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Diversification Canada

Diversification de l'économie
de l'Ouest Canada

WESTERN CANADIAN ENVIRONMENTAL TECHNOLOGY FORUM FINAL REPORT



March 2004



Canada 

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Executive Summary

On December 4-5, 2003, Western Economic Diversification Canada (WD) hosted the Western Canadian Environmental Technology Forum in Vancouver, British Columbia. The Forum brought together over 120 leaders of western Canadian businesses as well as academic, not-for-profit and government organizations to discuss the development, commercialization and adoption of western Canadian environmental technologies.

The Honourable Stephen Owen, then Secretary of State for Western Economic Diversification, opened the Forum by highlighting the social, economic and ecological reasons to support environmental technologies. He noted that any action taken to move the industry forward must link these three factors together and must recognize two key global transitions: the first transition is to a post-hydrocarbon era and the second is from resource-based to knowledge-based industries.

Mr. Paul Martin, then Prime Minister-designate, picked up this theme by stressing the role of technology in regional economic development, in solving social problems, and the economic benefits of addressing environmental issues. He pointed to enormous opportunities for Canadian technologies to help avert global ecological problems as the developing world industrializes.

During the open dialogue, participants identified key success factors for the industry, including access to capital and larger markets, innovative tax policies, incentives for technology development and adoption, and government leadership to streamline policies and demonstrate a clear commitment to eco-efficiency and sustainability.

In closing, Mr. Martin challenged the industry leaders to define their vision of an ideal industry-government partnership. He invited them to provide government with three concrete and clear actions that would ultimately make the greatest impact. Mr. Martin emphasised the importance of linking environmental technologies to cities and urban infrastructure, healthcare and social policy, an integrated energy strategy, and partnerships with Aboriginal people.

Oryssia Lennie, Deputy Minister of Western Economic Diversification Canada, co-chaired the session and reiterated WD's commitment to sustainable development and the need to realize social, economic, and environmental goals through environmental technologies. Co-chair John MacDonald, Chairman and CEO of Day4 Energy Inc. and co-founder of MacDonald Dettwiler and Associates, stressed that green alternatives will only be taken seriously if they are cost-competitive. John Wiebe, President and CEO of the GLOBE Foundation of Canada, presented the key findings of four studies of the western Canadian environmental technologies sector. He said new drivers for this sector include climate change, corporate responsibility, consumer demand, investor preferences, and risk management.

Following the morning plenary, participants broke into discussion groups by sector: energy, buildings, and water and wastewater. The discussion led to concrete strategies for moving the industry forward and consensus on five areas for future action:

- Harmonized and supportive regulatory, policy and program mechanisms across all levels of government

- Market intelligence, particularly about countries with large populations that represent significant market potential, as well as expertise in marketing to help those who develop the technologies to bring them to consumers
- Fiscal incentives promoting investment and adoption of environmental technologies in the earliest stages of commercialization
- Centers of excellence that are market-driven and could house “best practices”
- Demonstration projects that illustrate the effective application of environmental technologies and pave the way for development of new products
- Promote eco-efficiency through performance-based standards, national waste recycling policy, minimum building efficiency standards, government sustainable building and fleet emission standards, public reporting of eco-efficiency for industry, and credits for reducing pollution
- Transform the electricity industry into a distributed generation model, set national standards for interconnection and metering, and enable net metering

Marketing Strategies

- Provide market enablers – resources that allow businesses to be efficient – not marketing strategies
- Avoid provincial silos; use a pan-Canadian approach to promote exports
- Target trade opportunities by market segment
- Address fragmentation and a lack of resources among SMEs through facilitated networks for knowledge capture and dissemination, and case studies to highlight best practices.
- Establish a brand or certification process; link commercialization support to R&D funding

The Honourable David Anderson, Minister of the Environment, delivered a luncheon address on the opportunities that climate change represents, and the roles that government and industry can play in pursuing those opportunities.

In the afternoon, participants again went into smaller discussion groups to work on regulatory/policy mechanisms, marketing strategy, fiscal initiatives, centres of excellence, and demonstration projects. These discussions yielded several concrete proposals:

Regulatory and Policy Mechanisms

- Harmonize regulations across all levels of government, create performance-based environmental reporting for all government levels, and set-up a single portal for all government information

Fiscal Incentives

- Provide tax incentives for idea developers, manufacturers and consumers; level the playing field for energy technology; consider emission caps, and expand flow-through share incentives

- Broaden and increase renewable energy production, consumption, and conservation incentives; consider net metering and a national green tag system, as well as expansion of this approach to other technologies
- Renewable Portfolio Standard (RPS) financing could help consumer and small and medium sized enterprise (SME) financing; governments should purchase green energy first.
- Build model “green” remote communities (e.g. Nunavut); export the knowledge to developing countries
- Replicate technology in successful site clean-ups, e.g. B.C.’s Britannia Beach Mine Site
- Other opportunities include the 2006 World Urban Forum and the 2010 Winter Olympics

Centres of Excellence

- Centres of excellence can demonstrate integrated solutions and allow independent review of new technologies
- Link centres of excellence to help commercialize environmental technology
- Define sector needs for commercialization to reduce risks for investors and new technologies

Demonstration Projects

- Use demonstration projects for prototypes or large-scale applications

During closing comments, it was noted that remote and Aboriginal communities that are “off the grid” offer unique opportunities for addressing Canadian social, economic, and environmental problems. At the same time, these communities are helping to develop sustainable technologies for export to developing countries, including water management, waste management, energy, and housing. Regina’s *Communities of Tomorrow* was cited as “a large lab for urban sustainability.” *Leading Edge BC* was also mentioned as a model for attracting capital, evaluating new technologies, and promoting exports.

Opening Plenary

Welcome and Opening Prayer The Honourable Stephen Owen, Secretary of State

Secretary of State Stephen Owen welcomed participants and introduced lead facilitator Charles Holmes. Secretary of State Owen also recognized the First Nations on whose traditional territories the meeting was being hosted, and invited Musqueam Elder Mary Charles to open the program with a traditional prayer.

Elder Mary Charles, accompanied by her granddaughter, welcomed all delegates and shared a traditional prayer, calling for unity, strength, and success in making the world a better place for all to live.

Opening Remarks The Honourable Stephen Owen, Secretary of State

Secretary of State Stephen Owen welcomed Prime Minister-designate Paul Martin to the Western Canadian Environmental Technology Forum, saying, “I can think of no public issue of greater importance to the future of our planet.”

After introducing Environment Minister David Anderson and Members of Parliament Hedy Fry and Sophia Leung, Secretary of State Owen explained that this session represented one step in a discussion that had been ongoing since June 2003 and that will continue in the future.

He described meeting the Prime Minister-designate many years ago when Mr. Martin was the Opposition Environment Critic, and being challenged to consider the links between environmental integrity, social equity, and economic development. Secretary of State Owen quoted Ghandi as saying that leaders are first ignored, then ridiculed, then opposed, and then followed. “Those who follow you will be the beneficiaries of your work,” he told delegates.

He also cited a major finding in Porter’s study of competitiveness, which was that countries with high environmental standards have more competitive industries. Industries are more flexible, innovative, and leaner, and they inoculate themselves against environmental protest. High standards spur the development of environmental technology, which in turn creates new spin-off industries. “This field represents an intersection of self-interest and altruism,” Secretary of State Owen said.

He reminded delegates of three priorities identified by the future Prime Minister: Canada must take a global leadership role, sustainable development is imperative, and Western Canada will have a full role in Canadian political leadership.

Addressing the moral side of environmental technology, Secretary of State Owen noted that it is the world’s most vulnerable people, along with our children and grandchildren, who will suffer the worst consequences of environmental degradation.

Secretary of State Owen also spoke of transitions. One transition happening globally is the move to a post-hydrocarbon era. This transition will be driven by resource depletion, by the relative costs of new technologies, or by market demand, as users boycott items seen as responsible for environmental degradation. "Remember that the Stone Age didn't end because we ran out of stones," he remarked.

Another transition of particular importance to western provinces is a shift from resource-based to technology-based industries. This does not mean that resource industries are sunset industries, but they will change to incorporate high technology.

A third transition relates to water scarcity. While this is less obvious in Canada, reports on retreating glaciers indicate that this change is underway.

If people are not moved by moral imperatives or convinced of the rapidity of these changes, then they should be convinced by the \$750 billion, and rapidly rising, market for environmental technologies.

In closing, Secretary of State Owen referred to upcoming opportunities, such as the 2006 World Urban Forum being hosted by Canada in Vancouver. Many participants will have their work featured in 2006 as demonstration projects for urban environmental sustainability.

Keynote Session with Mr. Paul Martin, Prime Minister-designate

Remarks

Mr. Paul Martin, Prime Minister-designate

Prime Minister-designate Paul Martin stressed the importance of regional economic development, and applauded Western Economic Diversification Canada for spearheading the forum. He cited this initiative as an example of the innovative, consultative approach he expects of a new era of regional development agencies. He emphasised the importance of an economic development focus on solving social problems via technology. As Finance Minister, he said he argued very strongly that economists would come to the same conclusions as environmentalists if they took into account factors such as the depletion of natural capital, the impact of toxic wastes, and the benefits of energy efficiency. As Minister, he commissioned a study on how to incorporate environmental indicators in measuring Gross Domestic Product (GDP).

"We can't ignore the costs of bad environmental practice," he said. "Technology is critical to turning things around." Canada's situation poses challenges for small and medium sized enterprises (SMEs) in the technology sectors that are at the point of taking off. Mr. Martin asked, "How do we ensure that they are as successful as can be?"

There is no doubt that China and India will become massive economic powers, Mr. Martin continued. If they develop along the same paths as industrialized countries like Canada, the costs to the global environment will be catastrophic. Technology, much of which will come from Canada, will be key to addressing these issues.

“People say that government should not pick winners in industry, but government has a responsibility to pick winning industries,” said Mr. Martin. Healthcare technology and environmental technologies are examples, given the tremendous market opportunities mentioned earlier.

“This is a very important meeting,” Mr. Martin concluded. “As we build a modern Canadian economy, we in government will rely very heavily on you and we will do what is required to ensure that you succeed.”

Question and Answer Session Hosted by Secretary of State Stephen Owen

Secretary of State Owen introduced the forum’s co-chairs: Oryssia Lennie, Deputy Minister of Western Economic Diversification Canada, and John MacDonald, Chairman and CEO of Day4 Energy Inc. and co-founder of MacDonald Dettwiler and Associates.

Mr. Martin said he has discussed this issue with pension funds. One problem is that they do not have the tools needed to properly assess risks. Mr. Martin said he would be very interested to know if anyone wants to deal with the issue of angel financing.

Charles Holmes offered guidelines for the day’s discussion, noting the incredible diversity of experience in the room and stressing the importance of listening and respect. “Remember that this meeting is about furthering environmental technologies as a whole,” he noted, urging participants to seek out examples and opportunities for collaboration and to explore all possibilities.

A participant said his firm was struggling to raise angel financing in private capital markets. An example of where government could have an impact is taxation policy. For example, oil and gas companies use credits to raise capital. Further, the model being used to raise capital for wind energy projects could be expanded and applied to other environmental technology projects.

John Wiebe, President and CEO of the GLOBE Foundation of Canada, opened the discussion by speaking about challenges in accessing capital. According to Mr. Wiebe, our venture capital markets are immature and senior capital sources do not pay much attention to this sector. He questioned how best to engage capital markets to finance this emerging and very important sector.

Mr. Martin replied that he was very open to this idea and had taken note of the suggestion.

This barrier is compounded by the lack of access to large markets within Canada, said another delegate. When funders look at SMEs, the return on investment is not attractive enough. To address the financing problem, policies and programs that will allow small companies to compete successfully are needed.

A participant cited a split in the business community regarding investment. The Canadian Chamber of Commerce (CCC) does not endorse a move to energy efficiency and many of these same individuals from the CCC are involved in senior financing bodies. He proposed the need for structures to permit individual Canadians to support energy efficiency at the company level. “If you can do that, we in the private sector can take it from there,” he told Mr. Martin.

“For Canada to lead, we need to lead by example,” said a delegate. “For environmental technologies to be successful, we need customers, and there needs to be a driver for that.” He proposed that industry be required to monitor and report on environmental performance, and that industry also be required to improve eco-efficiency. Doing this would create markets for technology companies and help Canada to become a world leader in the field.

The next speaker called for federally mandated Renewable Portfolio Standards (RPS), explaining that this requires companies and organizations to use green energy if it is available at the same standard as traditional sources. This is already being done in B.C., but if the national government applied this standard to all federal buildings, for example, it would send a strong message to the investment community worldwide that Canada is serious about this sector. Another valuable tool could be flow-through shares.

Opportunities for combining environmental technologies and public health were cited by the next speaker. “Canada could take a leadership role in this area,” he said.

A delegate from the mining sector said his company is involved in angel financing. Low commodity prices provide a great incentive for his company to seek ways of adding value to its products by incorporating new technologies. It is not an either/or scenario for resources and technology. He said he would like to see more technology companies spinning off from traditional resource companies. He added that ecological fiscal reform is a “tough nut to crack,” but creating a more welcoming environment for such initiatives at the Department of Finance would be a good start.

Acknowledging these last comments, Mr. Martin noted that the Finance Department strongly opposed his efforts to introduce flow-through shares for mining several years ago.

The proposal to permit flow-through shares in this sector has a lot of merit and would be worth considering, he added.

One sector in which Canada should lead the world is traditional resource industries. Why hasn't Canada made progress with clean coal technology, for example?

“Environmental industry and public health is a natural fit,” said Mr. Martin. “We would respond if you give us a diagram to go forward.” Government hears mixed messages from the business community. Some view the relationship between government and the private sector as a partnership, in which government helps companies to succeed but keeps its nose out of their business. Others say that government's job is just to cut taxes and get out of their way. Countries like the U.S. and France understand well the value of partnerships; the Canadian private sector must decide what kind of partnership it wants with government.

Finally, Mr. Martin noted, once we solve the problem of angel investors and mezzanine financing, we get to the real problem – the penetration of foreign markets. That needs to be the focus of partnerships.

Secretary of State Owen added that Technology Partnerships Canada plays the role of angel investor and uses rigorous evaluation criteria before approving financing. That rigour helps companies attract additional capital. The program has had a central Canada bias in the past, with a focus on aerospace and defence, but this focus is shifting to environmental technologies, an area in which the western provinces can play a major leadership role.

One way to approach emerging markets in developing countries is to achieve mass production by marketing to the developed world and then targeting developing countries once costs have decreased significantly. Secretary of State Owen noted that China, for example, is ready to move boldly into environmental technologies in transportation, so there is a need to move quickly to seize such opportunities.

Aboriginal people are “batting low” in the Canadian economy, noted the next speaker, who is involved in wind energy projects. He cited several issues: extending tax credits to investors, having to absorb many soft costs, dealing with export barriers, and accessing opportunities designed for mainstream Canadians. Many people in this room can help us solve these issues, he noted.

Another Aboriginal delegate said that Aboriginal people are obvious partners in this sector, given their concepts of land stewardship and desire to restore Mother Earth. Challenges include how to involve Aboriginal people in this movement and capacity-building. Her community is involved in green energy projects, and she sees the need for a strong awareness campaign to build public commitment to green energy and create customers for such initiatives.

The next speaker addressed the challenge of linking environmental goals such as energy efficiency to social policies, saying his organization is seeking ideas on how to do this.

A delegate pointed out that the renewal of urban infrastructure provides opportunities to create market demand that will develop Canada’s expertise in sustainable building. This will create a leadership position for Canadian companies and eventually lead to the development of exportable technologies. However, governments must lead by example.

Environment Minister David Anderson said Public Works and Government Services Canada (PWGSC) has acknowledged it could be doing more in this respect. Minister Anderson has been discussing how to promote sustainable urban development and building design with leading architects. Canada has great expertise in these areas, but much of the authority for policy in these areas lies with other levels of government, necessitating a cooperative approach. He stressed the importance of municipalities incorporating sustainable urban design right at the outset. Otherwise, federal dollars for transit projects cannot be spent efficiently.

A major barrier to the adoption of environmental technologies is cost, especially when one’s primary responsibility is to consider return on investment, the next speaker noted. Government needs to make a decision and clearly state its policy.

Member of Parliament Hedy Fry called this a critical point and stressed the public health costs of pollution as an example. It is important to provide the full cost/benefit analysis to finance departments that say these technologies are not affordable.

A delegate described his organization as a partnership between industry, environmentalists, academics, and all levels of government. He was not convinced that market pull was the only issue. Canadian consumers are interested and are looking for signals from government. We need leadership and a clear policy showing where we are going. We need an integrated energy policy for Canada.

A representative from BC Hydro said it is critical to get pension funds engaged in investing in environmental technologies. Perhaps a Toronto version of the Dow Jones Sustainability Index is needed to attract funds to firms with a sustainability focus. On the Renewable Portfolio Standard (RPS) concept, BC Hydro has gone from a standard of 10% to 50% clean energy, which has led to savings, new partnerships, and opportunities.

In his closing comments, Mr. Martin said the traditional model used to build Canada's economy, based on a central Canadian focus and massive government investment in large projects such as railways, has changed significantly. Government needs to build structures that will allow businesses to succeed wherever they are. The West is a leader in environmental technologies and has Canada's fastest-growing high-tech sector.

Mr. Martin invited industry to define the parameters of the 'partnership' it would like to work towards with government. He further encouraged industry to propose to government, as a result of the day's proceedings, two or three clear, concise and concrete suggestions on how government can help stimulate the industry. He outlined four priority areas:

- Partnerships involving environmental technologies and Aboriginal people
- The "cities agenda"
- Healthcare and environmental technologies
- An integrated energy strategy

Mr. Martin also urged participants to consider the massive markets opening in China and India. "If you do this, we'll either do it or we'll come back to you and say: 'This is where the problem lies'," he told delegates.

Success in the high-tech and environmental technologies sectors is a priority, and if the federal government sells its Petro-Canada shares the proceeds will be devoted to these sectors.

"Come to us with a concrete road map and we'll do our best to get the Department of Finance on board," Mr. Martin concluded.

Remarks by Co-Chairs

**Oryssia Lennie, Deputy Minister, Western Economic Diversification Canada
John MacDonald, Chairman and CEO, Day4 Energy Inc., and Co-founder,
MacDonald Dettwiler and Associates**

Oryssia Lennie commented on Mr. Martin's commitment to the sector and to a strong and successful West, saying, "It's now up to us." WD is committed to sustainable communities and to linking social, economic, and environmental needs. Environmental technologies allow all three areas to be addressed at once.

The day's agenda reflects the priorities of diverse stakeholders and we need to come together and form partnerships to make this a success. She said she hoped the discussion would lead to a shared vision, defined roles and responsibilities, and a list of recommended actions.

John MacDonald noted that technology had allowed progress and improved quality of life, while threatening the global ecosystem on which all life depends. The challenge is to continue improving quality of life while addressing environmental impacts, and technology is key to doing this.

Competitive cost is critical to the adoption of new technologies, he added. Demand for energy will continue to grow, as traditional energy reserves run out. So the real reason to develop renewable energy is that in 100 years it may be all we have.

He emphasized the need to address the disconnect between environmental and economic thinking. The environmental threat is very real, but green alternatives will not be taken seriously unless they are cost-competitive.

“B.C.’s and Canada’s advantage lies in the brainpower of its populations,” said Mr. MacDonald. Canada’s small market size highlights the importance of exports, and gaining access to international markets is feasible even for SMEs.

He agreed with Mr. Martin’s view of government’s role, and urged participants to consider three kinds of levers that government can use to support this sector:

- Procurement: government purchasing policies and the design of its own buildings
- Tax system: flow-through shares and other possibilities
- Granting mechanisms: the least important of the three

The Opportunities: A Summary of Four Regional Studies

John Wiebe, President and CEO, GLOBE Foundation of Canada

John Wiebe briefly summarized regional studies of the environmental technologies sector in each western province. He listed the new drivers for the environmental sector, including climate change, corporate responsibility, consumer demand, investor preferences, and risk management. The latter is growing as capital markets begin to understand the risk attached to environmental issues.

The western Canadian environmental technologies sector is populated by SMEs. The sector is diverse, fragmented, and consists primarily of service providers. Firms are beginning to react to international markets and small technology clusters are slowly emerging.

The three main considerations in developing this sector are:

- Increased access to capital
- Increased international marketing
- Close cooperation between industry and government

As Mr. Martin noted, the private sector and governments need to improve coordination and governments need to look at public policies that support private initiatives. The sector has tremendous opportunities domestically and internationally.

Domestically:

- Infrastructure renewal, green cities, replacing aging infrastructure, remediation, and contaminated sites
- Energy services to the conventional sector and alternative energy sector
- Import substitution, climate change, risk management, and corporate social responsibility

Internationally:

- Urban development
- Energy
- Water

John Wiebe also gave examples of what could be done by government:

- Make government procurement policies consistent with government's sustainability goals
- Address regulatory regimes that present barriers

- Make regulations consistent with sustainability policies
- Provide fiscal incentives such as flow-through shares

He also suggested several other initiatives:

- Create centres of excellence and clusters
- Build international recognition
- Support demonstration projects and mentor smaller firms
- Support training and retention of skilled workers

There are also opportunities to bring together Aboriginal communities and the environmental technologies sector in Western Canada, said Mr. Wiebe. All the players need to work together to avoid duplication of efforts across the western provinces. He concluded by listing upcoming events that could be leveraged to showcase the strengths of this sector, such as the World Urban Forum in 2006 and the 2010 Winter Olympic Games.

Regional Representatives Panel

Members of the regional panel were invited to comment on regional opportunities and issues highlighted during regional focus groups.

Joe Lukacs of Alberta said much of the foundation is already in place to build this sector into a world-class industry. Developing markets is a long process – the pump needs to be primed. This won't happen without capital, he added.

Lorna Shaw Lennox noted that the small size of many Saskatchewan firms has forced them to find ways to create partnerships. Incentives for first users and early adopters would help to address the challenges facing smaller companies. She added that an integrated energy strategy would provide wonderful opportunities for Western Canada. Many of these opportunities involve less sophisticated technologies for enabling greener approaches.

Bob Golding said the survey showed most Manitoba firms were small businesses, many of them selling niche products. Marketing and business skills were identified as urgent needs. It would be good to tie marketing to investment, as a good business plan can help firms attract the capital they need.

Frank Came said that across the West and particularly in B.C., sector players are looking at themselves in new ways. There is recognition that there is not an environment industry as such, because the environment is linked to everything we do. Rather than looking at better end-of-pipe solutions in B.C., people are saying, "Let's get rid of the pipe altogether." He described a climate of innovation, with linkages and clusters, and a community of interest developing.

Mr. Came agreed with Mr. MacDonald's assessment that government's granting role is the least important. Much more significant is government's role as a leader, through procurement policies, incentives for early adopters, and regulatory regimes that clearly outline responsibilities, liabilities, and penalties.

John Wiebe, panel moderator, wrapped up by saying there is a great feeling that there are many opportunities, although capacity does not match those opportunities. Challenges include addressing the needs of small companies, identifying and developing markets, and finding ways to combine this emerging sector with the Aboriginal reality and opportunities. He urged participants to focus on how to close the gap between capacity and opportunity.

Luncheon Remarks

The Honourable Stephen Owen, Secretary of State

The Honourable Stephen Owen reminded participants that Mr. Martin was hoping for a short list of practical recommendations as an

outcome of the day's dialogue. Secretary of State Owen introduced Minister David Anderson.

The Honourable David Anderson, Minister of the Environment

Speaking about climate change, the Honourable David Anderson expressed his disappointment that the Kyoto Accord was being questioned in the newspapers. Kyoto Accord sceptics are speaking up, he said, despite scientific evidence that supports the climate change hypothesis. He called climate change one of the greatest challenges for this generation in Canada.

Minister Anderson disagreed with critics who argue that climate change is too difficult to deal with. He said that this kind of argument was wrong in the past, and it is wrong today. Minister Anderson said that these sceptics did not grasp a fundamental principle: the potential for a future response to environmental change. Of course this would cost money, he said, especially for Canadians. Climate change and the Kyoto Accord would profoundly affect Canada because Canada is an export-dependent, northern, sparsely settled country in which cheap resources – including energy – have fuelled economic development.

Minister Anderson said that climate change requires a response from governments and private companies. New technology provides opportunities to increase energy efficiency for Canada and the world. Boosting the supply of energy-efficient technology is a critical factor, he said. Market demand for such technology needs to be built. Minister Anderson said that the government has a role in stimulating demand for energy-efficient technology.

“Government needs clear targets and a flexible approach and timetable,” said Minister Anderson. “Then the private sector can find a way to meet these targets.”

A range of measures is needed. Minister Anderson compared the acid rain crisis in the 1980s to the climate change issues of today. Although Nova Scotia and other areas still struggle with acid rain issues, trying to reduce acid rain turned out to be easier than most thought it would be. Many people said that it could not be done due to lack of appropriate tools and technology, and the high cost. Some claimed that Sudbury would close down and unemployment would increase dramatically. Industry worked out the costs after the government set the policy direction, and when private corporations took actions, the cost was one-fifth of what was expected.

“The private sector found a better way of doing it,” he said, predicting that climate change would be the same. “Canada has the capacity and technology,” said Minister Anderson. “Adopting the Kyoto Accord will not have the negative impact that some sceptics predict.”

Minister Anderson suggested that the environmental technologies industry wants more support. “I believe the global market will help,” he said. The government must help industry take advantage of opportunities in the global market. Although he said that he could not predict the future because a new government is being formed, he did say that the best role for government was to stimulate demand for environmental technologies. Those who are best able to assist in this endeavour already work in the sector, he said.

Morning Breakout Reports

The breakout groups presented their discussion summaries.

Energy Group “A”

“There are many opportunities in the energy industry because of pent-up demand,” said the group representative. He listed five strategies:

1. The government needs to commit to sustainable development
2. For credibility, environmental technology should be used domestically before it can be exported internationally
3. The environmental technology industry needs to attract money for alternative energy demonstration projects. This could be a fiscal incentive
4. A consistent regulatory environment would guide private investment
5. Industry-driven clusters and centres of excellence should be created

Energy Group “B”

The group representative listed four strategies:

1. Fiscal incentives and regulatory predictability. This could take different forms, such as taxes or program funding
2. Demonstration projects for access to larger markets. These demonstration projects could be on a larger scale, such as 500 homes, in order to decrease the unit price
3. Creating centres of excellence that could be virtual or feature hard assets, land, and buildings
4. Coordinating the programs of municipalities, the federal and provincial governments, and independent government agencies

Water, Waste Water, and Remediation

The group representative listed four strategies:

1. Fiscal incentives
2. An enabling regulatory/policy/program framework (i.e. streamline government programs)

3. Industry cluster infrastructure support, focusing on commercialization, which could promote SMEs and public-private partnerships
4. Demonstration projects and incentives for first-in use of new technology. Demonstration projects

could be used to prove technology or look at implementation in a community

A participant said that an agreement over First Nations' lands was required to promote compliance to a regulatory framework.

Green Buildings

The group representative stated that the environmental technology sector needs:

1. To expand its market and look for opportunities to collaborate with Oregon and Washington
2. A strategy which features environmental technology incentives such as green financing, tax incentives, incentives for early adopters, and green mortgages
3. Changes to building codes from prescriptive to performance-based codes
4. Changes to federal procurement policy. Federal buildings and infrastructure should require, for

example, a Leadership in Energy and Environmental Design (LEED) silver rating. Sustainable building and community demonstration projects compose a fifth strategy. Although other benchmarks exist, the LEED standard influences the market

A participant indicated that the Federation of Canadian Municipalities provides funds for research in municipalities. The program is grounded and credible, and should continue.

Another participant suggested that federal financial contributions to projects should require a green building standard. Secretary of State Owen said that federal infrastructure funding should encourage green infrastructure.

Morning Summary and Next Steps

Charles Holmes synthesized five strategies emerging from the morning discussions: regulatory and policy mechanisms, a Western Canada environmental technologies

marketing strategy, fiscal incentives, centres of excellence, and demonstration projects. He suggested these themes for breakout group discussions in the afternoon.

Afternoon Breakout Reports

Charles Holmes asked the breakout groups to present their summaries.

Regulatory and Policy Mechanisms

The group representative listed three initiatives for the discussion:

1. Regulatory harmonization at all levels of government
 - a. This would require high-level meetings and would take about three years to complete
2. Promote eco-efficiency through performance-based standards
 - a. This initiative would need a multi-stakeholder planning process and a top-down approach. The initiative could begin as soon as possible
3. Changing the centralized, vertically integrated electricity industry into one characterized by a distributed generation model

- a. This would create export opportunities and could take place over five years
- b. Federal-provincial cooperation would be required to make this work

A participant said that distributed energy generation systems were a good idea, but would be a challenge to implement with our current centralized infrastructure. He asked for suggestions on how to make it work.

Another participant said that it was not an either/or situation. We need to open the regulatory structure to allow a natural balance between central and distributed generation systems, he said. A participant noted that the California Utilities Rate Review Commission regulates the power market between producers and distributors.

Marketing Strategies

The group reporter said that the environmental technologies sector needs market enablers, rather than market strategies. She said that an enabler was “a technology or resource that allows a business to be more efficient.” A pan-Canadian approach is required to get access to the North American market. She said that there was fragmentation and a lack of resources among SMEs. She listed three initiatives identified by the group:

1. Knowledge capture and dissemination through a facilitated network of groups
 - a. Case studies could highlight best practices
2. Promote industry connectivity
 - a. Larger players do not know the smaller players

- b. Canadian industry could develop niche solutions
- 3. Target trade opportunities by market segment

Commenting that Canadian environmental technologies need a brand name, the presenter questioned if there should be a Canadian certification or an international standard. She said that SMEs need to increase their visibility and introduce marketing expertise earlier in their processes. “We have the technology,” she said, “but need more business savvy.” She suggested networking and problem-solving on how to follow up on the Forum.

Fiscal Incentives

The group reporter listed three initiatives:

- 1. Tax incentives
 - a. These incentives should apply through the environmental technology production chain, from the idea developers, to the manufacturers, to consumers. For example, independent power producers require enhanced incentives. Although the presenter did not want to disparage the oil and gas industry, he said that a level playing field was required, and suggested that emission caps be considered on vehicles
 - b. Flow-through share incentives could be expanded, and made consistent to all industries, leaving more money for renewable energy
 - c. Tax credits for environmental technology adoption could be offered
- 2. Broaden and increase renewable energy production, consumption and conservation incentives

- a. One tactic is net metering. A national green tag system is being debated in Ottawa, said the presenter, but green energy is not at the table. The carbon dioxide producers are doing it. If a large company uses environmental technology, then the environmental technology should receive the credit, rather than the company
- 3. Renewable Portfolio Standard Financing
 - a. This could help consumer and SME financing
 - b. Governments should purchase green energy first

The federal government secures payment for exports if the other country will not pay. Independent power producers – who are penalized if they cannot provide enough power at specific times – need the same protection.

A participant said that Canada is the only country on the Pacific Rim that is not exploiting geothermal energy.

Centres of Excellence

The group reporter elaborated on the types of initiatives that centres of excellence could undertake.

1. Demonstrations of integrated solutions that would allow independent review of environmental technology
 - a. This would be good for foreign markets
 - b. It would reduce risks for investors and new technology
2. Linkages between existing centres and resources to help commercialize environmental technology
3. Define the needs of the sector for commercialization
 - a. Audit resource clusters and centres of excellence
 - b. Market research

Demonstration Projects

The group representative said that demonstration projects could be for new prototypes or large-scale applications. A large-scale application could be an industrial park or a commercial area that houses businesses on a sustainable site. He said that businesses, designers, and builders should be part of the solution and test the cost/benefit of applications. The building needs to fit site constraints, he said. The group reported three initiatives:

1. Model green remote communities
 - a. The knowledge could be exported to developing countries with high populations and low technology. The planning process itself would be a technology
2. A Green Community: Waste to Use – i.e. Britannia Beach Mine Site
 - a. The mine currently releases one ton of copper and zinc into Howe Sound daily.
3. The 2010 Winter Olympics demonstrations for environmental technology and sustainable living, for example:
 - a. Green Building accommodations for tourists
 - b. Cross Canada torch relay
 - c. Green sporting/cultural facilities
 - d. Green procurement

This site will be clean by 2005 and the technology used can be replicated elsewhere. This example shows how to turn an eyesore into something valuable, he said. This could become an attraction for 500,000 tourists per year, helping Britannia grow to a population of 2,500 by 2015

In plenary discussions, Mike Harcourt mentioned other opportunities, including Globe 2004 in March and April, the 2006 World Urban Forum in Vancouver, and the network of over thirty cities that are planning and preparing sustainable development initiatives as part of this event.

A participant said that SMEs needed an industrial centre to use for demonstration project purposes.

What We Have Heard: Comments by Government Representatives

Charles Holmes invited the panel to present responses to what they had heard, as well as

highlight programs in place in their jurisdictions.

John Donner

Assistant Deputy Minister, Strategic Directions, Government of Alberta

“The environmental technology sector is hard to define,” said John Donner, “because so many industries have impacts on the environment.” What value can we bring to customers? There is a need to focus on the economy and the environment – not just the environment. Partnerships and coordination are important in Alberta. The energy innovation network collaborates with the

federal and provincial governments, the U.S.A., and universities. Groups need to be linked to share knowledge. Policy certainty defines the context. Policy must be market-driven and enabling, rather than prescribing. For example, the Alberta government’s procurement policy was changed to encourage green power.

Denise Haas

**Acting Assistant Deputy Minister, Industry Development Executive Office,
Government of Saskatchewan**

Denise Haas thanked Western Economic Diversification Canada for hosting a thought-provoking day. Like Alberta, she said, environmental sustainability is important in Saskatchewan, where the government works collaboratively.

Ms. Haas described some provincial government projects. First, the government is trying to reduce carbon dioxide emissions, especially since coal is so important for power. Second, through the *Communities of Tomorrow* project, she said, “Regina becomes a large lab for urban sustainability.” Third, the Forestry Centre in North Saskatchewan is researching alternative uses for wood waste.

Regulations need to be improved to encourage environmental technologies. Saskatchewan is the only province to mandate the use of ethanol through legislation.

Anton Kuipers

Director, Business Development, Leading Edge British Columbia

Anton Kuipers said that Leading Edge B.C. was established to attract investment for the knowledge sector, including sustainable development. The intent is to create technology clusters and help export technologies to the rest of Canada and the world. Technology clusters can improve access to the global capital market. Marketing clusters and alliances improve competitiveness when entering the international marketplace.

One role for a centre of excellence would be to help municipal engineers evaluate risk for environmental technologies. The centres of excellence should be industry-led, he said.

The Environmental Impact Assessment process should be streamlined and more self-regulated to speed up the review process. Pan-western or Pacific Northwest marketing could be very helpful for Western Canada, he said. British Columbia is working with Oregon and Washington to integrate the energy sector.

Nancy Knight

Administrator, Demand Side Management, Greater Vancouver Regional District

The Greater Vancouver Regional District (GVRD) adopted sustainable development as a context for regional planning. “We are lucky to have a head start on this,” said Nancy Knight. The Smart-Growth movement helps structure choices. The whole world needs mobility technology, not just transit.

A study of the urban metabolism is vital to sustainable development. This means examining how cities recycle and use materials. There is a need to go beyond end-of-pipe solutions. For example, she said that waste plastic bags are huge issues in both Africa and Canada.

Values and technology are interwoven. Canadian values provide a platform of acceptability for change and are drivers of change.

Questions and Comments

Charles Holmes invited questions for the panel.

A participant spoke about initiatives in Manitoba. A committee is investigating how Manitoba could be part of the hydrogen economy. A hydrogen bus project is under way, Manitoba Hydro has a wind energy project, and Manitoba has the greatest number of ground source heat pumps in Canada.

A participant asked Ms. Knight for more examples of the study of material flows in urban areas. Ms. Knight said that industrial designers could design products to decrease environmental impacts.

A participant said that he wanted to address Mr. Martin’s remark that as developing countries industrialize, we all face catastrophe if they do it “our way.” This should be viewed as an opportunity for Canada, he said, because Canada is unique in the developed world in that 450 to 500 communities are “off the grid” and “functionally indistinguishable from the third world.” To access third world markets, Canada could use these communities as a lab. Canada has a unique opportunity to solve its own problems, develop technologies, and export solutions for water management, waste management, energy, and housing.

Closing Remarks

Secretary of State Stephen Owen

“I will commit to you that we will act as a conduit to move [these ideas] forward,” said Secretary of State Owen. The summaries of discussions heard today are part of a larger conversation. “As an enabler,” he said, “we will address the need for harmonization in federal ministries.” He said that he would bring the participants’ ideas to Mr. Martin and circulate them to new cabinet ministers, adding that he had taken many notes.

Secretary of State Owen said that the hardest dollar for government to spend is a preventative dollar, even though prevention is more cost effective. The value of a preventative investment needs to be demonstrated. This would be more effective than simply reacting to a crisis, he said.

The West has opportunities to demonstrate its knowledge through CitiesPlus, the 2006 World Urban Forum, and the 2010 Winter Olympics.

Procurement policy changes, such as through the Infrastructure Canada Program or the Department of Indian Affairs and Northern Development, could make an immense difference, said Secretary of State Owen.

Secretary of State Owen said that Mr. Martin is analytical. He wants a defined problem, objectives, and analysis, and tested and achievable goals. The benefits of environmental technologies to healthcare and other Canadian values need to be demonstrated for government to respond.

The Aboriginal agenda is central to the upcoming Paul Martin government. Secretary of State Owen said that the federal government would like to partner with Aboriginal people.

The urban agenda represents tremendous potential for transportation and building standards.

“We have a great country,” said Secretary of State Owen, “one that is wealthy and progressive.” Progressive values are part of Canadian branding. Canada has the ability and responsibility to achieve sustainable development and can rely on Western Economic Diversification Canada for assistance.

Secretary of State Owen thanked the Wosk Centre and facilitation team for a tremendous day.

Appendix 1:

Consolidated Breakout Reports – Morning Session

Breakout Session #1: Identification of Opportunities and Strategies

There were four break out groups in the morning exercise as follows:

1. Energy Group “A”
2. Energy Group “B”
3. Water, Waste Water, and Remediation Group
4. Green Buildings Group

Energy Group “A”

Opportunities

- Domestic/international for all technologies
- Oil & gas industry: improving eco-efficiency & exporting
- Decentralized and distributed energy marketplace
- Low-sulphur diesel fuel, cleaner fuels
- National policy to lower emissions; national vehicle emission standards
- Exporting our brainpower and solutions
- Building a model regarding operation of emissions trading
- Solar energy, wind energy, fuel cells, pollution prevention and geothermal energy
- Technology: hydrogen fuel cells, solar energy, wind energy, bio-energy, and hydro
- Applications: green cities, remote communities (Aboriginal), export opportunities
- Policy: declare sustainable society; charter (e.g. France)
- Provinces to build on strengths; develop synergy between provinces; collaboration
- Wind and biomass – synergy between them: BC has natural advantages; other synergies in prairie provinces; synergy between fuel cells and others (using them as backup)
- Adapting foreign technologies

Strategies

Group 1

- Level playing field between green and brown energy
- Declare market for emissions trading – led by government
- Providing strong fiscal incentives

Group 2

- Overarching priority: commitment and leadership from government to signal commitment to sustainability
- Changing and creating appropriate regulatory mechanisms
- Demonstration projects through increased government procurement: e.g. success in Calgary
- Rural community renewal: infrastructure, training, marketing, and linking; pride in rural communities

Group 3

- Government procurement
- Updating codes to uniform standards
- Cannot excel at everything: targeted R&D credits
- Creating environment innovation networks

Group 4

- Building domestic capacity before pursuing exports
- Need for a national sustainability policy

- Commoditizing benefits of investment: emissions trading; green certificates, and credits
- Benefits of investing in the technology should go to the risk taker
- Consistency in government policy and regulatory mechanisms; consistency between provinces

Group 5

- Regulatory mechanisms: smart regulations, removing barriers, improving government coordination
- Fiscal incentives, policy, tax, and procurement
- Centres of excellence that are industry-driven; innovation networks; research chairs; building on existing strengths

Consensus/Overarching Priority

Dedication and leadership from government to signal commitment to sustainability.

Voting

- Fiscal incentives, policy, tax, procurement, targeted R&D credits (20)
- Regulatory mechanisms; smart regulations; removing barriers; improving government coordination and consistency of government policy (18)
- Centres of excellence that are industry-driven; innovation networks; research chairs; building on existing strengths (15)

- Demonstration projects through increased government procurement: e.g. Calgary success (12)
- Commoditizing benefits of investment: emissions trading, green certificates, and credits (10)
- Level playing field (6)
- Rural renewal (4)
- 2. Regulatory mechanisms: smart regulations, removing barriers, improving government coordination and consistency of government policy
- 3. Centres of excellence that are industry-driven; innovation networks; research chairs; building on existing strengths

Top Three Strategies

1. Fiscal incentives and policy: tax, procurement, and targeted R&D credits

Overarching Framework

Dedication and leadership from highest level of government to signal commitment to sustainability. Do it domestically before we do it internationally.

Energy Group “B”

Opportunities

- Integration: how to put these new systems into the new framework; buildings/transportation systems
- Dollar value on renewable technologies; market potential on the environment
- Refocusing on opportunity timelines
- Market driven approaches to alternative energies; integrating remote technologies; return on investment
- Procurement and market drivers: being able to sell your product: e.g. Westport, windmills
- Production of energy, increasing efficiency
- Conversion of energy from the demand side
- Eco-efficiency, targeting waste, lean manufacturing
- Commercial building retrofit and residential retrofit: 3 million homes
- Large scale demonstrations: e.g. fuel cells to draw world attention
- Demonstrating technologies to close gap in risk
- Utility driven conservation programs: evaluating conservation for cost effectiveness
- Shifting away from abstract opportunities: What is the benefit to the consumer?
- Convenience to the customer also an issue: electricity supply, etc.
- Investment: opportunity for growth of energy demand

- Coherent vision of sustainability: includes meeting customers' needs
- How to retrofit 3 million homes? e.g. look at reasons why consumer is going to retrofit, consumer has to have incentive
- Value proposition for the user: energy efficiency

Strategies (with Vote Numbers)

- Creating centres of excellence (17)
- Large scale demonstration (43)
- Providing fiscal incentives: full cost pricing (48)
- Implementing demonstration projects
- Blended energy policy/private sector approach
- Coordinating programs (16)

- Management development (7)
- Predictable regulatory framework
- Infrastructure renewal (6)

Criteria for Voting

- Human capital
- Connecting Aboriginal people to government and industry
- Accessing international markets

Prioritized Strategies

1. Fiscal incentives and implementing regulatory predictability (48)
2. Demonstration projects for access to larger markets (43)
3. Creating centres of excellence (17)
4. Coordinating programs (16)

Water, Waste Water, and Remediation Group

Opportunities

- Engage with early adopters of the technology by providing incentives that link to their business goals
- Identify target markets to expand global market : e.g. world water scarcity
- Brownfield remediation
- Demand for more sustainable urban and rural infrastructure to mitigate problems such as urban sprawl
- Showcase specific integrated solutions on-site and profile them at upcoming events
- Develop/innovate technologies that build on our world class resource base industries: e.g. mining companies
- Converting waste into energy for application in sustainable communities: has great off-shore potential

- Taking advantage of cold climate experience and provision of services to remote communities as drivers of innovation: e.g. waste water technologies suitable to small, cold locations
 - Capitalize on our unique perspective on biological process technologies related to cold climate
 - Canadians well-regarded in the export market; refocus Canadian International Development Agency (CIDA) to include a greater technology mission than it does currently
 - Opportunity to streamline regulatory framework – make it predictable
2. Creating a more enabling regulatory framework
 - a. Results-based, predictable environmental regulations
 - b. Greater harmonization/ partnerships between different levels of government
 3. Commercialization-oriented industry cluster
 - a. Create centres of excellence
 - b. Risk reduction through technology verification
 - c. Cluster needs to be regional, national and international
 - d. Support for technology certification, insurance, and bonding
 - e. Create a comprehensive marketing strategy linking consumers/users with technology developers

Strategies

1. Fiscal incentives
 - a. Attracting increased venture capital investment (flow-through)
 - b. Co-ordinate and streamline government funding programs
 - c. Create mechanisms/incentive programs that provide a greater voice for SMEs within government/private partnerships
4. Demonstration projects
 - a. Community solutions including Aboriginal, rural, and urban communities
 - b. Industry-specific, cost competitive

Green Buildings Group

Opportunities

- Build the business case for sustainability
- Create a link between environmental technology and community health (healthcare technologies)
- Develop partnerships with Aboriginal organizations
- Institute policy linkages between health, environmental technology, healthy communities and environmental justice
- Federal government to work with the provincial government to give municipalities more control over energy bylaws (e.g. City of Vancouver has an energy bylaw)

- Reform building codes
- Change the federal government procurement practice
- The importance of demonstration projects through creative partnerships (university, Aboriginal)
- In addition to new buildings, we have the renewal of existing buildings, which reduces greenhouse gas emissions by 30%
- Build partnerships and a range of demonstration projects (demonstrate the different settings for environmental technology); use these projects for studies to identify benchmarks and areas for improvement
- Focus on sustainable construction – how we build urban infrastructure
- We have an expertise in Green Buildings (engineering, etc.) – start helping “us” develop partnerships, competency maps, clusters, and a marketing plan for Western Canada
- Tie the benefits of environmental technology into investment strategies in Canada: e.g. write reports on the economic benefits of Green Buildings in Western Canada
- Start measuring the “intangibles” (e.g. goodwill in the community)
- Bring the non-profit sector to the table – Canadians trust the non-profit sector and are looking to this sector for leadership
- Replace current infrastructure with sustainable infrastructure
- Increase the Federation of Canadian Municipalities’ green funds for sustainable infrastructure
- Energy conservation dynamic model
- Use existing frameworks, such as LEED, to create common benchmarks
- Introduce more performance standards such as Energuide
- Federal government should establish a fund to backstop the risk for innovative energy and water systems
- Address what occurs inside buildings after they are built and renovated, including the positive use of buildings (e.g. alternative energy systems)
- Initiate a public awareness campaign exploiting the natural gas crisis
- Implement an ecological tax reform
- Build an incentive to reuse construction materials
- Create risk aversion strategies for developers of commercially marketable projects
- Venture Capital funds by government that reduce the pay back period (e.g. green roofs)
- Better packaging of the nodes of expertise for foreign markets – integrated environmental solutions are selling internationally

Strategies

1. Market Expansion

- a. Create a “Green” Trade Commission
- b. Cascadia and Western Canada partnership is the go to place in North America for comprehensive business solutions in Green Buildings, sustainable infrastructure and sustainable city design
- c. Building code energy rating, outcome based not on prescriptive – evergreen
- d. Raise the bar – mandatory use of LEED – standard performance of building and energy codes
- e. Performance versus prescriptive buildings
- f. Overcome split incentives (building versus operations)
- g. Five-year incentive program

2. Incentives

- a. Address professional liability for innovation
- b. Classify insurance for pilot projects differently
- c. Green financing, including tax incentives
- d. Incentive for early adoption
- e. Energy costs included in mortgage financing
- f. Offer incentives for smaller commercial entities (not just large)

3. Building Code

- a. Performance versus prescriptive building codes
- b. Environmental innovation mandate in every new building (code, bylaw)

4. Demonstration Projects

- a. Implement demonstration projects
- b. Inventory best practices and existing green buildings; communicate this information
- c. Range of projects demonstrating different values and goals
- d. Evaluate economic health and productivity benefits
- e. All government funded projects built to LEED standards
- f. Partnerships with Aboriginal organizations

5. Procurement

- a. Government to lead by example
- b. All federal dollars for infrastructure and buildings must include requirements for sustainability and LEED
- c. Federal government to lead by example with Green Buildings and innovative technologies
- d. All Government of Canada funded projects to be built according to LEED standards, silver standard minimum

Appendix 2:

Consolidated Breakout Reports – Afternoon Session

Breakout Session #2: Identification of Initiatives and Action Steps

There were five breakout groups in the afternoon session organized around the five strategies:

- | | |
|-------------------------------------|---------------------------|
| 1. Regulatory and Policy Mechanisms | 2. Marketing Strategy |
| | 3. Fiscal Incentives |
| | 4. Centres of Excellence |
| | 5. Demonstration Projects |

Regulatory and Policy Mechanisms

Initiatives	Who's Involved	Critical Needs/ Actions	Time Frame
<p><i>Bring About Regulatory Coordination/ Harmonization</i></p> <ul style="list-style-type: none"> • Create smart performance-based environmental regulatory reporting with three levels of government to one point of focus • Pan-western review of entrepreneurial technology regulations led by provincial ministers of environment and ministers of industry and facilitated by the Government of Canada: <ul style="list-style-type: none"> • Standardize • Eliminate • Strengthen • Single portal for government information on programs • Performance-based regulations (action-comprehensive regulatory review): <ul style="list-style-type: none"> • Predictable • Consistent • Business certainty 	<p>Federal, provincial, municipal and First Nations governments</p>	<p>Prime Minister, Environment Minister and provincial First Ministers to convene a series of meetings to create smart, performance-based environmental regulations</p>	<p>3 years</p>

Initiatives	Who's Involved	Critical Needs/ Actions	Time Frame
<p><i>Promote Eco-Efficiency through Performance-Based Standards</i></p> <ul style="list-style-type: none"> • Waste recycling objectives: The Canadian Council of Ministers of the Environment (CCME) is to establish national policy to encourage recycling of waste for multiple cycle use rather than disposal. Currently 80% of industry waste is land filled without any recovery or reuse. Set target to reduce volume to 50% through recycling to recover as a resource • Minimum efficiency standards for power plants, homes, and commercial buildings • Government should set fleet emission standard • Power generation: credit for pollution reduction (e.g. NOx) compared to existing mix • Measurement and public reporting of environmental performance and eco-efficiency for industry • Establish energy budget for Canadian buildings: e.g. 5 kilowatt hours per square metre per year • Sustainable building policy: use LEED as a performance based building standard for all federal funded projects including Indian and Northern Affairs Canada (INAC), Health Canada, Public Works and Government Services Canada(PWGSC) • Require improvement of industrial eco-efficiency over time • Canadian Space Agency (CSA): quick approvals for good technologies 	<p>PWGSC, Infrastructure Canada, Health Canada, INAC, Canadian Mortgage and Housing Corporation (CMHC), National Research Council (NRC), provincial governments</p>	<p>Hold regular intergovernmental and industrial meetings/forums, establish performance-based targets, and use a multi-stakeholder process</p>	<p>0 to 5 years</p>

Initiatives	Who's Involved	Critical Needs/ Actions	Time Frame
<p><i>Transfigure the Electricity Industry from Centralized Vertical Integration to a Distributed Generation Model</i></p> <ul style="list-style-type: none"> • National standards for interconnection in metering (re: energy decentralization) • Net metering: enabling micro, mini and large generators to easily and transparently sell surplus electricity back to the utility at market price • Export driven 	<p>Federal and provincial governments</p>	<p>Multi-layer intergovernmental meeting</p>	<p>0 to 5 years</p>

Additional Initiative: Market Support

- Require locally-based manufacturing for imported technologies
- Risk underwriting for new technologies

Marketing Strategies

Discussion

- Is it reasonable to have one strategy for all technologies?
- We want market pull
- Is there a single industry?
- We need marketing enablers, not marketing strategies
- Marketing enablers: broad category
- SMEs don't know the resources that exist
- Need enablers that help us reach specific customers
- Strategic underpinning of marketing: products
- What is the highest value market proposition?
- Small companies cannot afford marketing personnel: support does exist
- Can SMEs band together through trade associations to get market intelligence? Barriers: SMEs are introverted, lack time, and are fragmented
- Example: small companies are banding together in this case
- Goal of attacking international markets requires that we get out of provincial silos
- We suffer from a lack of critical mass; we need a vehicle to pull us together
- How much do we have in common?

Summary: Key themes of opening discussion

- Need marketing enablers, not marketing strategies
- Lack of commonality among environmental technology and firms
- Need to get out of provincial silos to attack international markets
- Fragmentation and lack of resources among SMEs
- SMEs not aware of resources that exist

Enabler: a technology or resource that clears roadblocks and allows a company or process to move forward more efficiently. Example: providing a list of potential customers

Consideration: what kind of firms are we talking about?

Initiatives

- Provide incentives for large companies with large projects to allow SMEs to piggyback on development of projects. Who: CIDA
- Technology partnerships as enablers: incentives for incorporating standards or technologies
- Facilitate networking and information flow through trade commissions and other such bodies – ensure bodies already in place have sufficient resources. How will Western Economic Diversification Canada facilitate continued dialogue?

- Knowledge capture based on real case studies of successful companies. Deconstructed case of Joule Microsystems Canada – enabling factors: serendipity; the board; access to government programs; CEO recognized importance of research, product and marketing; finding a partner locally (Terasen)
- Provide marketing expertise for firms trying to commercialize or go international; mentoring; centres of excellence; differences among companies; more collaborative approach needed (Team Canada); differentiating from others internationally: what is uniquely Canadian; sales force closing deals internationally; resources to fill orders; tying in R&D funding to marketing
- Canadian government providing level playing field (e.g. one bid from Japan vs. three from Canada)
- Some of the federal enablers do exist; have SME programs and the budget; problem: we do not excel in Canada in use of technologies; focus on what the international customers are looking for; example of 21 BC forestry service companies coming together to provide integrated solution – trade alliance
- Industry connectivity: larger players don't know the small players. Industrial Research Assistance Program (IRAP), Scientific Research and Experimental Development Program (SR&ED), Department of Foreign Affairs and International Trade have a role
- Targeted trade alliances segmented by market

- Need a brand name: Canadian government certified products as tool for differentiation? Advantage in some cases but not all; should it be international certification instead?
- Address need for SME visibility: companies looking for niche solutions go to the Web
- Federal government assistance in levelling the playing field internationally for SMEs: SMEs going to US due to superior programs
- Mechanism to get marketing expertise to companies at earlier stage; connecting commercialization support to R&D funding

Fiscal Incentives

Discussion

- Reduced capital gains tax for environmental technology and green buildings
- RPS/Financing: design RPS to capture financial issues
- Accelerated depreciation of environmental assets
- Broaden production/reduce consumption or conservation incentives of “brown” incentives to green technologies
- Expansion of flow-through shares
- e. Enhanced Canadian Exploration Expense (CEE) for all renewable energy sources
- f. Tax credits for environmental technology adoption (e.g. film industry, labour funds)

2. Broaden and Increase Renewable Energy Production, Consumption, Conservation Incentives

- a. Net metering
- b. National system of green tags
- c. Expanding this concept to other environmental technology (e.g. wind production incentive to other environmental technology areas)

Initiatives

1. Tax Incentives
 - a. Create incentives for green technologies (e.g. energy production)
 - b. Level the playing field for all energy sources
 - c. Consider emission caps
 - d. Expansion of flow-through share incentives (consistent for all industries)
3. Renewable Portfolio Standard (RPS)/ Financing
 - a. Consumer financing
 - b. SME financing
 - c. An example includes Independent Power Producers Assurance Bonds

Centres of Excellence

Discussion

- Centre versus regional
- Excellence overused
- Research and commercialization
- Innovation network
- Expertise versus excellence
- Node versus centre
- Build on existing organizations (professional etc.)
- Has to include commercialization consortium
- Intersectional partnerships
- Research
- Training
- Consumer
- Public/private/non-governmental organizations/University partnerships
- Environment vs. sustainability
- Crucial drivers = Social etc.
- An example includes Environmental Technology Advancement Nodes
- Environmental technology – marketable locally
- The structure of centres of excellence:
 - Facilitate/participate
 - Have mentoring capacity
 - Generate new ideas/products/services
 - Move forward to commercialization
 - Market research and partners: e.g. venture capital
 - Partnering with industry
 - Portals for information regarding funding research
 - Stay out of research and focus on marketing
 - Commercialization clients
 - Organizations/private agencies
 - Investors, Venture Capital
 - Branding the capacity of industry in Western Canada
 - Review of regulations to determine public policy
 - Due diligence on products (SMEs)
 - Convene investors/industry/market alliances/partnerships
 - Mentor the project to commercialization
 - Marketing
 - Manage growth

- Focus:
 - Long term, sustainable strategic work for the industry
 - Knowledge sharing
 - Strategic alliances
- Facilitate linkage between existing centres and resources to commercialize environmental technology
- Define the needs of the sector for commercialization to refine the vision and the strategy
- Audit resource clusters and centres of excellence
- Market research
- Technical and financial risk reduction

Initiatives

- Implement demonstration of integrated solutions – independent review of technology

Demonstration Projects

Discussion

- Environmental technology and ways of living with that technology
- After R&D, before product development
- Demonstration projects: Part of the flow, essence of the process
- Demonstration projects: tested in the marketplace
- Integrated solutions: demonstration projects that makes many technologies work
- Real world, commercially viable, relevance to location
- Room for strategic partnerships: first priority (e.g. Sustainable University of British Columbia campus)
- Pet projects: problem of prioritizing; synthesize approaches
- The more the merrier: the more demonstration projects the better; cannot be narrowly defined at this point
- Using the technology and seeing which technology works: cannot limit the technologies
- Strategic competitive framework: what does the market want locally and internationally – need to know why we're doing it
- Community has to have the capacity to accommodate demonstration projects
- Also need to follow up on demonstration projects: significant assessment to see what works, what does not
- Challenge: Strategic mechanisms, actions that do not zero-in on one project

- Different requirements/objectives, conflicting strategies
- Demonstration projects are experiments: expect the unexpected; need flexible framework
- Which technologies deserve demo projects?
- Refocusing: What about structuring demo projects? e.g., challenge people to come up with ideas in transportation; learn how to do what we normally do but in a sustainable way
- Demonstration programs: transportation, energy and sustainable buildings; regarding sector approach (food production, waste disposal, etc.)
- Sustainability approaches in cities: technology frameworks that work with existing systems; goal is livable regions
- Social dimension of fear of change: need to look at diversity of demonstration projects and range of projects; regarding satisfying societal needs sustainably and cost-effectively
- Need for open evaluations of projects using strict evaluation standards
- Need for integration: distribution, management, etc. regarding demonstration projects that serve criteria mentioned
- Energy supply problem of Vancouver Island: social, geographic, complex problem
- Demonstrations that need to address problems

- Living with the old infrastructure: example of fibre-optical links in Japanese homes; complete change in socialization
- Demonstration projects specifically for Western Canada that deal with air, soil, water, oil and gas

Initiatives

The 2010 Winter Olympics

- *What:* Olympics to become a demonstration project for Canadian environmental technology and sustainable living: Olympic Village, Green Building accommodations for tourists, transportation, cross-Canada sustainability torch relay (regarding a green torch network connecting Canada), new green sporting facilities, demonstration of an entire closed loop system, and green procurement
- *Who:* athletes, tourists, planners, Olympic Organizing Committee, etc.
- *When:* 2010

Model Green Remote Communities

- *What:* Model Green Remote Communities, one in each province: a project to demonstrate integrated, sustainable, community systems in lower technology Canadian communities with a goal to export what is learned about addressing population growth in less industrialized countries – education and learning program

- *Elements:* Locally based planning methods, Green Buildings, alternative renewable local energy grid, alternative water and waste water systems; eco-industrial network between business and the community
- *Who:* Aboriginal organizations, federal government departments, research facilities – University of British Columbia, Simon Fraser University, Laurentian University, University of Alberta, University of Saskatchewan, Canadian Light Source (Saskatoon), government – BC Sustainable Resource Management, private sector
- *When:* Staggered rollouts

A Green Community: Waste to Use

- *What:* Example: Britannia Beach Mine Site

- High profile site
- Contaminated site: worst metal pollution site in North America
- To be remediated by 2005
- On Sea to Sky Highway, close to new Sea to Sky University
- Gateway to 2010 Winter Olympics
- Technology can be replicated on global basis
- Addresses a significant Canadian industry and how it protects the environment
- Transforms an eyesore into something of value

Appendix 3:

Event Agenda

Western Canadian Environmental Technology Forum December 4-5, 2003

Simon Fraser University M. J. Wosk Centre for Dialogue

Purpose:

The purpose of the Western Canadian Environmental Technology Forum is to build greater understanding among the attendees (representatives from industry, communities, and government) about the opportunities and types of actions necessary to strengthen the development and adoption of western Canadian environmental technology, in Canada and abroad.

Desired Results:

The primary objective for the day is to identify and prioritize the most significant opportunities and supporting actions that will contribute to strengthening the environmental technology sector throughout Western Canada.

By the end of the day we will have achieved the following results:

1. Communicated the Western Economic Diversification Canada vision for the environmental technology industry in Western Canada.

2. Reviewed the GLOBE Integrated Summary of strengths, barriers and opportunities identified in regional studies, conducted in each of the four western provinces.
3. Generated a prioritized list of opportunities for strengthening environmental technology development in Western Canada.
4. Identified a list of initiatives and potential 'collaborators' who could take action to build on the ideas identified.
5. Built a common understanding of the role and interests of key federal and western provincial government agencies.
6. Identified next steps.

**Reception at BC Research Inc.
Thursday, December 4, 2003
5:00 p.m. - 7:30 p.m.**

5:00	Welcoming remarks for evening reception from Secretary of State Stephen Owen	6:45	Refreshments and networking in the BC Research Complex lobby
5:20	Tours of BC Research Complex, <ul style="list-style-type: none">• Azure Dynamics Corporation (hybrid vehicle firm)• Lignol Innovations (wood residue to ethanol)• The Ocean Engineering Centre	7:30	Return transportation to the Vancouver Delta Suites

AGENDA

Western Canadian Environmental Technology Forum
Morris J. Wosk Centre for Dialogue
Asia Pacific Hall
Friday, December 5, 2003
8:00 a.m. - 5:00 p.m.

8:00	Aboriginal Opening Prayer	8:30	Welcome and Opening Remarks
8:20	Review of Agenda and Logistics Charles Holmes <i>Lead Facilitator</i>		The Honourable Stephen Owen <i>Secretary of State (Western Economic Diversification Canada) (Indian Affairs and Northern Development)</i>

8:40	Remarks Mr. Paul Martin <i>Prime Minister-designate</i>		2. Improve western Canadian adoption of environmental technology
8:45	Question and Answer Session with Mr. Martin Hosted by Secretary of State Stephen Owen		3. Expand international markets for western Canadian environmental technology
9:30	Remarks by Co-Chairs Oryssia Lennie <i>Deputy Minister, Western Economic Diversification Canada</i> John MacDonald <i>Chairman and CEO, Day4 Energy Inc. Co-founder, MacDonald Dettwiler and Associates</i>	12:00	Luncheon Remarks The Honourable David Anderson <i>Minister of the Environment</i>
9:40	The Opportunities: A Summary of Four Regional Studies John Wiebe <i>President and CEO, GLOBE Foundation of Canada</i>	12:45	Plenary Presentations of high potential opportunities
10:00	Regional Representatives Panel	1:15	Breakout Session #2 Identification of initiatives and action steps
10:30	Break	3:00	Plenary Presentations of initiatives and recommended action steps
10:30	Breakout Session #1 Identification of opportunities that will:	3:30	What We Have Heard: Comments by Government Representatives • Federal • Provincial
	1. Facilitate commercialization of marketable products and processes	4:30	Closing Remarks Secretary of State Stephen Owen
		5:00	Wrap Up

Appendix 4:

Events Participants

LAST NAME	FIRST NAME	COMPANY
ALBERTA		
Adamson	Richard	844869 Alberta Ltd
Amey	Allan	Climate Change Central
Backman-Beharry	Bert	Interface Management Solutions Inc.
Bushfield	Chelsea	Western Economic Diversification Canada
Chowaniec	Joe	Environmental Services Association of Alberta
Curtis	J. Michael	Alberta Research Council
Donner	John	Government of Alberta
Dyck	Ronald	Government of Alberta
Faber	John	Western Economic Diversification Canada
Feltham	Graeme	ATCO Gas
Fitzpatrick	Dennis	The University of Lethbridge
Gaudet	Denis	PTAC Petroleum Technology Alliance Canada
Hamilton	Hal	Verdant Energy Ltd.
Hollinshead	Mike	Facing the Future Inc
Holtby	Quinn	Katch Kan Limited
Humphries	Dianne	Suncor Energy Inc.
Kachanoski	R. Gary	University of Alberta
Kelly	Margaret	CETAC-WEST
Lee	Blaine	Leemartin Associates Ltd
Leonard	Jerry	Edmonton Waste Management Centre of Excellence
Liddy	Paul	Mariah Energy Corp.
Lloyd	Eric	PTAC Petroleum Technology Alliance Canada
Lukacs	Joe	CETAC-WEST
Manasc	Vivian	Manasc Isaac Architects
Mansell	Robert	Institute for Sustainable Energy, Environment and The Economy
McCready	Ken	KF McCready & Associates
Mcculloch	Matthew	Pembina Institute
Mitchell	Bob	Alberta Environment
Nairne	Stephen	Industry Canada
Nodelman	Joel	Nodelcorp Consulting Inc.
Nodelmann	Joan	Nodelcorp Consulting Inc.
Potter	Eric	Global Thermoelectric
Salkie	Fiona	Western Economic Diversification Canada
Schmidt	Bob	EnCana Corporation
Seehagel	Darryl	City of Edmonton
Stewart	Bruce	CANMET Energy Technology Centre - Devon
Webster	Gary	Newalta Corporation
Winters	Brian	PROECO Corporation
Woynorowski	David	Western Economic Diversification Canada
Zawadzki	Alexi	Komex International Ltd.

BRITISH COLUMBIA

Abraham	Areef	Homeworks Services Inc.
Adams	Bruce	Joule Microsystems Canada inc
Akenhead	Scott	The Sheltair Group
Anderson	David	Minister of the Environment, Government of Canada
Armour	Ken	Western Economic Diversification Canada
Asp	P. Jerry	Tahltan First Nation
Barrs	Robert	Smart Growth British Columbia
Biggs	Dave	Envision Sustainability Tools
Blouw	Max	University of Northern British Columbia
Braziller	Clay	Canadian Institute for Market Intelligence (CIMI)
Britton	Ronald	Fuel Cells Canada
Butler	Janet	Environment Canada
Casavant	Tracey	Eco-Industrial Solutions Ltd.
Cochrane	Penny	Pacific Energy Innovation Association
Connelly	Sean	Community Economic Development Centre (CEDC)
Crofton	Fiona	ORCAD Consulting Group Inc.
Cunnington	Phil	B. C. Institute of Technology
Dale	Ann	Royal Roads University
Davis	Lee	VanCity Capital Corporation
Dowlatabadi	Hadi	UBC
Drake	Bruce	Industry Canada
Duggleby	Tony	Sea Breeze Power Corp.
Easton	Charlene	CEaston & Associates
Finnegan	Gregory	Centre for Sustainable Communities Canada
Flavelle	Guy	Western Economic Diversification Canada
Gallagher	Michael	Westport Innovations Inc.
Greenhill	Craig	General Hydrogen Corporation
Guelke	Conrad	Pacific Energy Innovation Association
Hill	James	Sonic Environmental Solutions Inc.
Hodgson	Eugene	Sea Breeze Power Corp.
Hodgkinson	Dennis	DGH Engineering Ltd.
Holland	Mark	City of Vancouver
Jubb	Anthea	Association of Professional Engineers and Geoscientists of BC
Knight	Nancy	Greater Vancouver Regional District
Kuipers	Anton	Leading Edge British Columbia
Kukuicha	Stephen	Ballard Power Systems
Ladner	Peter	City of Vancouver
Larson	Janice	BC Ministry of Energy and Mines
Manson	Paul	Sea Breeze Power Corp.
Marshall	David	Fraser Basin Council
McCallum	Doug	Environment Canada
McCance	Ken	Tri-Tek Marketing
McManamon	Aileen	Canadian Institute for Market Intelligence (CIMI)
Moist	Brian	Business Development Bank of Canada
Mullan	Desmond	national research council
Mutter	Jim	BC Premier's Technology Council
Nixon	Brian	BC Research Inc.
Parker	David	Teck Comminco
Paxton Mann	Ardath	Western Economic Diversification Canada

Popp	Brant	Western Economic Diversification Canada
Protter	Nigel	Exergetics Development Co.
Reid	Patrick	Fraser Basin Council
Ryan	Christopher	National Research Council
Safrata	Robert	Novex Courier
Samji	Asifa	Jacques Whitford Environment Limited
Sampson	Bruce	BC Hydro
Sayers	Judith	Hupacasath First Nation
Symington	Robert	British Columbia Environment Industry Association
Taschereau	Denise	Mountain Equipment Co-op
Thorstad	Linda	Vancouver Economic Development Commission
Vassos	Troy	NovaTec Consultants Inc.
Veljkovic	Maja	National Research Council Canada
Vezina	Greg	Edgemark Capital Ltd.
Watson	Mathew	Carmanah Technologies
Wilkinson	Andrew	Province of British Columbia
Wiebe	John	GLOBE Foundation

MANITOBA

Cattani	Joe	National Research Council - Canada
Dewar	Don	Parkland BioFibre
Fisher	Michael	Western Economic Diversification Canada
Golding	Bob	Western Economic Diversification Canada
Hibbard	Tim	Western Economic Diversification Canada
Innes	Ed	Manitoba Hydro
King	Leslie	University of Manitoba
Kula	Richard	Prairie Architects Inc.
Martin	Paul	PDK Projects, Inc.
McDonald	Rodney	Centre for Indigenous Environmental Resources
Ramsey	Doug	Manitoba Environmental Industries Association
Verspeek	Rick	Turtle Mountain Sustainable Ventures Inc
Yusishen	Tim	Solar Solutions Inc.
Zanetel	Paul	New Flyer Industries

ONTARIO

Fraser	Andrew	Western Economic Diversification Canada
Parent	Gilbert	Department of Foreign Affairs
Richardson	Wayne	Director, TEAM Operations Office
Roberts	Robin	Western Economic Diversification Canada
Whittaker	Rick	SDTC

QUEBEC

Finkelstein	Abe	Environment Canada
Kenny	Margaret	Environment Canada

SASKATCHEWAN

Ayres	Brian	O’Kane Consultants Inc.
Beckie	Mary	Craik Sustainable Living Project
Belliveau	Dennis	NRC - IRAP
Haas	Denise	Industry Development Executive Office
Judd-Henrey	Ian	Saskatchewan Research Council
Kelln	Ken	(Kelln Consulting Ltd.)
McKinlay	Ken	Saskatchewan Home Builders’ Association
Reich	Laurel	NRC - IRAP / SEIMA
Shaw-Lennox	Lorna	Saskatchewan Environmental Industry and Managers Association
Voss	Ben	Clear-Green Environmental Inc.
Wiens	Ed	Western Economic Diversification Canada

Western Economic Diversification Canada (WD) is the federal department mandated to promote the development and diversification of the economy of Western Canada and advance the interests of the West in national economic policy.

For more information on WD's role in supporting environmental technologies, visit: **www.wd.gc.ca/innovation**



A Stronger West. A Stronger Canada