO₂ emissions are generated through changes in land use. While the GHGs generated through changes in land use have little impact on the total GHGs of *industrialized* nations (where the land was cleared centuries ago), they have a significant impact on the total GHGs emitted by certain developing nations, notably Brazil and Indonesia.

Methane and Nitrous oxide are the others gases that account for the other 25% of the greenhouse effect. The man-made methane is produced from natural gas production, landfills, animal gas and rice production, while the nitrous oxide is generated primarily in agricultural activities (soil tillage and nitrogen fertilization).

The UNFCCC does not cover “non-gas” particulate pollutants that contribute to the greenhouse effect. It is estimated that black carbon (i.e. soot) plays a larger role in creating the enhanced greenhouse effect than all gases save for CO₂. Per capita emissions of black carbon are now relatively equal in both developed and developing nations, making the populous developing world the largest emitter in absolute terms. Black carbon is now generated primarily in the developing world through “slash and burn” land-clearing and traditional wood/charcoal cooking fires.

Key UNFCCC Principles

- Nations need to act in accordance with their common, but differentiated responsibilities based on their respective capabilities;
- Developed countries have the responsibility and capacity to lead, but an effective and appropriate international agreement needs the widest possible cooperation by all countries;
- National responses to climate change should be consistent with social and economic development; and

The Kyoto Protocol

Industrialized “Annex 1” countries made commitments in 1997 regarding the average annual level of greenhouse gas emissions that they would achieve over the five years 2008-2012, with this future level expressed relative to the level of GHG emissions generated back in 1990. The Objective of the Kyoto Protocol was to reduce levels in industrialized world to 5% below 1990 levels.

The concept of “common but differentiated responsibilities” was interpreted to mean that developing nations should not be required to make a commitment.

The Protocol was adopted for use in late 1997, and eventually entered into force in 2005, less than three years from the start of the commitment period.

In 1997, Countries made different commitments relative to their 1990 emissions (for example, EU-15 committed to 8% < 1990 levels; US 7% < 1990 levels; Canada 6% < 1990; Australia 8% ≥ 1990 levels). These different commitments were further skewed due to the radically different economic (and emissions) growth that took place in the period between 1990 and 1997 (e.g. the EU commitment in 1997 translated into an EU-27 commitment to reduce emissions by 1% from 1997 levels, while the Canadian 1997 commitment was effectively to reduce emissions by 17% from 1997 levels).

Since 1997, actual emissions have increased in industrialized nations (including in Europe). More ominously, the level of total man-made GHG emissions in the atmosphere has risen by approximately 30%, due to the rapid growth of emissions in the developing world, particularly in fast-growing and populous China and India. In fact, China surpassed the United States as the world’s single largest emitter in 2007, approximately one decade earlier than had been projected at the time of the Kyoto negotiations.

Setting New Targets

The current scientific recommendation is that achieving the long-term UNFCCC stabilization objective requires the global community to reduce annual GHG emissions in 2050 to an amount that is 50% below the 2005 levels of 36,000 Mt, or approximately 18,000 Mt.

It is projected that:

- GHG emissions in 2050 will total approximately 90,000 Mt – some 2.5 times higher than 2005 levels of 36,000 Mt and 5 times greater than the recommended global target.
 - If all Industrialized Nations were to reduce their emissions by 50% from 2005 levels, global emissions will total approximately 72,000 Mt in 2050 due to rising per capita emissions and a rising population in the developing world. This projection is double the 2005 level of 36,000 Mt and 4 times greater than the recommended global target.
 - If all Industrialized nations were to reduce their emissions by 80% from 2005 levels, global emissions will still total 64,000 Mt in 2050 – some 3.5 times greater than the recommended global target
-

Government of Canada has expressed its target going forward relative to 2006 levels, while various American proposals are geared to 2005 levels. EU continues to express its targets in terms of 1990 levels.

Does the continued use of 1990 base year meet the test of “Additionality” -

What year would best ensure access to higher quality data (particularly in the developing world)?

Should Canada and the United States agree on a common base year?

Targets have been expressed in terms of 2020 and 2050. Certain American legislative proposals have called for a 2030 target in addition to 2020. Should there be a continuum of targets (2020, 2030, 2040, 2050) to avoid a distortion of investment decisions?

US v Canada 2005

	2005 All Kyoto GHGs (not just CO2)					
	US		(Co2 equivalent)	Canada		
	Mt	%		Mt	%	
Total	6998	100		747	100	
Electricity	2381	34		129	16	
Transportation	1882	27		200	27	

Industry (incl oil/gas)	1002			
Upstream Fossil Fuel				
(including fugitive)			163	22
Of which Oil Sands			34	.05
Buildings (Resid + Commercial)	580	8	79	11

Comments

- Thermal power and transportation emissions = 61% of US emissions vrs. 43% in Canada
- Canadian power is approx. 70% “low carbon” (hydro and nuclear) vrs. US 70% “high carbon” (primarily coal, which fuels approx. ½ of America’s total power capacity)
- Fugitive emissions from Natural gas in Canada are larger than Oil Sands carbon footprint
- Canadian oil/gas exports to US account for approximately 11% of total Canadian emissions

Energy Facts

- Canada and the United States operate an integrated continental energy transmission system of oil and natural gas pipelines and regional cross-border power grids. Canada is the leading foreign supplier to the United States of oil, natural gas, electricity and uranium; and an indispensable supplier of oil, gas and power to the northern tier states.

TRANSPORTATION FUEL/OIL

- Gasoline and similar oil-derived products serve as the basis for approximately 97% of the transportation fuel consumed in North America. Approximately 3/4 of the oil in North America is used as transportation fuel, with the other ¼ used in the production of numerous petroleum-based products. There is widespread agreement that oil will remain the dominant transportation fuel feedstock for decades to come pending the development of (a) alternative fuel(s) with (b) a ubiquitous distribution system.
- The US produces 40% and imports 60% of its consumed oil on a net basis. Approximately 1/3 of the imported oil come from Canada and Mexico. Five nations (Canada, Saudi Arabia, Mexico, Venezuela and Nigeria) supply at least 1 million b/d to the US and account for approximately 2/3 of US imports. Canada is the single largest supplier to the US of crude oil and petroleum products and a critical supplier to the US Mid-west and Rocky Mountain regions, supplying nearly 2 million b/d of crude and 2.4 million b/d of total petroleum products via an extensive trans-border network of pipelines.
- At current rates of production, it is projected that proven oil reserves in the United States and Mexico will be depleted in approximately one decade. Canada ranks second to Saudi Arabia in terms of proven oil reserves (180 billion barrels based on current technologies and prices) and is the only nation in the

top six that is not located in the Persian Gulf region. The bulk of the Canadian proven reserves are unconventional oil sands deposits.

Carbon Intensity Facts

In 2007, the United States enacted legislation (*Energy Independence and Security Act*) to limit the procurement by federal entities of transportation fuel derived from unconventional oil unless its lifecycle emissions (from production and consumption) are less than or equal to the emissions generated from “equivalent” conventional fuel. California wishes to enact a Low Carbon Fuel Standard for Transportation Fuels that will encourage a reduction in the carbon intensity of the fuel mix. President Obama promised a national LCFS during his Presidential election campaign.

Anti-oil critics wish to limit the use of unconventional synthetic oil (oil sands oil) on the basis that is 2-3 times “dirtier” than conventional oil.

GHG Life Cycle Emissions (1000 litres of transportation fuel consumed in Chicago)

	SAUDI Light	NIGERIAN Extravos	CANADA Synthetic Crude	VENEZ Partial Upgrade
Production	186	430	606	651
Transport	167	61	42	55
Refining	204	188	199	211
Combustion	2537	2591	2590	2619
Byproduct				
Combustion	158	133	130	124
	3252	3403	3567	3660

Over 3 times as many GHGs are emitted during **the production** of Canadian Synthetic crude (SCO) compared to Saudi Light Crude. However, total GHGs emitted from over the **complete lifecycle** from production through consumption (in Chicago) are only 10% greater. This 10% differential does not take into account the reduced emissions that will be caused through the use of Carbon capture and storage techniques.

ELECTRICITY

- Approximately 70% of Canada's electricity can be described as "low carbon", due primarily to Canada's plentiful supply of hydropower. Canada continues to enjoy substantial untapped hydropower potential. However, this national statistic masks significant regional variations, with power generation in Quebec, Manitoba and Newfoundland & Labrador being "90% hydro", compared to Alberta, Saskatchewan and Nova Scotia, which are "90% thermal". The Canadian situation is in sharp contrast to power situation in the United States, where approximately 70% of the power can be described as "high carbon", with coal-fired thermal plants accounting for over ½ of America's power generation capacity.
- North American power grids operate on a regional, rather than national basis. British Columbia and Alberta are members of the Western Interconnect with 14 Western US states. The rest of Canada is part of the huge Eastern Interconnect that also encompasses literally 2/3 of the United States. Within the huge Eastern Interconnect, there are 6 Regional Transmission Organizations (RTOs), two of them operating on a bi-national basis. The Maritime provinces participate with Quebec, Ontario and neighbouring American states in the "Northeast" RTO, while Manitoba and Saskatchewan are members of the "Midwest" RTO.
- The security and reliability of the North American electricity system is currently a bi-national responsibility. Since 1968, all regional grids and RTOs have operated under the umbrella of the bi-national North American Electricity Reliability Corporation (NERC). Cooperative bi-national efforts to ensure the reliability of the grids have increased since the major blackout in Northeast North America in August of 2003. It is expected that the NERC umbrella will eventually be extended to include Mexico.
- The concept of a smart electricity grid is to use information technologies to better manage the demand and supply of electricity, including the integration of the intermittent supply of wind and solar power with the continuous supply of base load power. The fact that renewable power is often generated in remote locations far from population centers also creates some significant technical obstacles, both in terms of power loss during transmission and the appropriate network configuration. Cooperation and coordination between Canadian and American power authorities and the development of common smart grid standards is therefore essential as the two countries seek to expand the generation and transmission capacity of the North American power grid.

HOME HEATING FUEL/NATURAL GAS

- Approximately 50% of the homes in both Canada and the United States are heated with natural gas, the cleanest of fossil fuels. Natural gas is the dominant source of home heating west of the Ottawa River and Montreal. East of the Ottawa River, the absence of access to natural gas and the plentiful supply of hydro-electricity has caused electricity to be a major source of home heating in Quebec and Atlantic Canada.
- North America is fortunate to enjoy substantial proven reserves of natural gas. Companies in both Canada and the United States are replacing declining reserves of low cost, conventional gas by tapping more remote and/or less conventional gas fields. There is an estimated 26 Tcf of proven, low cost gas in Alaska and 5-6 Tcf of natural gas beneath the Mackenzie delta in Canada. Estimates of non-conventional natural gas reserves in Canada range as high as 600 Tcf. The development of such reserves, when coupled with the existence of a ubiquitous natural gas pipeline network to serve the residential market, would enable the use of natural gas for other purposes, (e.g., as a transportation fuel; and as a transition fuel for electricity generation between present-day coal and future cleaner alternatives).

Oil Sands

- **Canada's oil reserves are second in the world behind Saudi Arabia**
- **Of 179 billion barrels of Canada's oil reserves, the oil sands represent 97 per cent**

Economic Contribution

INVESTMENTS AND JOBS

- For each permanent oil sands-related job, nine additional direct, indirect and induced jobs are created in Canada.
- Currently 240,000 jobs in Canada are directly or indirectly linked to the oil sands.
- Between 2000 and 2020, oil sands development has the potential to generate at least \$123 billion in royalty and tax revenues for Canada's federal and provincial governments.

CONCERNS, CHALLENGES AND RESPONSES

ISSUE: LAND

► RECLAMATION

- As required by law, and included in all project approvals, reclamation work is ongoing and continuous in the oil sands. All lands disturbed by oil sands will be reclaimed.

► EXTRACTION

- Mining is only an option for oil sands that sit less than 75 metres under the surface.
- More than 80 per cent of the oil sands will be developed using in-situ technologies.
- In-situ projects resemble conventional oil development and do not require tailings ponds, or mine pits.
- In-situ operations create linear disturbance

of the surface for wellheads. But new technology and processes, including low impact seismic and directional drilling, are reducing that footprint.

**CONCERNS, CHALLENGES
AND
RESPONSES
ISSUE: WATER**

► **WATER USE**

- In Alberta, Alberta Environment regulates oil and gas industry water use under the Water Act. Oil and gas companies are subject to the same conditions for use as any other licensed water user in Alberta.
- Currently, the oil sands industry draws less

than half the allocation allowed by Alberta Environment from the Athabasca River.

- At full oil sands development only 15 per cent of the Athabasca River flow may be drawn by industry in low-flow conditions at any time.
- Water allocations are strictly controlled during low flow periods.
- More than 80 per cent of water drawn by industry from the Athabasca is recycled.
- Non-potable water which is unsuitable for drinking, livestock or irrigation use is used wherever possible for in-situ production.

► **TAILINGS PONDS**

- Tailings contain the water, residual bitumen, sand and clay that is left over when the bitumen is separated from the sand.
- In the ponds, the solids separate from the water so the water may be recycled into the process again. Of the total water used by oil sands mines, 80 per cent is recycled.
- During and after mining, the tailings ponds are reclaimed. No tailings water is released to the Athabasca River or any other watercourse.
- The first tailings ponds will be reclaimed in 2010.
- 80 per cent of the oil sands resource will be developed using in-situ technology which does not require tailings ponds.



Canada¹³¹
Bruce Carson
Executive Director

For more information, visit:

www.oilsandsdevelopers.ca

www.acr-alberta.com

www.canadasoilsands.ca

www.centreforenergy.com

www.wbea.org

www.ramp-alberta.org

www.oilsands.alberta.ca

January 2009

ATTENDEES LIST

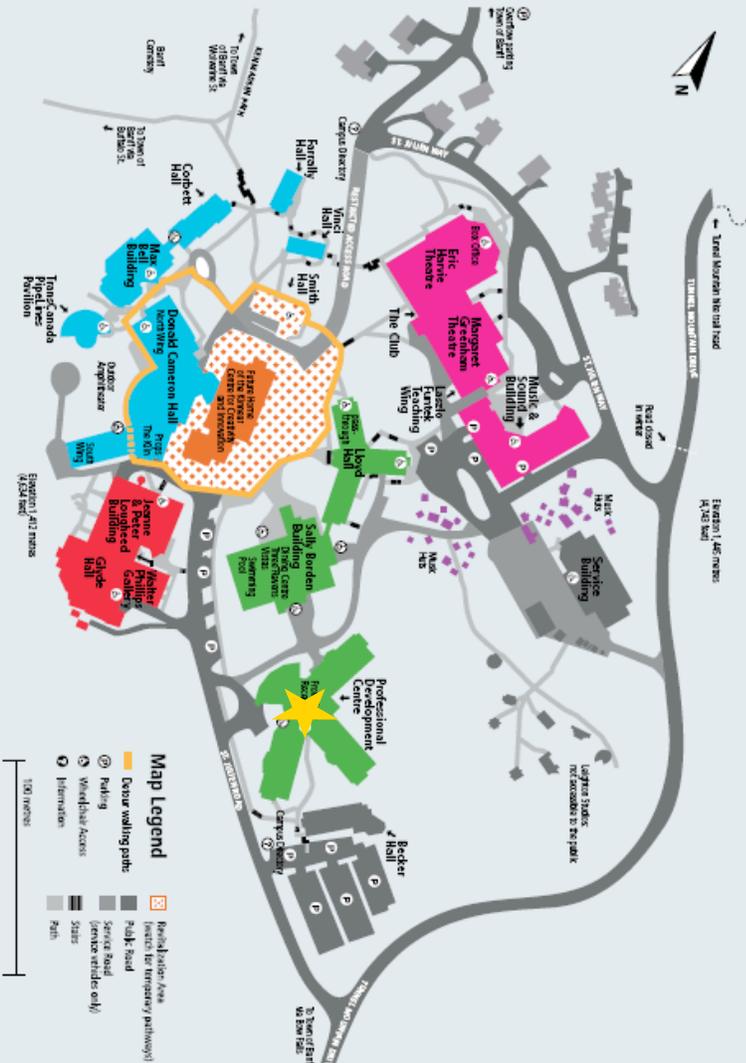
Full Name	Position	Company
Pierre Alvarez	VP Corporate Relations	Nexen Inc
Earle Baddaloo	Assistant DM	Department of Environment NU
Line Beauchamp	Minister of Environment	Gov
Gail Beggs	Deputy Minister of Environment	Provincial Gov
Roxanna Benoit	Managing Director Public Affairs	Gov
Douglas Bloom	President	SpectraEnergy / Westcoast Energy
Bill Borland	Chairman Canadian Water Network; AMEC VP Earth and Env.	National Research Center of Excellence of Canadian U's
Michael Borrell	President	Total E&P Canada Ltd.
Richard Brown	Minister of	Environment, Energy, Forestry
Peter Burn	Partner	Gowlings law firm
Mark Cameron	E&E, Climate Change	PMOffice
Bruce Carson	Executive Director	CSEE
Jim Carter	Chair	Alberta Carbon Capture Development Council
Ken Cheveldayoff	Minister	Saskatchewan Power
Dave Collyer	President	Canadian Association of Petroleum Producers
François Crête	Chief of Staff	(Gov) Ministry of Environment
Henry Derwent	President	Int'l Emissions Trading Association, Geneva
Joseph Doucet	Executive Director	SEE, Uni of Alberta
John Drover	Department of Policy & Planning	NL Gov
Jacob Dweck	Partner	Sutherland (Law Firm)
Murray Edwards	President	EDCO Financial Holdings Ltd.
Jim Ellis	Deputy Minister of Environment	Gov (Alberta)
Gerry Ertel	Manager, Regulatory Affairs	Shell Canada Ltd
Charlie Fischer	Co-Chair	AB Climate Change Central Board
Phil Fontaine	National Chief	AFN (Assembly of First Nations)
George Foote	Director	Climate Change, NS Environment
Rick George	President and CEO	Suncor Energy
John Gerretsen	Minister of Environment	Gov
Gordon Giffin	former US Ambassador to Canada	McKenna, Long & Aldridge
Ron Glen	Chief of Staff	Office of the Premier, AB
Sabrina Grando	Chief of Staff to John Gerresten	Ministry of Environment
Brian Heidecker	Chair, Board of Governors	University of Alberta
Nancy Heppner	Ministry of Enviro	SK Gov

Bonny Hoyt-Hallett	Deputy Minister of Environ.	NB Gov
Tom Huffaker	VP, Policy & Environment	CAPP
Jackie James	Special Advisor	NL Gov
Charlene Johnson	Minister of Environment	NL Gov
Jeff Kasbrick	Special Assistant to Rob Renner	AB Gov - Env
David Keith	Director	ISEEE
Steve Kelly	Chief of Staff	Ministry of Environment (Canada)
Dr. John Kennelly	Dean: Agriculture Life & Env Sciences	Uni of Alberta
Alisha Khan	Executive Assistant/Event Coordinator	CSEE
Catherine Khan	Event Coordinator	CSEE
Hal Kvisle	President & CEO	TransCanada PipeLines
Bill Lahey	Director, Health Law Institute	Dalhousie University
Henry Lain	VP	CIC (Saskatchewan)
David Layzell	Exec Director, ISEEE	University of Calgary
Blair Lekstrom	Minister	BC-Energy, Mines & Petro. Resources
Don Lowry	President & CEO	EPCOR
Lee Lundy	Group Chief Executive	BP Canada
David Lynch	Dean of Engineering	UofA
Elan MacDonald	Deputy Chief of Staff	Government of Alberta
Steve Macdonald	Dep Chief of Policy Co-ord. Office	Government of Alberta
Brian Manning	Dep Minister of Executive Council	Government of Alberta
David Manning	Executive Vice President	Nationalgrid
Robert Mansell	UC Senior Fellow, Economics Prof	UofC, ISEE
Gary Mar	Minister-Counsellor	Alberta Washington DC Office
Bruce March	Chairman, President & CEO	Imperial Oil Ltd
Michael Martin	Chief CC Negotiator and Ambassador	Environment Canada
Ann McCarthy	VP, Business Development	Montreal Climate Exchange
Velma McColl	Principal	Earnscliffe
Dr. Ross McKittrick	Economics Prof, Senior Fellow	Guelph U, Fraser Institute
David McLaughlin	President and CEO	NRTEE
Bob McLeod	Minister	NWT Gov
Trevor McLeod	Legal Counsel & Research	CSEE
James Meitl	Senior Director	Cambridge Energy Research Associates

Kevin Meyers	President	ConocoPhillips Canada
Michael Miltenberger	Minister	Envir. & Natural Resources - NWT
Jack Mintz	Dean of Public Policy	University of Calgary
Douglas Mitchell	Co-Chairman & Managing Partner	Bordner Ladner Gervais LLP
Lois Mitchell	Chair	Calgary Chamber of Commerce
Mike Monea	VP	SaskPower, Integrated CCS
Michal Moore	Senior Fellow	UofC, ISEEE, Institute for Sustainable Energy
Dean Munde	Climate Change Secretariat	Environment NB
Abbi O'Flynn	Assistant to the Director	CSEE
Bob Oliver	Executive Director	Pollution Probe
Tom Olsen	Dir. of Media Relations, Communications	Ed Stelmach Assistant (AB Gov.)
Dr. Robert Page	Professor	UofC, TransAlta
Bill Parrott	Deputy Minister of Environment	NL Gov
Janet Peace	VP, markets / business strat	Pew Ctr on Global Climate Change
Barry Penner	Minister of Environment	BC Gov
Susannah Pierce	Director	Government Relations for TransCanada
Jim Prentice	Minister of Environment	Canadian Gov
Gerry Protti	Exec VP, Corporate Relations	EnCana Corporation
Marie Rajic	Director	TransCanada Pipelines
Marlo Reynolds	Executive Director	Pembina Institute
H. Rob Renner	Minister of Environment	Alberta Gov
Chet Reynolds	Director	CSEE
Colin Robertson	Distinguished Senior Fellow	Carleton U
Wishart Robson	Senior Climate Change Advisor	Nexen Inc, NRTEE
Marvin Romanow	President and CEO	Nexen Inc
David Runnalls	President	Int'l Institute for Sustainable Development
Indira Samarasekera	President	University of Alberta
Allison Scott	Deputy Minister of Energy	Nova Scotia Gov
Kathy Sendall	VP	Petro-Can, NorthAm. Natural Gas
Ian Shugart	Deputy Minister	Environment Canada
Joan Smart	Admin. Assistant to Bruce Carson	CSEE
Nancy Southern	President & CEO	ATCO Limited
Joseph Stanislaw	Founder	The JAStanislaw Group

Ed Stelmach	Premier	Alberta
Elgie Stewart	UofO Chair & Law Prof	UofO's Environment Research Institute
Andrew Stewart	Executive Assistant/Event Coordinator	CSEE
Marlin Strangeland	Unavailable	SK Gov
Brian Straub	President and County Chair	Shell Canada Ltd
Stanley Struthers	Minister of Conservation	Manitoba Gov
François Taschereau	Directeur Principal Communications	Hydro-Quebec
Elaine Taylor	Minister of Environment	Yukon Gov
Bob Turner	Chair	U of Lethbridge Board of Governors
James Warner	Congressional Affairs Fellow	Pew Ctr on Global Climate Change
Joy Waters	Assistant Deputy Minister (Gov)	Yukon Climate Change Portfolio
Harvey Weingarten	President	University of Calgary
Ed Whittingham	Group Director, Consulting Services	The Pembina Institute
Drew Wilby	Chief of Staff	Ministry of Enviro - Saskatchewan
David Wilkins	Chair, Former US Ambassador to Canada	Nelson Mullins Riley & Scarborough LL, Public Policy & Int'l Law
Denise Woodman	Executive Assistant to Minister of Environment	NL Gov

Getting Around The Banff Centre



Services at The Banff Centre

- Banff Centre Box Office**
- Ticketmaster outlet
- Eric Howe Theatre lobby
- Business Centre**
- Professional Development Centre
- Gooseberry Deli and Juice Bar
- Sally Borden Building, main floor
- Information**
(see Front Desk)
- The Kiltin Café and General Store**
- Donald Cameron Hall, south wing
- Laastio Funtek Teaching Wing**
- Theatre Complex
- Laundry facilities**
- Lloyd Hall, Corbett Hall, Farnell Hall
- Library**
(Paul D. Fleck Library & Archives)
- Lloyd Hall, lower level
- New Dining Centre**
- Sally Borden Building, top floor
- Parkade**
- Music & Sound Building, underground
- Props Pub**
- Donald Cameron Hall
- Reception (Front Desk)**
- Professional Development Centre (see map)
- Recreation Facilities**
(pool, exercise room, indoor track, massage, physiotherapy) Sally Borden Building
- Redston Realtrial Hall
- Music & Sound Building
- Three Ravens Restaurant & Wine Bar**
- Sally Borden Building, top floor
- Vistas Dining Room**
- Sally Borden Building, top floor
- Walter Phillips Gallery**
- Glyde Hall (see map)
- Xerox Print Shop**
- Service Building

 Printed on acid/bleed-free paper made from 100 per cent post-consumer waste. In an environmentally friendly print shop.