Senate Sénat

Canada

GLOBE 2010 Conference: Beyond the Science

Fourth report of the Standing Senate Committee on Energy, the Environment and Natural Resources

The Honourable W. David Angus, *Chair*
The Honourable Grant Mitchell, *Deputy Chair*

May 2010

Ce rapport est aussi disponible en français

Des renseignements sur le Comité sont donnés sur le site :

http://www.senate-senat.ca/EENR-EERN.asp

Information regarding the Committee can be obtained through its web site:

http://www.senate-senat.ca/EENR-EERN.asp

Table of Contents

Members of the Standing Senate Committee on Energy, the Environment and Natural Resources

Honourable W. David Angus – Chair

Honourable Grant Mitchell – Deputy-Chair

Honourable Tommy Banks
Honourable Bert Brown
Honourable Fred Dickson
Honourable Linda Frum
Honourable Daniel Lang
Honourable Paul J. Massicotte
Honourable Elaine McCoy
Honourable Richard Neufeld
Honourable Robert W. Peterson
Honourable Judith Seidman

Ex-officio members of the committee:

The Honourable Senators Cowan (or Tardif) and LeBreton, P.C., (or Comeau).

Staff of the committee:

Ms. Sam Banks and Mr. Marc LeBlanc, Analysts, Parliamentary Information and Research Services, Library of Parliament;
Ms. Tracie LeBlanc, Acting Communications Officer, Communications Directorate;
Ms. Lynn Gordon, Clerk of the committee, Committees Directorate;
Ms. Chelsea Saville, Administrative Assistant, Committees Directorate.

Order of Reference – 40-3

STANDING SENATE COMMITTEE ON
ENERGY, THE ENVIRONMENT AND NATURAL RESOURCES
SPECIAL STUDY, ENERGY SECTOR

Extract of the *Journals of the Senate*, March 11, 2010:

The Honourable Senator Angus moved, seconded by the Honourable Senator Andreychuk:

That the Standing Senate Committee on Energy, the Environment and Natural Resources be authorized to examine and report on the current state and future of Canada's energy sector (including alternative energy). In particular, the committee shall be authorized to:

(*a*) Examine the current state of the energy sector across Canada, including production, manufacturing, transportation, distribution, sales, consumption and conservation patterns;

(*b*) Examine the federal and provincial/territorial roles in the energy sector and system in Canada;

(*c*) Examine current domestic and international trends and anticipated usage patterns and market conditions, including trade and environmental measures and opportunities, likely to influence the sector's and energy system's future sustainability;

(*d*) Develop a national vision for the long-term positioning, competitiveness and security of Canada's energy sector; and

(*e*) Recommend specific measures by which the federal government could help bring that vision to fruition.

That the papers and evidence received and taken and work accomplished by the committee on this subject since the beginning of the Second Session of the Fortieth Parliament be referred to the committee; and

That the committee submit its final report no later than June 30, 2011 and that the committee retain all powers necessary to publicize its findings until 180 days after the tabling of the final report.

The question being put on the motion, it was adopted.

Gary W. O'Brien
Clerk of the Senate

Why we Went

Nine members of the Standing Senate Committee on Energy, the Environment and Natural Resources attended the Globe 2010 conference in Vancouver 24-26 March 2010. The conference is considered one of the world's largest and longest-running events dedicated to finding business solutions to environmental problems.

The conference touched on many pressing environmental themes but the predominant focus was on issues related to energy systems and the mitigation of greenhouse gas emissions. These issues are central to the committee's current study of Canada's energy future. The committee members were impressed with the enthusiasm with which businesses are approaching – and creating solutions for – a more sustainable, low carbon future.

There is a sense that businesses have moved beyond the climate science debate and have recognized the need to reduce greenhouse gas emissions. As such, the discussion is shifting to finding business opportunities in developing sustainable solutions to the challenges posed by climate change. In response, many countries are active in developing policies that create right business environment to take advantage of the new energy economy.

There is a necessity to find clean, sustainable and efficient ways of doing things on a global scale because the global human population will grow from 6.7 billion to 9 billion by 2050 in mostly non-OECD countries, increasing energy demand and putting enormous pressure on the environment and the world's natural resources.

Public/Private Leadership

The conference explored several interrelated and cross cutting issues. However, one thing was made clear: a combination of public and private leadership is needed to tackle today's environmental challenges. Whereas governments have a responsibility to set the rules of the game and to take the lead by ensuring the right framework is in place including putting a price on carbon, they alone cannot solve our environmental problems. It will also require buy-in and co-operation from a multitude of sectors including businesses, different levels of government including municipalities, nonprofit organizations, associations and consumers.

It is difficult to over-emphasize the role of the business sector because their leadership is a key element for moving forward with practical solutions. Private sector entrepreneurialism, as the key driver of innovation, provides the creative means to change our world for the better. They can improve ways to design and distribute products and find solutions to make a meaningful difference without reducing our standard of living.

Community-level solutions

The importance of community-level solutions was also explored as many municipal governments are taking a leadership role in rethinking, redesigning and reengineering urban spaces. There is a sense that local governments are no longer waiting for national level solutions but are instead

forging their own paths. Municipal initiatives include incorporating LEED (Leadership in Energy and Environmental Design) standards into building permits and city planning that orients developers towards mixed-use urban spaces.

An impressive example of innovative city design was provided by the United Arab Emirates-based company Masdar. One of its projects is Masdar City, a clean technology cluster being developed on the outskirts of Abu Dhabi that will be powered entirely by renewable energy, with utility-scale renewable power generation. That these projects are taking place in a region of significant hydrocarbon wealth says much about the future importance of clean and sustainable energy generation.

Practical environmentalism

Practical environmentalism was a common thread woven throughout the sessions we attended. It found expression in the collaboration and innovation between consumers, retailers, distributors, manufacturers, designers, governments to find ways to transform how we consume energy in society. There was a sense that with multiple challenges on multiple fronts, it is impractical, inefficient and unwise to act alone and that a systems approach is needed to provide the transformation to a more sustainable, low carbon economy.

Consumers, both at home and at their places of work, are at the heart of any change towards a more sustainable economy. Speakers expressed the need to make closer links between our consumption habits and sustainability. Price incentives and smart meters for electrical energy and water use can help move towards more sustainable consumption of our valuable resources. Some speakers believed it is essential that consumers adopt a different sense of what is valued in society and have attached inherent value to environmental solutions that emulate a spiritual sense of connection.

Site visit to the British Columbia Transmission Corporation control centre

In addition to attending the Globe 2010 conference, several members of the committee visited a new state-of-the-art system control centre of the British Columbia Transmission Corporation to view this facility and better understand the electricity transmission system in BC. We thank the people we met there for their very warm reception and hospitality, and for their generosity in time, expertise and information. The knowledge we gained in this visit will greatly assist committee members as we go forward with our study of Canada's energy future.

Canada's Energy Future

Committee members returned from this conference enthusiastic and optimistic about Canada's sustainable clean energy future. It is true that we face enormous environmental and energy challenges and while solutions may not appear overnight, they do exist and/or are being developed. We must address these challenges today and not kick the responsibility to Canada's future generations.

About the Globe Conference

GLOBE is a biennial international conference and trade fair on the business of the environment. 2010 marked its 20th year. Over 10,000 participants representing corporate executives, government decision makers and leaders of the environmental industry from over 80 countries converged at GLOBE 2010.

The Globe Conference and trade fair is part of a series of events produced by the Globe Foundation. Established in Vancouver in 1993, the GLOBE Foundation is a not-for-profit private business foundation with a mandate to promote the business case for sustainable development.

With some 40 separate sessions, the program at the GLOBE 2010 conference was so large that it was not possible for members of our delegation to be present at every session, discussion, presentation, or event despite the committee being represented at this conference by 9 Senators. Participants from the Senate of Canada were as follows: The Honourable Senators Angus, Banks, Brown, Lang, Massicotte, McCoy, Mitchell, Neufeld and Peterson, and, from the Library of Parliament, Marc LeBlanc and Sam Banks.

The 2010 program centred around six main themes: corporate sustainability, climate change, carbon management, clean energy, sustainable finance, and greener cities. Four subthemes were also considered: clean technology, water, sustainable retail, and the future of the auto industry.

This report summarizes what we heard at GLOBE 2010. The full conference program-, which is available in English only, is here[1].

Wednesday March 24, 2010

Opening Plenary

The opening session of the conference addressed the future of sustainability focusing on how today's environmental challenges can be met through innovation and leadership.

Moderator:
John D. Wiebe, President & CEO, GLOBE Foundation, Vancouver, BC, Canada

Speakers:
Frank Wouters, Chief Executive, Masdar Power, Abu Dhabi, UAE
James Suciu, President, Global Sales & Marketing, GE Energy, Atlanta, GA, USA
Gregor Robertson, Mayor, City of Vancouver, BC, Canada

[1] http://www.globe2010.com/Online-Conference-Program.aspx

John Wiebe

- Environmental problems are business opportunities: some ideas that were initially proposed at earlier GLOBE conferences are now common business practices.

Gregor Robertson

- Vancouver's goal is to be the greenest city in the world by 2020. It is already the greenest city in Canada.
- The 2010 Olympic Winter Games, held in Vancouver and Whistler, were a key driver in moving sustainability forward.
- Cities are natural partners in the green economy. The world is becoming increasingly urbanized; cities are where people live and it is where green shifts will occur. Vancouver is one of many cities on the forefront of the green transition.
- National governments are "frustratingly stalled on climate change and low carbon future front" and therefore action is happening from the ground up. That is, leadership is coming from provincial and municipal governments.
- Mayors around the world are very engaged on this front.
- The creation of Vancouver's Corporate Climate Leaders Program[2] was announced.

Frank Wouters

- Masdar Power[3] is leading the way in developing utility-scale renewable energy. It is building a zero carbon and zero waste city powered entirely by renewable energy sources.
- Its primary focus is solar energy but wind energy is also part of the mix. Masdar Power is also developing a 500 megawatt (MW) hydrogen-fired power plant in Abu Dhabi.
- The world receives more energy from the sun in one hour than all humans use in one year. However, to harness this energy will require technological breakthroughs in storage and in energy conversion.
- The International Energy Agency (IEA) estimates that $10 trillion in investment is required over the next 20 years to stabilize greenhouse gas emissions (GHGs).
- There is potential for enormous growth in the green economy.

[2] "The Corporate Climate Leaders Program includes energy savings studies for businesses who commit to undertaking measures that are identified as cost effective." http://www.mayorofvancouver.ca/blog/?p=888#more-888

[3] Masdar Power is one of four operational units of Masdar (the Abu Dhabi Future Energy Company). It invests both in renewable energy power projects and in companies with proven cleantech technologies within the United Arab Emirates (UAE) and internationally. Masdar is a wholly owned subsidiary of the Mubadala Development Company, a sovereign wealth fund owned by the government of UAE.

- Renewable energy is dispersed around the world; therefore the economic benefits can be created all over the world. This will lead to local value creation that benefits the planet in general.
- Abu Dhabi is moving away from an economy based on hydrocarbons and towards a knowledge-based economy.

James Suciu

- As we come out of a recession, emerging markets such as China and India are growing while the developed world is stagnant, creating a "two speed world" in which growth is decelerating in some economies while speeding up in others.
- Sustainable practices and efficiency improvements increase value for shareholders.
- General Electric (GE) is doubling its commitments to R&D investment in energy efficiency – improving energy efficiency has substantial impact on reducing emissions.
- We need more collaboration between private industry and public policy.
- Renewable energy and the green economy are here to stay.

Wiring Supply Chains for Environmental Value

Greening the supply chain is a strategic, bottom line issue. This session discussed how companies can monitor environmental information, find ways to evaluate the products and services they procure and work with suppliers in an efficient, cost effective way.

Moderator:
Coro Strandberg, Principal, Strandberg Consulting, Burnaby, BC, Canada

Speakers:
Ann Duffy, Corporate Sustainability Officer, Vancouver Organizing Committee for the 2010 Olympic and Paralympic Games, Vancouver, BC, Canada
Judy Glazer, Director, Global Social and Environmental Responsibility Operations, Hewlett Packard, Palo Alto, CA, USA
Mitch Jackson, Staff Director, Environmental Affairs and Sustainability, FedEx Corporation, Memphis, TN, USA
Mark Newton, Director, Sustainable Business, Dell Inc., Round Rock, TX, USA
Normand Pellerin, Assistant Vice President, Environment, CN, Montreal, QC, Canada

Judy Glazer

- Companies must take responsibility for their suppliers.
- Collaboration between competitors has made it possible to influence suppliers. Innovation is essential in this process.

Mark Newton

- Companies are working together and building relationships to raise the bar on sustainability.
- Companies along the supply chain must work together to build trust but also they must verify each other's sustainability claims.

Mitch Jackson

- Raised the notion of "practical environmentalism" which was defined as "transformative and strategic environmental action that adds real value". This goal cannot be achieved without collaboration and innovation.
- Customer service drives FedEx: much of what FedEx does is help customers reduce their carbon footprint in the transportation and in the logistical aspects of their business.
- FedEx surcharges high carbon fuel choices; the highest being express services and lowest being a service called "Office Online", which is mostly digital.

Normand Pellerin

- CN Rail is only one part of the transportation supply chain.
- Rail must work with the trucking sector because "the last mile" from a rail hub to the final destination must be trucked.
- Both sectors collaborate and gather carbon footprint data so that business customers can be informed of the carbon emissions associated with the products they sell.

Bioenergy: Fueling the Development of a Low Carbon Economy

This session advised attendees that biomass has the potential to sustainably supply up to a third of future global energy and offers an increasing range of energy options for producing heat, electricity, and transportation fuel. The differing types of bioenergy feedstock, technologies and industry challenges were discussed, with a special focus on community and municipal bioenergy.

Moderator:
Michael Weedon, Executive Director, BC Bioenergy Network, Vancouver, BC, Canada

Speakers:
Geoff Battersby, Project Coordinator, Revelstoke Community Energy Project, Revelstoke, BC, Canada
Sadhu Johnston, Deputy City Manager, City of Vancouver, BC, Canada
Christian Rakos, CEO, proPellets, Wolfsgraben, Austria
Jonathan Rhone, President & CEO, Nexterra Systems Corp.; Chair, Cleantech CEO Alliance, Vancouver, BC, Canada
Adam Sherman, Program Director, Biomass Energy Resource Center, Montpelier, VT, USA

- Biomass is a low cost energy resource option, but it is helpful to have an area rich in forests.
- Initially, it is best to focus on smaller projects such as heating buildings rather than power generation.
- Bioenergy has the advantage of price stability and is competitive when oil prices hits $80 a barrel.

Christian Rakos

- Biomass is used extensively in Austria for electricity generation and heat. The average electricity costs are approximately $0.29 per kilowatt hour.
- There are many different biomass options for community level projects including use of wood fuels in large buildings, microgrids and district heating[4].
- Increased capacity for community level decision-making is essential.

Adam Sherman

- Biomass can address all energy uses: heat, electricity, fuel gas, and fuel liquids.
- A tonne of wood is the energy equivalent of 447 litres of oil.
- When comparing the price of heating fuels, oil is the highest cost while wood chips are the lowest – biomass is less expensive than natural gas.
- Vermont has 25-30 years of experience with large scale heating using wood. It has 2 standalone power plants with an approximate capacity of 20 megawatts (MW) each.
- The model of central district heating plants is conceptually the same as a municipal water system.

Jonathan Rhone

- Represents a biomass gasification company that supplies small scale heat and power services.
- Gasified biomass is a syngas that can fuel engines, turbines and be used for heat.
- Dockside Green in Victoria is using municipal waste to heat hot water for the community.
- The biggest challenge is community engagement. There is a need for showcase projects.

[4] District heating describes a system for distributing heat for several residential or commercial buildings originating from a centralized heating source.

Geoff Battersby

- Revelstoke Community Energy Corporation's heat-only project produces 1.5 MW of energy by feeding wood waste (from a nearby sawmill) into a boiler. A 2.3 kilometre district heating pipe system is used by major buildings in the downtown core.
- Why did Revelstoke undertake this project? It is a win-win agreement for the business, the community and the city: by replacing the existing burner with biomass, the city displaces 3,400 tonnes of GHG's per year and the sawmill can remain in the community.

Sadhu Johnston

- Vancouver's GHG per capita is the lowest in North America. The city is on track to reducing its emissions by 6% by 2012, proving that you can reduce your emissions and grow your economy.
- Largest amount of GHGs come from buildings in Vancouver.
- Olympic village is certified LEED[5] platinum. The neighbourhood is heated using sewer heat recovery. Also, there are green roofs, solar hot water systems and mechanisms to capture and reuse rainwater.
- There are Not in My Back Yard (NIMBY) issues about burning wood.

Now What? Dialogue on Implications for Business from COP15

This session examined how the lack of concrete outcomes from the December 2009 international talks on climate change in Copenhagen (COP15) is affecting business strategies in key sectors. Panellists discussed how businesses are assessing the ongoing climate change policy efforts at international, national, and regional levels, and factoring those assessments into their planning.

Moderator:
Velma McColl, Principal, Earnscliffe Strategy Group, Ottawa, ON, Canada

Speakers:
Daniel T. Hendrix, President & Chief Executive Officer, Interface Inc., Atlanta, GA, USA
David Parker, Vice President, Sustainability, Teck Resources Ltd., Vancouver, BC, Canada
Graeme Sweeney, Executive Vice President, CO_2, Shell International Petroleum Co. Ltd., London, UK
Daniel J. Gagnier, Chairman, Board of Directors, International Institute for Sustainable Development, Rawdon, QC, Canada

[5] LEED is a third-party certification program for the design, construction and operation of high performance green buildings. LEED platinum is the highest rating.

Daniel J. Gagnier

- Generally, COP15 displayed a failure in global governance and it needs to be reformed.
- The developed countries cannot expect developing countries to not meet their constituency's expectations.
- Climategate[6] highlights some of the difficulties the climate science community is facing but this issue is a red herring. The fact is: the world is warming.
- A lot of people are disappointed with the lack of binding national targets set by the Copenhagen Accord but we must remember that businesses can meet the challenges posed by climate change.
- Businesses are the solution providers. They can improve ways to design products and to make a meaningful difference without reducing our standard of living.

Graeme Sweeney

- Maybe we need an approach that is less visionary and more practical. Could COP15 be improved? Yes. Do we need a legally binding agreement? Yes.
- Governments should provide the framework but then let businesses compete for the best technology.
- We must continue with practical action, now.

Daniel T. Hendrix

- How do we create a race to develop clean energy? High oil prices will help.
- We are going to have huge delays and slow progress in continuing to address climate change through the multilateral government approach.
- We need to turn it over to the business sector to find solutions.

David Parker

- The mining industry produces products that generate CO_2 but it should be noted that renewable energy infrastructure requires mining products.
- We need to accelerate the transition to a low emission economy for developing countries.

Discussion

- How do we move away from a patchwork approach to a legally binding agreement? We need to look at performance-based approaches.

[6] A reference to the unauthorized release of emails and other documents from the University of East Anglia's Climate Change Unit which many have cited as evidence of misconduct on the part of climate scientists with respect to climate change research.

- We must recognize that it is not politically appealing for a politician to say "we need to pay more for energy".
- It is politically difficult to monetize carbon emissions, but the status quo is not good enough. A price on carbon is required to accelerate the pace of change and to move forward with renewable energy.
- Government policy has not caught up. Businesses should get credit for early action.
- Governments should not be picking winners and losers. We must beware of pernicious effects; there are good intentions behind bad policies.
- We should not think that cap-and-trade and a carbon tax are mutually exclusive options. You can do both.
- Innovation comes from business and policies come from governments, we need the right interaction.

Green Infrastructure: Sustainability at Work

The economic downturn stimulated new "green" economic activity and job growth through the revitalization of old infrastructure and the building of new projects. The focus of this session was on how municipal infrastructure renewal efforts are being used to accelerate sustainability, and what types of projects are most effective for long-term asset management and community success.

Moderator:
Mira Shenker, Editor, ReNew Canada, Toronto, ON, Canada

Speakers:
John Coburn, Managing Director, XPV Capital Corporation, Toronto, ON, Canada
Marty Janowitz, Vice President, Sustainable Development, Stantec, Edmonton, AB, Canada
Ric Robertshaw, Co-Chair, National Roundtable for Sustainable Infrastructure (NRTSI), Brampton, ON, Canada
Sam Sidawi, Practice Lead, Community Infrastructure, AECOM, Toronto, ON, Canada
Richard White, Director, Community Development, City of North Vancouver, BC, Canada

<u>Marty Janowitz</u>

- Current municipal infrastructure is neither sustainable nor balanced.

  Challenges:

  - Aging facilities and technologies;
  - Scarce resources;
  - Ad hoc planning (not system wide or holistic);
  - Environmental issues.

- The way forward begins with a holistic approach that integrates sustainability and community planning, and considers economic, social and cultural development.
- Some easy changes:
    - Narrowing streets;
    - Taking advantage of a mixed use development approach;
    - Creating communal gathering spaces;
    - Orienting new buildings to face east/west to make use of solar energy.

Ric Robertshaw

- "Sustainability" means maintaining infrastructure and ensuring quality of life that supports a healthy economy.
- Without large scale government funding, it is difficult to move ahead with new green infrastructure.
- According to ReNew Canada[7], an infrastructure magazine, among Canada's top 100 most expensive infrastructure projects underway in 2010, most are led by provincial and municipal governments and very few are federally-led.
- The absence of a vision is evident; we need a "Canadian infrastructure action plan."

John Coburn

- Water is a very big challenge: water consumption is rapidly increasing at a rate faster than population growth, particularly in arid zones. There is a need for technological solutions to deal with scarcity issues.
- The challenges are:
    - Increased urbanisation coupled with urban decay;
    - Managing supply and demand in light of water scarcity;
    - Municipal funding constraints;
    - New contaminants entering water systems.
- There are large problems looming, but also lots of opportunities.
- The solutions include:
    - Re-use of municipal water (waste water);
    - Municipalities purchasing water rather than water systems;
    - Renew infrastructure;

[7] ReNew Canada, http://renewcanada.net/

- Turning water into a valuable commodity;
- Building smaller and more distributed systems.

Richard White

- North Vancouver has developed a 100-year sustainability vision which includes the "greening" of its infrastructure.
- The city can forecast future emissions based on past data collected by the province. This data exists for all municipalities in BC, which helps municipalities create sustainable development plans.
- North Vancouver has district energy infrastructure which is an efficient way of distributing heat and hot water.

Discussion

- There is a sense that we have the solutions for sustainable infrastructure in place but we need to take the discussion to the national level.
- The federal government should step up and show some leadership (through a national coordinating body or/and through concise policies).
- The problem is that federal governments are in it for the short term, while municipal governments are in it for the long term with 50 to 100-year planning arcs.
- The financial side of changing behaviours is also important; switching to smart meters will result in reductions that consumers can see.
- There is a need for proper pricing for infrastructure – "sustainable pricing".
- Australia has an "infrastructure report card" system through its Australia Green Infrastructure Council. Communities questioned the Council as to why they received a poor grade and then worked to raise it.

CEO Dialogue –The Future of Energy

This session was based on the premise that leadership in the energy sector is more vital than in any other industrial sector in navigating the transformation to a lower-carbon economy. The speakers represented business leaders that are predominantly involved in the fossil fuel energy sector and provided insight into possible options for the future global energy mix.

Moderator:
Michael Phelps, Chairman, Dornoch Capital Inc. & GLOBE Foundation, Vancouver, BC, Canada

Speakers:
Clarence Cazalot Jr., President & CEO, Marathon Oil Corporation, Houston, TX, USA

Greg Ebel, President & CEO, Spectra Energy, Houston, TX, USA
Steve Snyder, President & CEO, TransAlta Corporation, Calgary, AB, Canada
Steve Williams, Chief Operating Officer, Suncor Energy Inc., Calgary, AB, Canada

Clarence Cazalot, Jr.

- Global energy demand will increase by 40% between 2020 and 2040 because of population growth in mostly non-OECD countries.
- Wind, solar, and wave energy represent 10% of the global primary supply. Even if it aggressively moves to 20% of global supply, we will still require large amounts of fossil fuels.
- In order to meet the challenge we need:
    - Increasing end-use energy efficiency – this is the cheapest and fastest way to achieve our goals;
    - Diversifying the energy mix;
    - Promoting innovations that will minimize the environmental impact of fossil fuels.

Greg Ebel

- There have been a lot of changes in the natural gas industry due to new extraction technologies.
- Unconventional natural gas has become a transformational fuel. Shale gas, for example, is found throughout North America. This has big implications for the pipeline sector.
- We will see more "end of life" thermal coal plants converting to natural gas.
- Natural gas will likely grow to be a more important transportation fuel and could even make inroads in the household appliance sector.
- We need the right policies in place. The policy playbook is out of date – government policy lags 12 to 18 months behind industry. We need more collaboration with governments.
- Price volatility may be mitigated by increased supplies.

Steve Snyder

- Predicts that the electricity sector and not the liquid fossil fuels industry will be the most affected by climate change policies.
- We should not rely on micro solutions. We need more common sense; climate change is a 50 year issue - let's not get on the wrong path early on.
- There are a lot of exciting developments in electricity generation: wind, wave, geothermal, solar, bio-mass. These alternative energy sources were insignificant only 5 to 10 years ago. The electricity industry is not used to change. In the past, a new technology emerged every 40-50 years.

- Can the industry handle all this technological change without disrupting supply? There is no room for error when it comes to electricity.
- Today, every renewable source of energy is subsidized. This creates the expectation among consumers that low emission fuels are just as reliable and low cost as existing generation. However, this cannot last as government support cannot be sustained.
- Recommends the following public policies:
    - Accept the science of climate change, but "there is no train coming at us", we have time to act;
    - Ease the subsidies for renewables (cost should be averaged directly into consumer's energy bill and not subsidized by general government revenues);
    - Support innovation;
    - Support smart metering;
    - Support accelerated replacement of coal generation with transitions to natural gas;
    - Support transmission system upgrades;
    - Support technology development where Canada has a competitive advantage – like carbon capture and storage and transmission.

Steve Williams

- Suncor is the major investor in the Alberta oil sands and is committed to a triple bottom line (planet, people and profit).
- The oil sands are second only to Saudi Arabia in terms of global oil reserves. Saudi Arabia has 266 billion barrels of proven oil reserves; Canada has 178 billion barrels, representing 13 per cent of overall world reserves.
- The oil sand producers have reduced their carbon emissions substantially since the 1990s.
- We need to continuously reduce the economy's carbon footprint and we need every energy source in the mix.
- How do we get there?
    - Environmental management, energy efficiency and conservation, both in production and consumption;
    - Continue to invest massively in technological innovation, particularly in CCS.
- Oil sands' tailing ponds are a lightning rod for criticism, but there is technology available to reduce the reclamation period significantly.
- We require a national sustainable energy policy to determine the right mix of fuels. We need roadmaps.
- Suncor is largely agnostic when it comes to cap-and-trade or a carbon tax – just be careful of unintended consequences.

Discussion

- The panel was asked its views on the science of climate change. Generally, the response was that it was not up to them to prove or disprove and that reducing their carbon footprint was simply the right thing to do. Some thought that there was perhaps not enough scientific proof, but the consensus was that business has moved beyond the debate.
- Some on the panel are very pessimistic about the ability of legislatures to develop the complex energy and climate change policies we need. "This is tougher than putting a man on the moon."
- There is some uncertainty regarding the effectiveness of carbon capture and storage ("CCS"), but the technology is moving forward. CCS is not a silver bullet for reducing carbon emissions.

Eco Communities: Designing a Sustainable Future

Buildings are significant consumers of energy and major contributors to GHGs. This session explored green building principles, design practices, and policies that are transforming the planning and construction of buildings as well as communities, leading to more resource-efficient buildings and greater sustainability.

Moderator:
Gwendolyn Hallsmith, Founder, Global Community Initiatives & Director, Department of Planning and Community Development, City of Montpelier, VT, USA

Speakers:
Christopher Glaisek, Vice President, Planning and Design, Waterfront Toronto, Toronto, ON, Canada
Mike Kontranowski, Strategic Market Director, Architectural Markets, Dow Building Solutions, Midland, MI, USA
John Robinson, Professor, Centre for Interactive Research on Sustainability, University of British Columbia, Vancouver, BC, Canada
Dane Taival, Vice President, Contracting Solutions, Trane, St. Paul, MN, USA
Liesbeth van der Pol, Chief Government Architect, Government of the Netherlands, The Hague, Netherlands

Liesbeth van der Pol

- Do not build new; rather, renew old buildings. This reduces distances, reduces the need for new roads, cable, pipelines, and other infrastructure.
- The continued expansion of cities into rural areas reduces our interconnections with green spaces. "Urban sprawl" is bad.
- Mixed living and transportation creates more liveable spaces and is more suitable for families and therefore more vibrant. We need more well-designed public spaces.

Christopher Glaisek

- Examples were drawn from Toronto's waterfront revitalisation project. In one project, a community was built around parks that double as storm water treatment systems. Public art is incorporated into the ultraviolet water treatment system.
- In another example, a community project was built around a naturalized river that integrated flood protection. The design also integrated urban spaces with a wetland park using passive and active spaces all planned and designed to work together.

John Robinson

- The University of British Columbia (UBC) is going to be a "test bed of sustainability that will explore and exemplify sustainability". The idea is that the campus will be a living lab and an agent of change, coordinated through the Centre for Interactive Research on Sustainability.

- UBC wants to be the first to be "net positive" in energy and water use, and to commercialize these approaches.

- Buildings should improve the quality of the environment and lives. UBC will take waste heat from the building next door, use it, and exchange it to a third building.

Dane Taival

- There is a misconception that green buildings are too expensive. There are many funding incentives for green buildings on the federal, provincial and municipal levels. This helps reduce sticker shock.

- The design, bid and build process leaves many opportunities for miscommunication and loss of interest along the way. Therefore, there is a need for more integrated approaches that begin with an end in mind and works back from there.

Mike Kontranowski

- "Foundational stuff" behind the walls of a building (insulation) – that which is not visible – is where huge efficiencies can be realised in preventing heat loss, eliminating mould, and increasing energy efficiency.

- Changing building codes can help, but only if they are adopted.

Discussion

- Sustainable cities aren't just about buildings – the concept includes how we resolve conflict and care for others. One reason people leave urban areas for the suburbs is because they want greater space and better schools and infrastructure for growing families. Therefore, we should try to build these into urban areas in the first place so people won't leave.

- Sustainability cannot be done in one-off measures – one must have an overall vision.

- There are systemic challenges to designing buildings, communities and cities. There is a need to create new ways of thinking about buildings but the process is very slow.

- Barriers are almost never technological, rarely economic but often institutional for example: "we've always done it this way".

The Human Factor: Capitalizing on Talent, Achieving Sustainability, and Improving the Bottom Line

This session examined the idea of "business success", which includes a focus on environmental and social issues as well as economic interests, and which embraces employee engagement.

Moderator:
Tony Manwaring, Chief Executive, Tomorrow's Company, London, UK

Speakers:
Amy Curry-Staschke, Head, Global Compliance, Quality Assurance and Community Legacies, lululemon athletica, Vancouver, BC, Canada
Richard Emerton, Managing Partner, EMEA Leadership Consulting, Heidrick & Struggles, London, UK
Jim Hartzfeld, Founder & Managing Director, InterfaceRaise, Atlanta, GA, USA
Caroline Waters, Director, People and Policy, BT Group, London, UK
Donna Wilson, Executive Vice President, Human Resources, Sustainability, and International Client Services, Vancouver Organizing Committee
for the 2010 Olympic and Paralympic Winter Games, Vancouver, BC, Canada

Richard Emerton

- Talent is a resource but like all resources, it must be managed in a sustainable way. Leaders have to engage talent within an organization in a different way. They must understand trends in the workplace.

- Nothing is being done about the labour shortage problem. There is an idea that we can just tap labour from other parts of the world. However, in India, Brazil and China there is a high demand for skilled labour. China is attracting talent from OECD countries.

- The average worker in North America is only 28% utilized.

Donna Wilson

- In charge of motivating 25,000 plus people for a temporary, voluntary job at the Olympics. VANOC worked on connecting employees to the larger vision of the effort. 65% of the employees were under 35 years of age and sustainability mattered to them.

Jim Hartzfeld

- Give workers meaning – it stimulates a powerful sense of purpose.

Amy Curry-Staschke

- The vision of the Lululemon is to "elevate humans to greatness". This is tied-in with the employee culture that the company cultivates.
- Everyone at the company is required to be entrepreneurial in what they do.
- You can act first and beg for forgiveness later – this gives space to innovate.

Caroline Waters

- People can be incredibly energetic and innovative when they want something.
- If only people would focus on what they are brilliant at, instead of working in a whole bunch of areas.
- The best places to work are not necessarily the places with the best wages.

Discussion

- Businesses should take risk with employees: "Sometimes you need the grit for the oyster."
- We must innovate and cultivate new kinds of talent in younger generations.
- Sustainability as a measure of business success: must be able to determine if sustainability is being achieved. If it can't be measured it doesn't matter.
- If you care about your employees, they will care about the business.

The Next Spike: Building the Smart Grid

The "smart grid" is considered by some to be one of the areas showing the most significant and immediate opportunities in terms of energy management and efficiency. Many countries are funding demonstration projects. The electricity sector is actively exploring the potential for a new range of service deliverables. This session explores the issues, opportunities and barriers involved in making smart grids a reality.

Moderator:
Blair Feltmate, Professor, Faculty of Environment, University of Waterloo, ON, Canada

Speakers:
Erfan Ibrahim, Technical Executive, Smart Grid Communications & Cyber Security Lead, Electric Power Research Institute, Palo Alto, CA, USA
Donna LeClair, Chief Technology Officer, BC Hydro, Vancouver, BC, Canada
David Pacyna, Senior Vice President & General Manager, Siemens Energy Inc., North American Transmission and Distribution Divisions, Siemens USA, Wendell, NC, USA
Johan van't Hof, CEO, Tonbridge Corporation, Toronto, ON, Canada

Donna LeClair

- A smart grid is a multitude of things, including smart meters for home or industrial electricity use, or an interface for electric vehicles. It is not any one thing.

- Today's electricity systems have evolved very little in the past 100 years.

- The smart grid uses new communication and sensor technology.

- There are many pilot and demonstration projects happening today. For example, the "demand response" pilot gives customers the ability to tell when peaks occur. Peak pricing variations have resulted in 5 to 8 percent reduction in use and an 11 percent load shift out of peak periods.

- We need new energy storage technologies. Also, new policies are needed, together with funding and technology to ensure reliability standards.

David Pacyna

- Pilot projects can help validate the technology, but widespread installation will be a challenge: there are 3,500 electric utilities in North America; 200 million metre points; 7 million miles of distribution lines.
- Regulators must sustain investments over the long term (can't do it all within a stimulus package time frame).
- Many suppliers are small, new technology companies that are not yet able to manufacture and deliver devices in the quantities needed.
- The electricity sector will require employees with the appropriate skill set in the fields of information technology, engineering and team building. In many cases, employees will need a combination of skill sets from these fields.

Johan van't Hof

- Smart grids are about greater efficiency in the delivery and consumption of electricity. Some current problems:
    - Regulatory regime is fragmented as the licensing process is not handled by the same people who regulate prices and safety regulations.
    - The electricity sector does not provide real price signals at the consumer level. As well, electricity prices are often subject to political influence as many utilities are owned by the Crown.
    - Consumers need to understand what is being asked of them – that they must modify their behaviour. There needs to be a clear conversation about their consumption patterns. Transformation requires clarity of purpose and communication.
    - There must be redundancy to ensure the resiliency of the electrical system. Some customers may be prepared to accept interrupted service, but that's not likely for homeowners. Another approach is to share backups over a wider (regional) system. However, loss of local control has been resisted by local politicians.

Discussion

- In order to move forward on smart grid systems, an overarching framework with principles to inspire concerted action is needed.
- Also required are mandatory in-home display devices and mandated time-of-day pricing and widely disseminated broadband transmission access.

Reducing Carbon Emissions: High Quality Standards for Success

The focus of this session was on the development of standards used to determine and verify carbon footprint reductions. In particular, it considered how the use of transparent, trusted, and accredited methods for reducing greenhouse gas emissions can help businesses improve their performance and competitiveness.

Moderator:
Robert Page, Chair, International Organization for Standardization (ISO) Technical Committee (TC) 207 on Environmental Management & Chair, National Round Table on the Environment and the Economy, Calgary, AB, Canada

Speakers:
Laura Lapp, Manager, Regulatory Development & Implementation, Climate Action Secretariat, Government of British Columbia, Victoria, BC, Canada
Stefan Janhager, Senior Program Officer, Greenhouse Gas Accreditation Program, Standards Council of Canada, Ottawa, ON, Canada
Isabelle Landry, Program Manager, Greenhouse Gas Verification Program, Bureau de normalisation du Québec (BNQ), QC, Canada

Dave Schwass, Senior Advisor, Environment, NOVA Chemicals Corporation, Calgary, AB, Canada
Grant Trump, President & CEO, ECO Canada, Calgary, AB, Canada

- The challenge is to adopt publicly acceptable standards for carbon emission reduction, reporting and verification.

- Canada must work with the provinces on accreditation and verification methods to develop consistent standards and avoid misrepresentation and fraud. These standards must be rigorous and transparent and industry has to buy in.

- A plan for reporting regulations is being developed, requiring any entity emitting over 10,000 tonnes of GHGs per year to report emissions. This will allow accurate measurement for a future cap-and-trade initiative if that is the direction taken.

Thursday March 25 2010

Carbon Capture and Storage (CCS) & Clean Coal Technologies: Update on Innovation

Many electrical systems rely heavily on coal electricity generation which also is a source of significant greenhouse gas emissions. Many governments have placed a high priority in development technologies that mitigate GHGs from the combustion of coal. This session provided insight into the current state of play with respect of CCS and clean coal technologies.

Moderator:
Gary Weilinger, Vice President, Strategic Development and External Affairs Spectra Energy Transmission, Calgary, AB, Canada

Speakers:
Ajay Badhwar, Strategic Marketing Manager, Oil and Gas Power & CO_2, The Dow Chemical Company, Midland, MI, USA
Judy Fairburn, Executive Vice President, Environment and Strategic Planning, Cenovus Energy, Calgary, AB, Canada
David Lewin, Senior Vice President, IGCC Development, Capital Power Corporation, Edmonton, AB, Canada
Nick Otter, CEO, Global CCS Institute, Canberra, Australia
Dennis Welch, Executive Vice President, Environment, Safety & Health, and Facilities, American Electric Power, Columbus, OH, USA

- CCS and clean coal technologies are the most important technological challenges for the future of power plants and refineries.
- Progress to date is encouraging as the technology gets closer to commercialization. Unfortunately, the underground storage in most cases is very remote from the source of

capture and there are challenges associated with building and operating the infrastructure required to transport the CO_2.

Renewable Power: Key Drivers for Profit

The renewable energy sector is growing rapidly as governments around the world are looking at ways to reduce carbon emissions by replacing some of the traditional fossil fuel sources from the energy mix. This session explored clean energy opportunities and challenges.

Moderator:
John MacDonald, Chairman & CEO, Day4 Energy Inc., Burnaby, BC, Canada

Speakers:
Fawaz Al-Alamy, Senior Advisor to HRH the President, Presidency of Meteorology and Environment (PME), Jeddah, Saudi Arabia
Issam Dairanieh, Director, Ventures-Americas, BP Alternative Energy, Chicago, IL, USA
Christopher Henderson, President, Lumos Energy, Ottawa, ON, Canada
Pedro Pablo Quirós, President & CEO, Grupo ICE, San José, Costa Rica
William Smith, Senior Vice President, Energy Sector, Siemens Canada, Burlington, ON, Canada
Alison Thompson, Vice President, Corporate Relations, Magma Energy Corp., Vancouver, BC, Canada

- The infrastructure needed to accommodate renewable energy requires enormous investments.
- Geothermal is feasible only in a few areas. There is no real presence in Canada, but it has a larger presence in the USA, Iceland and Finland.
- The era of cheap electrical energy is coming to an end.
- There is a mismatch in alternative energy as to where the source is and where the demand is required.
- The smart grid will be needed for alternative energy and this further increases the scope of the challenge to move to clean energy generation.

The Role of Retail in a Sustainable Future

The discussion in this session centred on "the next stage of sustainable retail"; that is, opportunities for retailers to shape consumer behaviour and values, to help communities and influence supply chains. It also examined the kind of leadership that is necessary to drive this change.

Moderator:
Anthony Watanabe, President & CEO, the Innovolve Group, Toronto, ON, Canada

Speakers:
Rick Amantea, Vice President, Park Royal Shopping Centre, West Vancouver, BC, Canada
James Gray-Donald, Associate Vice President, Sustainability, Sears Canada Inc., Toronto, ON, Canada
Jim Hanna, Director, Environmental Impact, Starbucks Coffee Company, Seattle, WA, USA
Esther Speck, Director, Sustainability and Community, Mountain Equipment Co-op, Vancouver, BC, Canada
Peter White, Director, Global Sustainability, Procter & Gamble Ltd., Newcastle upon Tyne, UK

Anthony Watanabe

- Why is sustainability important? Because by 2050 there will be 9 billion people on earth which will increase demand for energy.

Peter White

- Companies need to take a life cycle approach to product innovation. For example, an energy analysis revealed that doing laundry is the most energy intensive part of households. As a result, Proctor & Gamble developed a cold water wash and then communicated the energy savings of this product to consumers.

- There can be no tradeoffs – the product must perform sustainably and be priced competitively.

- Companies must have an "end to end strategy" examining whole range of energy efficiencies, lowering energy consumption and using better transportation methods where possible, such as boats rather than trucks.

James Gray-Donald

- Sears launched their new "Live Green" eco brand on this date. The idea is to make it "easy to be green".

- This company is trying to develop a calculator to show when is the right time to change appliances and switch to newer, more energy efficient models.

- Life cycle analysis demonstrates that 95% of energy consumption occurs during the use of the appliance, and not in resource extraction, manufacture, shipping or disposal.

- Huge efficiencies can be made through behavioural changes, such as washing clothes in cold water and line drying instead of using a drying machine.

- A healthy home uses less power, water and resources.

Esther Speck

- One marketplace change can lead to others. In the 1990s, a policy to rid buildings of ozone-depleting substances led to greener buildings, but also to social and environmental strategies for the community.

- Challenges:
    - Retail businesses often do not have a lot of control over how goods are made and therefore they need to be creative. One example was to focus on textiles and how they are made, opting for textile mills that were committed to sustainable standards. This is a collaborative effort.
    - Sometimes mistakes yield useful information. Mountain Equipment Co-op's (MEC) garment recycling program didn't work because it was too difficult to determine what each garment was made of. However, this led to improved labelling for textiles for easier identification.
- Businesses need to engage consumers by giving them more information and options.

Jim Hanna

- Retail should be leading on sustainability since it is the nexus between the producers and consumers.

- Consumers can control their carbon footprint based on the retail choices they make; therefore, their decisions are key.

- Retailers can use visibility to drive consumer behaviour as well as consumer awareness and choice. 85% of Starbucks' carbon footprint is in store heating, lighting and gas. Therefore Starbucks made the decision that each store would be LEED certified. However, what really matters to consumers isn't the same for retailers – consumers may not be concerned about operations but may be concerned about whether cups are recyclable. Therefore, there is a need to educate consumers.

Rick Amantea

- Sustainability is not one big thing but many little things that add up.

- Long-term commitment adds up to long-term impact.

- As a result of sustainability exercises, the mall now uses 100% recycled papers for gift wrapping, their vehicles run on natural gas, staff uniforms are made of bamboo textiles and they have implemented recycling programs for organics/plastics/glass/paper.

Discussion

- Starbucks is concerned with the supply of their primary product – the coffee beans – and therefore climate change is a big issue for them.

- Each Mountain Equipment Co-op store has sustainability goals such as diversion of materials from landfills. Manager's performance reviews depend on their meeting these goals.

- Whether sustainability is an issue in leasing negotiations depends on how much power the leasee has and how committed the landlord is to sustainability.

Innovative Policies for Effective Carbon Capture & Storage (CCS)

While carbon capture and storage ("CCS") has the capability to divert large quantities of CO_2 emissions, the technology has not been proven on a commercial scale. This session discusses how to develop an effective policy and regulatory framework to enable the implementation of wide-scale CCS.

Moderator:
Anthony Cary, British High Commissioner, British High Commission, Ottawa, ON, Canada

Speakers:
Stefan Bachu, Ph.D., P.Eng., Distinguished Scientist, CO_2 Geological Storage, Alberta Innovates – Technology Futures (formerly Alberta Research Council), Edmonton, AB, Canada
Matthew Webb, Head of International Coal and CCS Policy, UK Foreign and Commonwealth Office, London, UK
Graeme Sweeney, Executive Vice President, CO_2, Shell International Petroleum Co. Ltd., London, UK
Mike Fernandez, CCS Policy Development, Alberta Energy, Edmonton, AB, Canada
Stephen Lucas Assistant Deputy Minister, Natural Resources Canada

Anthony Cary

- The advantages and disadvantages of CCS.
- Advantages:
    - CCS is the only technology available to mitigate emission on a large scale.
    - Like it or not, fossil fuels will continue to be the dominant energy source in the future. Most certainly in Asian countries.
    - There may be uncertainty about the size of climate change impact, but we must mitigate the risk of the worst case scenario.
    - If we do believe in climate change, CCS provides real mitigation and real impact.
    - Is CCS unproven? Every stage of CCS is proven.

- Disadvantages:
    - Is CCS making acceptable something we should not tolerate?
    - Is it uneconomic even if you improve the technology?
    - There is still policy uncertainty and uncertainty with the science behind climate change. Some suggest CCS is a waste of money.

Graeme Sweeney

- CCS is part of the CO_2 solution. It is one of a portfolio of things to do.
- It can achieve rapid CO_2 reductions.
- Canada has a competitive advantage in this area:
    - Progress in developing regulatory frameworks;
    - Technological knowledge;
    - A reasonable informed and knowledgeable public.
- Despite this, CCS is difficult to explain simply; it requires outreach and education programs.
- Carbon abatement options must be part of the policy solutions.
- We need to share information and collaborate, but we are not really good at that. There are commercial and legal issues regarding sharing information such as patent and intellectual property issues.
- We need public acceptance and for the public to buy into this solution in order to build the CCS infrastructure.
- A price on carbon is necessary to make it viable, and $15 per tonne is not viable. The cost of carbon sequestration is $85 to $130 per tonne.

Stephen Lucas

- CCS is a way forward for GHG reductions but it is not the single focus.
- Canada has a geographical natural advantage and experience in the natural gas and oil technologies. As well, there are CCS projects underway in Alberta and in Saskatchewan.
- A big challenge is the cost dimension particularly for the capture of CO_2 and the scale of operations within an ambitious timeframe. To this end, there is a call for global cooperation between governments and industry.
- There are environmental risk and safety considerations. Canadians have a reasonable awareness of CCS, but it is still poorly understood.
- As announced in the budget, the government is exploring tax treatment such as Capital Coat Allowances (CCA) incentives.

Stefan Bachu

- There are large opportunities in the West because of the very large basins for storage space. This is not the case in Eastern Canada.
- The challenge is the lack of infrastructure to take CO_2 from source to storage. This requires a significant investment.
- In Western Canada, there is a reasonably good regulatory regime.
- There are issues related to tenure and long term liability. Australia has accepted liability for their stored carbon; decisions by Alberta and BC are pending.

Mike Fernandez

- The International Energy Agency (IEA) predicts that by 2050, CCS will capture and store up to one fifth of the CO_2 produced in the world
- CCS is an absolute necessity; hydrocarbons will be with us for the long term.
- 70% of Alberta's emission reductions will be derived from CCS.
- Regulatory uncertainty is a big barrier.

Matthew Webb

- UK is developing new frameworks for coal and CCS and aggressively developing demonstration projects and legislation so that new coal plants will not be able to be built unabated. The technology must be proven by 2018; otherwise the government will turn to other alternatives.
- Both Canada and UK are blessed with the ability to store CO_2 – very advantageous as you can't import geology.

Discussion

- In the UK, the economics of enhanced oil recovery are challenging.
- Carbon storage liability cannot be shouldered in perpetuity by businesses – it requires governments to step in.
- Saskatchewan shoulders the long-term liability for uranium mines.
- In terms of long term carbon storage liability in the UK, if after 20 years it is okay then the government takes on the liability.
- In Alberta, the government will take on the long term liability of carbon storage but there will be guidelines and the industry will be required to contribute to a fund.
- Will have to improve the cost dimension of CCS because at $100 per tonne by 2020 there may be other abatements that are more cost effective such as offshore wind.
- The IEA estimates a large take up of CCS in China and India.

- This is a new industry and there is a lack of human capacity; as well, it is difficult to attract skilled labour away from the oil and gas industry which has the ability to pay more.
- Under the BC Energy Plan (2007), any new coal plants must have CCS, and new natural gas fired plants must have offsets in place. Existing natural gas fired plants have until 2016 to put offsets in place.

Sustainability and the Natural Resource Sector: How to Acquire and Maintain your social License to operate

The focus of this session was on how companies in the natural resource sector are incorporating sustainability practices into their operations.

Moderator
Gordon R. Peeling, President & CEO, Mining Association of Canada, Ottawa, ON, Canada

Speakers:
Isabelle Des Chênes, Vice President, Market Relations, Forest Products Association of Canada, Ottawa, ON, Canada
James F. McArdle, senior Vice President, Legal Services & Secretary, Export Development Canada, Ottawa, ON Canada.
Mark Pearson, Director General, External Relations, Natural Resources Canada, Ottawa, ON Canada
Anne Marrie Toutant, Vice President, Mining, Suncor Energy Inc. Calgary AB Canada

Mark Pearson

- Following the recommendations of a June 2005 Parliamentary Standing Committee on Foreign Affairs and International Trade (SCFAIT) report, Canada introduced a Corporate Social Relations Strategy (CSR) for the international extractive sector. The goal is to maximize the positive effects of Canadian mining activity abroad especially in developing countries.
- Through its CSR policy, the federal government will build capacity of developing countries to manage its mineral and oil and gas resources and to benefit from these resources by reducing poverty.
- The federal government supports the Extractive Industries Transparency Initiative (EITI) which is a coalition of governments, industries, investors and international and non-international agencies.
- The EITI supports governance in resource-rich countries by promoting transparency in company payments and government revenues for the extractive industries.

James McArdle

- Export Development Canada (EDC) does a lot of project financing and it takes into consideration the social strategic component of investments.
- What is a social license to operate? It is a relationship built on trust and policies. It is like a bank account that you can draw upon. It is hiring local people, and respecting environmental and water rights.
- The key to a social license to operate is communication.
- Once a social license to operate is earned, if something does go wrong, for example an accident, you can draw upon the trust you built in the community. It ultimately reduces risk.
- EDC requires a high standard of social practices from the companies they lend project financing to.
- Export development agencies across the OECD follow similar guidelines.

Isabelle Des Chênes

- Roughly 93% of the forests in Canada are Crown land, therefore forest operations are required to follow specific standards.
- The forestry sector was one of the first industries to be attacked by environmental campaigns.
- The forestry sector works within a resource that is considered a global treasure and is a major area of concern with respect to GHG policies.
- The forest sector understands the need for a social licence to operate. We are reducing GHG emissions and the energy intensity of operations has declined, as have water use and pollution.
- The forest industry is constantly working with communities, non-governmental agencies and other organizations to build and maintain trust.
- The BC forest industry will be carbon neutral by 2015 without the use of offsets.

Access to Water: Challenges + Opportunities

Lack of access to water resources poses significant environmental and economic risks in many regions of the world, with industrial users competing with urban populations for this increasingly limited resource. There are numerous water infrastructure projects throughout the world addressing the growing demand for water, which in turn represent tremendous global opportunities.

Moderator:
Peter Beattie, Commissioner, Queensland Government Trade and Investment Office, Los Angeles, CA, USA

Speakers:
Nick Apostolidis, General Manager, Client Development, GHD, Brisbane, Australia
David Downie, General Manager, Office of Water, Department of Sustainability and Environment, Victorian Government, Melbourne, Australia
Trevor Hill, President & CEO, Global Water Resources LLC, Phoenix, AZ, USA
Booky Oren, Executive Chairman, Miya, Arison Group, Tel Aviv, Israel

Nick Apostolidis

- There is a myth that the next war will be over water. The reality is that it is cheaper to desalinate than go to war. It is inexpensive to desalinate water – perhaps $1 per day. There are many desalination projects in Australia.
- There is no silver bullet to water security. Rather, what is needed is a more robust system of portfolios to deal with water, including:
    - Minimise demand management;
    - Recycle/reuse water;
    - Storm water harvesting; and
    - Desalination.
- Some noteworthy developments:
    - Not all water needs to be of drinking quality. Therefore, new communities are being developed that provide infrastructure for diverse water usage. Plumbing is designed to deliver different water for different uses, for example drinking water only goes to kitchens and not outside taps for landscaping. Rain water is collected in a tank and used for landscaping and other non-potable purposes. This process saves 80% of drinking water and results in a large decrease in the discharge of waste water.

David Downie

- Prior to the 1980s, there were 370 water authorities, all of which were autonomous. Australia then began a drive to efficient water management; now there are 19 water authorities. The price of water is a key component, as is the separation of water for irrigation from drinking water.
- Investments in 2007 to save and create water include:
    - Build desalination plant
    - Expand water grid
    - Increase water recycling
    - Promise new/existing conservation programs

- Upgrade irrigation systems

- In order to promote water conservation, there was 10 years of intense public education, rebate schemes and efficiency standards for new homes.

Trevor Hill

- In Arizona, the population continues to grow, together with very high water consumption levels. Desalination is very costly. Saudi Arabia uses 1.5 million barrels of oil a day to run their desalination plants.
- There has been a paradigm shift from supply side management to demand side management schemes.
    - What is needed for sustainable water systems;
    - Infrastructure – dual pipes for separation of potable and recycled water;
    - Demand side management – "end of pipe technologies" such as metered uses and price signals;
    - Advanced automation and controls such as real time feedback to customers. For example, customers may receive a text message informing them of their daily water use as a conservation strategy. Smart meters provide real-time data to customers so they can compare household water use with their neighbours – competition creates conservation.

Booky Oren

- Israel is an arid country, but it exported water – not a wise use of this resource. The rise in urban population and a rise in standard of living lead to a rise in demand for water. We continue to increase the amount of water we are using via the same infrastructure; this is creating a looming problem.
- The global water market is too large for any single player – partnerships are essential for Israel. As a result, Israel created and hosts WATEC[8], an international problem-solving forum for water, environment and technology.
- Although technological solutions exist, only 3 to 5 solutions capture more than 5% of the market. Therefore, synergies between various products and technologies, municipalities, regulators, governments, financial institutions, consultants, water organisations and consumers are essential.

[8] http://www.watec-israel.com/

Discussion

- In Canada, there is no pressure to address water issues – how do we get people engaged?
    - Education
    - Smart governments now understand they have to change
    - Look what happened to Israel and Australia, and don't let that happen here
- Once a water crisis is upon us, it is too late to plan ahead.
- Must do stress testing and planning now.

Friday March 26, 2010

The Sustainability Payoff

The session examined how corporate responsibility initiatives enhance overall corporate performance.

Moderator:
Gord Lambert, Vice President, Sustainable Development, Suncor Energy Inc., Calgary, Canada

Speakers:
Jon Mitchell, Lead Environment Policy & Strategy, Cenovus Energy, Calgary AB
Paul Murray, Director, Environmental Safety & Sustainability, Herman Miller, Zealand, MI USA
Sharon Walck, Senior Vice President, HSBC North America, Buffalo NY USA

Paul Murray

- Sustainability has become strategic.
- There has been a change in customer culture; customers are much more interested in the operations of businesses.

Sharon Walck

- HSBC is a climate change believer. It will impact customers and businesses.
- The climate change business is a growing business.
- The sustainability payoff is more than short term financial gain.
- HSBC is the first major financial institution that has become carbon neutral.
- How does sustainability drive innovation?

- Goal-setting is an important first step – set the goal and then solutions come (for example, the desire to be carbon-neutral).
- Listen to employees, suppliers and customers
- Goal setting allows innovation to happen

Jon Mitchell

- We have moved passed having to justify sustainability. It is a given.
- Social license to operate is traditionally looked at a local level. However, we would like to talk about a societal license to operate.
- Advice for sustainability promoters within a corporation:
  - Know what is coming on the horizon
  - Establish conditions to innovate
  - Be constructively disruptive - always strive to improve and do more than is necessary
  - Be relevant – deliver actual results. Earn your right to speak, show that sustainability earns value

Discussion

- Have a sustainability officer who can act as the "head lights" for a business, lighting the way.
- Environmental issues are front and center with the media.
- To get things done, you need buy-in at the top. Leadership comes from the top.
- There is a common sense element to sustainability. Dumping things on the ground or in the atmosphere does not make sense.
- Businesses are not looking to find leadership from government. Energy problems take decades to solve while the political life cycle is 3-4 years.
- Is sustainability enough, or should we be also be looking at restorative policies? We should aim for a restorative economy, but we have a long way to go before we can ultimately have a positive footprint.
- Sustainability is expected now. It's not just one thing but rather spread across the entire value chain.

Voluntary Carbon Markets: Opportunities and Risks

The focus of this session was on the growing market for voluntary carbon off sets and measures to ensure these markets are accountable and standardized.

Moderator:
Linda Coady, Vice President, Sustainability, Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games, Vancouver, BC, Canada

Speakers:
Robert Falls, CEO, ERA Ecosystem Restoration Associates, North Vancouver, BC, Canada
D. Scott MacDonald, President & CEO, Pacific Carbon Trust, Victoria, BC, Canada
Mustapha Ouyed, Project Director, Climate Change, Golder Associates, Victoria, BC, Canada
James Tansey, Co-Founder & President, Offsetters; Executive Director, Centre for Sustainability and Social Innovation, University of British Columbia, Vancouver, BC, Canada

D. Scott MacDonald

- The BC public service is to become carbon neutral and is looking to purchase one million tonnes of offsets at $25 per tonne. BC has created the Pacific Carbon Trust to purchase carbon offsets on behalf of the government.
- This has started to influence other companies wanting to become carbon neutral.
- The Pacific Carbon Trust will be one of the top five offset supply companies in North America at the end of 2010. Offsets will be based in BC.
- Prices are very competitive for offsets.
- The market wouldn't happen without a strong price for carbon.

Mustpaha Ouyed

- Total financing available for CO_2 reduction is $1.5 billion; $300 million came from the provincial government.
- There is a modified carbon tax in Quebec which has resulted in $200 million per year and is applied to fuel distribution companies, based on their proportion of emissions.
- There is $34.5 million in funding for public awareness and partnership used for training for companies to become familiar with the carbon trading program.
- Incentives range from $5 to $500 per tonne reduced.

Robert Falls

- The only way we can remove C02 from the air is photosynthesis. The units we have are trees.
- The voluntary carbon market is a means to reduce emissions while waiting for governments to implement legislative action.

- Why forests and land-based offsets? It presents a range of benefits, engages local communities, supports biodiversity and habitat.

James Tansey

- Why would a company choose to impose offsets? Consumers will reward companies that are doing something about climate change.
- This is part of the business of making carbon part of our everyday life and the prices we pay for consumer goods. For example, Walmart is starting to create rules for suppliers to look at their carbon footprint.
- Many businesses are acting well in advance of federal governments.
- Do not expect to see a deal to trade in offsets within the US until 2011 or 2012, and there is real doubt whether it can be done for all of the US. Do not expect to see the federal government in Canada act US decision on carbon markets.
- The most likely prospect for offsets is the Western Climate Initiative (WCI). Quebec is vying to become the chair of the WCI.
- Large emitters are concerned that they may not get credit for early action. WCI has created a white paper to help dispel uncertainty.
- Montreal climate exchange and Chicago climate exchange are both struggling. Vancouver should consider developing a climate exchange here, and is the natural location for it.

Town Hall: Moving the Green Economy Forward

This session explored climate change and other environmental pressures facing economies around the world and the need for a transformation in how we do things. There was a sense that transition will not be done overnight or come easily but that it must happen and businesses must be part of the solution.

Moderator:
Christopher Henderson, President, Lumos Energy, Ottawa, ON, Canada

Speakers:
Dianne Dillon-Ridgley, Director, Interface Inc., Atlanta, GA, USA
Tony Manwaring, Chief Executive, Tomorrow's Company, London, UK
Nicholas Parker, Executive Chairman, Cleantech Group LLC, San Francisco, CA, USA
David Runnalls, President & CEO, International Institute for Sustainable Development, Ottawa, ON, Canada
Hon. John Yap, Minister of State for Climate Action, Government of British Columbia, Victoria, BC, Canada

Dianne Dillon-Ridgley

- Some presentations during this conference did not stress the urgency of the issues enough.
- The "green" economy cannot be separated from the "regular" economy" - it has to be the economy, period. Similarly, "green" jobs are simply jobs.
- There are too many silos, too much vertical hierarchy; we need to make all this happen at the same time.

Hon. John Yap

- Climate change is the challenge of our generation.
- BC brought in the first North American carbon tax; it is revenue neutral.
- The BC government is working with the Western Climate Initiative to introduce a cap-and-trade system for larger emitters.
- The government is taking steps to become carbon neutral, and is working with municipalities; the challenge is to get the word out.

David Runnalls

- There is not a lot of time to address climate change.
- There is a false dichotomy between adaptation and mitigation – we can do both.
- Given an absence of national policy in North America, climate action is being done by municipalities and provinces. However, eventually we will still need an international agreement.
- There has been a shift in political power towards China, India and Brazil. Also, they are very active in green technology.

Tony Manwaring

- Environmental solutions have inherent value that can be compared to a type of spiritual capital.
- A green economy means having a different sense of what is valued.
- It is not just that the world is getting hotter; there will be a lot of related political and economic instability.

Nicholas Parker

- Climate change is not a problem, but a symptom of our use of energy resources.
- Don't believe the naysayers: the auto industry had first said that safety belts would lead to the industry's demise.
- It is not just about green jobs, but all jobs.
- We need full cost pricing whether the government is on board or not.

Discussion

- How do we make green goods and services interesting and exciting for consumers?
- We may need to re-examine an economy that relies on continuous growth. There may be a need to change which will increase costs but we will still have many choices.
- It is disgraceful that we do not have a national energy policy in this country.
- We need full price transparency, remove energy subsidies and have the price of energy goods and services reflect carbon emissions.
- Perhaps as a society we need to ask, "What are our aspirations?" We must know where we are going before we know how to get there.

How Green are Plug-In Cars? Moving Emissions Upstream?

There is a criticism that plug-in vehicles simply move emissions from the tailpipe to the smoke stack and thus do not really reduce emissions as much as purported. This session examined net emission improvements through a variety of lenses.

Moderator:
Bradley Berman, Founder, BermanWorks, Berkeley, CA, USA

Speakers:
Sevag Pogharian, Architect, Sevag Pogharian Designs, Montreal, QC, Canada
Constantine Samaras, Associate Engineer, RAND Corporation, Pittsburgh, PA, USA
Luke Tonachel, Vehicles Analyst, Natural Resources Defense Council, San Francisco, CA, USA
David Trueman, Technical Consultant, Thor Lake, Avalon Rare Metals, Richmond, BC, Canada

- There are going to be three major global challenges:
    - Global warming;
    - Increased oil prices;
    - Air quality.

- Plug-in vehicles are essential for moving towards a low carbon fuel economy. However, it takes up to 15 years to renew a fleet of vehicles. Therefore, this could be a long term pathway to greening our transportation system.
- GHG intensity of electricity changes depending on where the electricity comes from - hydro, nuclear, biofuels, coal-fired plant, or oil sands.
- The electrification of vehicles also requires cleaning the electric generation system.
- If we are talking about a shift to electric fleets, electric generating capacity will have to increase. This will also require policies to ensure the infrastructure is intelligent and can accommodate the increased strain of an electrified fleet.
- Batteries for electrified or hybrid vehicles require rare earths materials and metals. There is enough of material globally, but it is not evenly distributed – much of it is in China and Australia. This could present a challenge.
- If intelligently designed, the home could become the enabling backbone supporting shelter, mobility and food supply fuelled by solar and other renewable energy.
- Guiding principles for e-transportation program:
    - Reduce barriers for consumers to make the switch to plug-in vehicles
    - Ensure environmental benefits of vehicles are maximised
    - Minimise electricity grid impacts and maximise potential grid benefits – charge vehicles during off peak hours
    - Ensure cost-effective service for utility customers
    - Have policies in place to help drive electrification
    - Ensure new vehicle GHG emission and fuel economy standards support electric vehicles.

Discussion

- The electricity system will need to clean up the grid and increase capacity.
- Electrical utilities are addressing the use of e-cars at local levels by assessing capacity, based on adoption of hybrids.
- We must move to the most efficient vehicles, the cleanest fuels and reduce miles travelled. Land use planning will, therefore, be very important.
- Cars are becoming “personal mobility appliances”.

Converting Gas Guzzlers to Fuel Sippers: Plug-In Aftermarket

The focus of this session was the technology and market challenges of aftermarket electricity conversions of new and the existing legacy of gas-powered vehicles.

Moderator:
Stuart Evans, Director, Business Development, Delta-Q Technologies Corporation, Burnaby, BC, Canada

Speakers:
Ambarish Chandra, Assistant Professor, University of British Columbia, Vancouver, BC, Canada
Jay Giraud, CEO, Rapid Electric Vehicles, Vancouver, BC, Canada
Christina Ianniciello, Manager, Communities and Transportation, Ministry of Energy, Mines, and Petroleum Resources, Government of British Columbia, Victoria, BC, Canada

Jay Giraud

- There are nearly 900 million passenger vehicles and light trucks in the world. In order to address climate change it is important to consider the legacy vehicles.
- North America would have to produce only electric vehicles every year for the next ten years in order for plug in vehicles to represent 10% of all vehicles on the road.
- Conversion technology will be important.

Christina Ianniciello

- There are three strategies:
    - Reduce vehicle use;
    - Improve vehicle efficiency, and
    - Reduce carbon intensity.
- The US Pacific Coast states are building infrastructure along the coast for plug-in vehicles and other alternatives. The BC government must be prepared for this.

Ambarish Chandra

- How to design public policy to get public to adopt cleaner vehicles?
- Some provinces have introduced sales tax rebates for cleaner emission vehicles, which has increased the number of purchases but was costly in terms of emission reductions – approximately $200 per ton.
- Tax incentives go to people who would have bought hybrid or small vehicles in any case.
- There are network problems in the sense that the infrastructure for refuelling is not there.
- The first best solution is a carbon tax: all other incentives are less efficient.

Discussion

- There is a whole spectrum of after-market conversion technologies for converting existing vehicles to run on electricity.
- A do-it-yourself kit is not really possible for safety reasons.
- Conversions can be done in any small town – it may be a job creator.

Site Visit to British Columbia Transmission Corporation – March 25, 2010

As a complement to the Globe 2010 conference, Senator Neufeld arranged a site visit to one of the new, state-of-the-art system control centres of the British Columbia Transmission Corporation. This visit also assisted committee members in better understanding the complexities and challenges of ensuring a reliable, sustainable supply of electrical power to the province, and the interconnectedness between provinces and US states.

Committee members who attended the site visit were impressed with this state of the art system control centre, one of two such facilities in the province, that realizes great efficiencies and is a huge step toward the development of a complete smart grid. Together these two system control centres represent a $128 million investment in BC's energy transmission future. The province has embarked on the installation of smart meters and has stepped rates in place for industry and residential users.

Created in 2003, BC Transmission Corporation is a provincial Crown corporation that plans, builds, operates and maintains the province's publicly-owned electrical transmission system.

Notes from this site visit:

- Canada and the US share an interconnected electricity system.
- There are two major electricity markets: East and West. They are interconnected but with limited power transfer capacity between the East and West.
- The Eastern market is five times larger than the Western market in terms of capacity and consumption.
- For historical reasons Texas and Quebec have systems that are not synchronized with and function outside of the existing interconnected grids in their respective jurisdictions. This is likely to continue for some time, as it would be very expensive for Quebec to change the infrastructure.
- The entire North American electrical system is overseen by nine regional reliability coordinating councils. These councils ensure that the bulk transmission of power is reliable.
- Beginning in 1963, the reliability of the electrical supply in North America was managed on an independent basis. However, it was determined that the 2003 black out in north-eastern North America was caused by a "lack of compliance" with reliability standards. As a result, the US passed the Energy Policy Act of 2005 and the North American Electric Reliability Corporation (NERC) was created to develop and enforce reliability standards in the US and Canada.
- In British Columbia, hydro makes up roughly 93% of electricity production.