

Project Proposal

Scenario Development and Stakeholder Consultation Process to Increase Renewable Energy Investments in Nova Scotia

Submitted by:

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Submitted to:

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Introduction

The all-party Environmental Goals and Sustainable Prosperity Act (EGSPA) mandates very significant reductions in carbon emissions in the Province of Nova Scotia. In its 2008 Annual Progress Report (2008), the Provincial Government restated its goal: *greenhouse gas emissions will be at least ten per cent below the levels that were emitted in the year 1990 by the year 2020, as outlined in the New England Governors and Eastern Canadian Premiers Climate Change Action Plan of 2001*. Meeting this target will require a 5-7 million tonne reduction in carbon emissions between 2010 and 2020 based on current projections.

The Province's Climate Change Action Plan and the 2009 Energy Strategy both support an acceleration of this goal. At a minimum, the provincial goal is 25% renewable electricity supply by 2015. It may be possible to exceed this goal and reach 40% by 2020 through a combination of domestic wind, biomass, tidal, and imported renewable energy.

Understanding these options and their implications for the Nova Scotia electrical system requires further work, some of which is underway via the following initiatives:

- ⇒ Provincial funding to technical studies to look at transmission system upgrades and system operation
- ⇒ UARB-led integrated resource management process
- ⇒ Atlantic Bioenergy Task Force work
- ⇒ Department of Natural Resources Resource Strategy
- ⇒ Atlantic Energy Gateway Project between the federal and provincial governments

However, these processes may not necessarily address the question of a social consensus on the strengths and weaknesses of each option including differences in sustainability for short- and long-term planning. This gap is most obvious when considering the options for biomass. In all cases, the options have a variety of social, environmental and economic costs and benefits that may not be fully captured by existing capital allocation and regulatory processes.

Recent experience with Demand Side Management (DSM) has demonstrated that independent facilitation of stakeholder interests, paired with objective research into international best practices may allow hitherto disparate interests unite on a solution that benefits all Nova Scotians as well as the natural environment and the economy.

In order to explore how more effective decision-making might occur in Nova Scotia's electrical power generation and distribution industry, Dalhousie University is proposing a process not dissimilar to the DSM stakeholder consultation project commissioned by Conserve Nova Scotia in early 2008. This process would include:

- i. The development of particular scenarios in energy production and distribution within the goals and objectives of the Province's Energy Strategy and Climate Change Action Plan with a particular emphasis on the opportunity and costs associated with a target of 25% renewable electricity by 2015, and 40% by 2020;
- ii. The inclusion (in broad terms) of social, environmental and economic costs and benefits associated with different scenarios; and
- iii. The identification of societal, political, environmental, technological and regulatory opportunities and constraints that would need to be addressed for more effective capital investment strategies to occur in order to meet the goals.

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Dalhousie University is proposing a project overseen by an advisory group comprising key stakeholders, but undertaken objectively and independently, with broad stakeholder input and public consultation.

In summary, the project aims to establish energy investment scenarios that take a holistic perspective on the social, environmental, technological and economic case for alternative energy options and establishes an independent stakeholder consultation process to thoroughly assess the various options for investments in low carbon energy production and distribution in Nova Scotia. The project will identify a range of alternative scenarios and investment models and weigh the pros and cons of each (including benefits, risks, costs to taxpayers/ratepayers and legislative or regulatory barriers) using an expert project advisory steering committee and other stakeholders. If possible, the aim would be to also build consensus based on agreement of goals and a ranking for preferred option(s). The project will also attempt to build consensus on whether the preferred option(s) could be implemented in Nova Scotia and what would be the relative benefits and risks and regulatory and legislative implications of various options.

Project Objectives

The overall project objective is to develop a set of scenarios for energy production and distribution in Nova Scotia together with a collaborative stakeholder consultation process that will evaluate investment options in low carbon energy alternatives. The project will also inform Government on any necessary changes in legislation/regulation needed to implement the identified options.

The project will:

- ⇒ Establish a Project Advisory Steering Committee to provide stakeholder expertise to the development of the scenarios with the inclusion of established stakeholder participants.
- ⇒ Establish a six stage process of scenario-building and stakeholder consultation¹ (see chart overleaf)
- ⇒ Provide relevant information to stakeholders on the variety of scenarios (including the social, environmental, economic and financial implications of such scenarios)
- ⇒ Attempt to secure a consensus (not necessarily unanimity) on recommended investment approaches
- ⇒ Propose alternative options that have significant stakeholder support in the Nova Scotia context if no consensus is achievable on one option
- ⇒ Identify the benefits, risks, and costs to taxpayers/ratepayers and regulatory/legislative implications of the options presented

¹ *Stakeholders to be consulted in this project will be identified by ‘snowball sampling’ interviews with potentially interested parties early in Phase 1 of the project and are likely to include a range of individuals and organisations with varying levels of direct and indirect interest in the outcome. At a minimum the stakeholder group shall include various interested provincial government departments, Nova Scotia Power; business, consumer, environmental and community interests.*

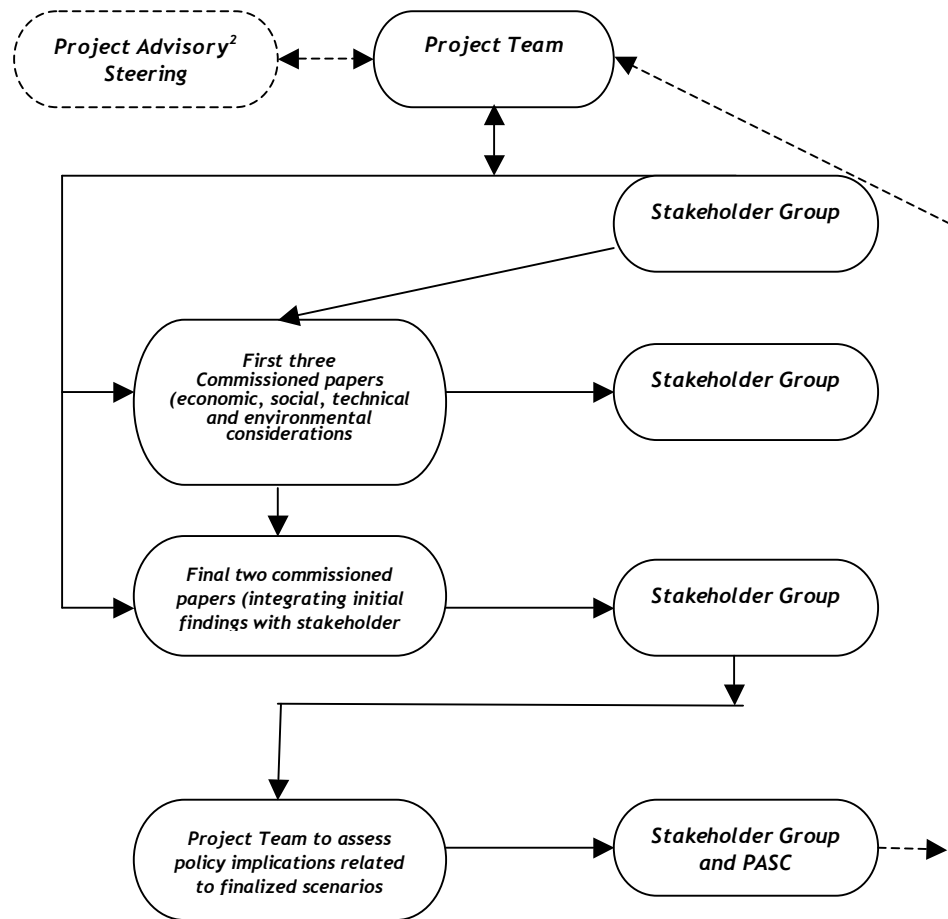
Work Phases

Dates	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
	<i>Scenario Building</i>	<i>Consultation</i>	<i>Refinement of Scenarios</i>	<i>Consultation</i>	<i>Investment Policy Options Development</i>	<i>Consultation and Reporting</i>
Week 1	Establish Project Advisory Steering Committee (PASC)					
Week 2	Identify stakeholders Identify experts for first three scenario papers					
Week 3	Scenarios planning exercise with stakeholder and PASC to discuss base elements of starting three scenarios moving forward Commission first three scenario papers					
Week 8		Convene stakeholder workshop to discuss expert paper scenarios	Convene PASC to debrief stakeholder workshop			
Week 9			Refine scenarios and commission integrated scenario paper			
Week 14				Convene stakeholder workshop to discuss integrated scenario	Convene PASC to debrief stakeholder workshop	
Week 15					Refine integrated scenario, explore and test policy options and recommendations	
Week 20						Convene stakeholders and PASC Present preliminary policy options and recommendations
Week 22						Provide draft report to PASC for comment
Week 23						Final Report

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Organizational Chart for Information Transfer



This chart represents the flow of information and input for the various components. The PASC will have opportunity to provide input to the development of the scenarios, creation of the stakeholder groups and editorial and content comments related to the final draft report prior to the reports final submission to the Client.

Scenarios Building and Consultation

The early task requirements will be to appoint the project advisory steering committee, establish the scenario experts for the first three papers, and to plan the first round of stakeholder meetings to establish the basis of the first three scenarios. This grouping of tasks would be phase one of the process.

Project Advisory Steering Committee

It is suggested that the PASC maintain representation from three separate, yet equally important groups: (a) Government (policy maker), (b) Industry/commercial (large and medium energy users), and (c) Civil Society (environment and social dimensions). Each group would have four representatives that would speak on behalf of the sector they represent, not their specific company, ENGO or Department. The intention is for these 12 people to represent the broad technical, economic, societal and policy

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expertise that can guide the development of scenarios whose feasibility and impact can then be assessed.

Scenario Development

The nature of the first three scenarios will be decided upon by an initial stakeholder consultation and following meeting of the project advisory steering committee. It is recommended that the stakeholders and the PASC participate in a scenario planning exercise led by an expert in this type of strategic planning exercise. Industry Canada has used the technique to facilitate the integration of sustainability considerations within the mining and extractive industries sectors. This process has been demonstrated to be very useful in elucidating the key issues and reoccurring themes that need to be addressed within each scenario (one can learn more about this type of work at www.nrsenarios.ca – “Four Futures: Canadian Natural Resource Processing Industry Challenge”).

Scenario planning is also useful in that it allows for the exploration of scenarios other than “most likely”. As has been demonstrated with the recent economic crisis, neither the markets nor government can adequately predict the future. Therefore, evaluating the impacts and outcomes of a series of “what if?’s” as it applies to Nova Scotia’s energy generation future (with input from key experts and knowledge holders) will be a useful exchange. The project group have good relationships with experts in this field and can easily facilitate this kind of event.

From this exercise the first three scenarios will be established. As mentioned, a paper will be commissioned to assess the socio-economic, environmental and policy related issues as they apply to the initial scenario (s) put forth.

² *it is anticipated that the final make up of the PASC will be selected by Dalhousie with support from the Client (DOE) and input from external parties such as DNR, NSPI and other key experts..*

Scenario Considerations

The constants of each scenario will be based on:

- a) the Province's Energy Strategy and Climate Change Action Plan,
- b) attaining the targets of 25% renewable electricity by 2015 and 40% energy coming from renewable sources by 2020, and
- c) projected carbon emission reduction results the range of a 2.5 to 3.5 million tonnes*.

* Half of Nova Scotia's 5 to 7 million tonne target, as electricity accounts for > 50% of Nova Scotia's emissions.

Beyond the "constants", there are a number of variables to be considered in each of scenario such as:

- a) appropriateness and type of renewables
- b) combination of renewables (percentage of each and/or timeline of transition)
- c) level of centralization/decentralization of power production
- d) type of capital investment (NSPI and/or independent power producers)

The following are the types of scenarios that could be discussed:

- a) Constant: a mix of renewable energy sources will be necessary
 - i. *Focus on wind, supported by tidal, biomass, solar, etc (e.g. 70% wind, 30% other)*
 - ii. *Focus on biomass, supported by wind, tidal, solar, etc. (e.g. 70% biomass, 30% other)*
 - iii. *Full diversification, dispersed focus on wind, biomass, tidal, solar etc. (e.g. 100% mix)*
- b) Constant: end goal of an ideal renewable energy state for 2015 and 2020
 - i. *Gradual implementation and ramp-up of sources contributing to end goal (e.g. building up over time to end state of 70% wind, 20% tidal, 10% biomass)*
 - ii. *Initial implementation of readily available source with transition to sustainable source (e.g. start with focus on biomass, shifting over time as wind and tidal infrastructure develop)*
 - iii. *Full initial implementation from the start, investing in green jobs and green economy (e.g. direct investment in wind and tidal, with some support from biomass)*

While these are only examples for the purpose of clarification, as previously noted, the actual scenarios that would be investigated and brought to the first round of stakeholder meetings would evolve from stakeholder and PASC input.

Work Activities

Project team:

- Dr Michelle Adams (MA)
- Dr David Wheeler (DW)
- Zoë Caron (ZC)
- Bronwyn Burke (BB)

Project management, stakeholder outreach and senior facilitation = 58 days:

- 5 days MA

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- 5 days DW
- 48 days ZC

Scenario papers = 25 days:

- 5 days energy-economy scenarios
- 5 days energy-environment scenarios
- 5 days energy-society scenarios
- 5 days integrated energy-economy-environment-society scenarios
- 5 days refined integrated scenarios

Report preparation and writing = 16 days:

- 3 days MA – Editing and advisory role
- 1 day DW – Editing and advisory role
- 10 days BB – Research, writing, consulting with PASC, and completion role
- 2 days ZC – Editing and aiding consulting with PASC role

Review by Clients and final revisions

The final deliverable of the project will be a report outlining the scenarios reviewed, stakeholder responses, consensus position if possible, considerations for implementation (regulatory/legislative issues), and observations on possible next steps. Drs. Wheeler and Adams will provide primary oversight of the report preparation; a draft final will be submitted for comment by the PASC with a final report submitted to the Clients upon review of this input. It will include:

1. Scenario options, including social, environmental and economic costs and benefits for each
2. Identification of EGSPA goals and objectives and government's 25% commitment to renewables by 2015 for each scenario option
3. Identification of barriers and solutions to overcome barriers for each scenario
4. Identification of risks and implications to rate/tax payers
5. Recommended investment approaches
6. Identification of changes to policy, regulations and legislation required for implementation of scenario options.
7. Identification of opportunities (societal, political, environmental, technological and regulatory) that need to be addressed in future studies
8. **Documentation of stakeholder comments, issues and contact information, including email addresses, street addresses and phone numbers as applicable**

Project Costs³

Consultancy Time and Rates

Project management and facilitation (David Wheeler) (6 days @ \$4000) = *Gratis*
Project management (Michelle Adams) (8 days @ \$1000) = \$8000
Project co-ordination, stakeholder outreach and research (Zoë Caron) (50 days @ \$300) = \$15,000
Policy analysis (Bronwyn Burke) (10 days @ \$300) = \$3,000
Stakeholder meeting costs (3 @ \$2,000) = \$6,000
Project Advisory Steering Committee = \$20,000
- Honoraria and Expenses⁴ (12 @ \$1,250) = \$15,000
- Chair (Murray Coolican) = \$5,000

Scenario Papers

5 @ \$5,000 = \$25,000

Contingency

\$3000

Estimated Total Direct Costs (excluding Government of NS costs):

\$80,000 plus applicable taxes

Recommended Split for Tasks (if necessary)

Phase 1 Establish PASC
 Establish stakeholders
 Complete Scenario Planning Exercise
 Commission Papers
 \$25,000 (Government of NS)

Phase 2-6 Remaining Activities (Stakeholder consultation, PASC meetings, final report)
 \$55,000 (Balance of Government funds)

³ *Because this contract contains no overhead component or margin, days incurred beyond the amounts estimated here will be charged at full rate e.g. where extra work is incurred at the request of the Government of Nova Scotia or where the Province of Nova Scotia accepts a prior recommendation of the consultants to conduct more work e.g. for the good of the process and its stakeholders. Contingency will not be incurred without prior approval of the Province of Nova Scotia.*

⁴ *It is expected that the Project Advisory Steering Committee will meet on five occasions throughout the process, for one half day each time. The PASC will comprise experts with relevant knowledge and interests with respect to energy, environmental, economic, technological and social issues.*

Qualifications of the Consultant⁵

This project will be executed by a team of consultants led by Dr. David Wheeler and Dr Michelle Adams of Dalhousie University who will facilitate and oversee the consultation process. Zoë Caron and Bronwyn Burke are Research Officers in the Faculty of Management, Dalhousie University. The Project Advisory Steering Committee will be chaired by Murray Coolican of the Faculty of Management Advisory Board.

David Wheeler

David Wheeler is Dean of the Faculty of Management, Dalhousie University, Nova Scotia. The Faculty of Management comprises four Schools: the School of Business Administration, the School of Public Administration, the School of Information Management and the School of Resource and Environmental Studies as well as the Marine Affairs Program. The Faculty of Management at Dalhousie has a holistic and values-based approach to management education and research and is united by the philosophy of 'Management Without Borders'.

David Wheeler has published more than 70 articles and book chapters in a wide variety of academic journals, books, parliamentary inquiries and popular journals, and has delivered speeches to numerous conferences and events. He has written or edited three books and has done numerous television and radio broadcasts on environmental and social issues and business. David was principal author of *The Stakeholder Corporation* - the first business text to be endorsed by former UK Prime Minister, Tony Blair. He was an advisor to the UK Government on governance aspects of the Company Law Review, a member of the UK Government Advisory Committee on Consumer Products and the Environment and the Reference Group for Canada's National Report to the World Summit on Sustainable Development (Rio+10). He was co-founder of the UK business-led *Committee of Inquiry - A New Vision for Business* that reported directly to Prime Minister Tony Blair in November 1999.

Prior to his recent academic appointments, David was a member of the Executive Management team of The Body Shop International for 7 years overseeing a business operating in 50 countries with worldwide retail sales of \$1 billion. As Executive Director of Environmental and Social Policy David had strategic oversight of sustainability issues and non-financial auditing and reporting. In addition to these duties he was responsible for human resources and learning for the group. In his time with The Body Shop, David oversaw the publication of five Environmental Statements in line with the European Union Eco-Management and Audit Scheme. In January 1996, The Body Shop published its first comprehensive and independently verified social, environmental and animal protection audit statement - the *Values Report*. A second *Values Report* followed in January 1998. Both reports were rated top in a worldwide ranking by SustainAbility for the United Nations on environmental and social reporting.

David started his career in the water industry where he specialised in water pollution control. Later as a Senior Research Fellow at the Robens Institute of the University of Surrey he became a leading researcher and commentator on standards of drinking water and recreational water in the UK, achieving World Health Organization Collaborating Centre status for the Robens Institute. During his time at Surrey University David was a frequent consultant to United Nations and other development agencies working in water and sanitation programs in less developed countries. He supervised development projects in twelve countries in Africa and Latin America and co-developed the *De/Agua* drinking water test kit which is now used by development agencies in more than fifty countries worldwide. The invention won a national award, presented by Prime Minister Margaret Thatcher in 1990.

In his career David Wheeler has advised a number of organizations and individuals, including:

- i) The Governments of Canada, Ontario, Nova Scotia, the United Kingdom, Botswana, Brunei, Mexico, Nicaragua, Peru and Tanzania; Federal Government of Canada Departments advised

⁵ Full *curricula vitae* available on request.

- include Environment Canada, Industry Canada and the Canadian International Development Agency;
- ii) International development agencies including the World Health Organization, the Pan American Health Organization, the Red Cross/Red Crescent, Oxfam, the International Development Research Centre, the United Nations Development Program and the International Finance Corporation (World Bank);
 - iii) Companies such as BP, AMEC, Dofasco, EnCana, Novo Nordisk, TD Bank, Thames Water, The Body Shop, EML and WSAtkins;
 - iv) Research Organizations such as the National Round Table on the Environment and the Economy (Canada), the UK Science and Engineering Research Council, the British Geological Survey, the Water Research Centre and the Building Research Establishment;
 - v) Professional, civil society and other organizations and individuals including HRH The Prince of Wales, the UK Shadow Secretary for Environmental Protection, the UK Shadow Secretary for Foreign and Commonwealth Affairs, the Canadian Institute for Chartered Accountants, Greenpeace, the National Association of Local Government Offices, the Lancashire County Council, and the Devon and Cornwall Police.

Michelle Adams

Michelle Adams is an Assistant Professor in the School of Resource and Environmental Studies, joining Dalhousie last July. She is a professional engineer and spent many years as a project manager and professional engineer in the environmental sector, both nationally and internationally. In addition to a PhD from Dalhousie focused on business and industrial sustainability, she is also a former naval officer. This unique background has been supported by experience within various aspects of the environmental sector including remediation projects in the Canadian Arctic, development of pollution prevention strategies for a variety of industries, and innovative waste management. Prior to her appointment with the University, Michelle was the president of Eco Innovations Engineering Limited, a Halifax-based environmental consulting firm.

Typical projects included:

- development of a climate change adaptation strategy for First Nation communities in Nova Scotia,
- technology evaluations and feasibility assessments of implementation (Latin America and South Asia), and
- feasibility studies into the economic, energy and environmental opportunities related to the utilization of biomass and other organic by-products as a basis for value-added products for various regions and industry sectors.

Her personal research has been focused on the opportunities to implement practical policies, strategies and technologies to improve the long-term sustainability of businesses, industrial operations, and the communities they intersect. The objective is to demonstrate that previously unsustainable systems of production and consumption can realize long-term economic and environmental sustainability through the integrations of systems-based, cyclic models of material and energy use. The emphasis has been on the integration of green technologies, renewable energy, and sustainability strategies that are applicable within the specific cultural, economic and social context of the system in question. Michelle has written dozens of technical and policy reports in various areas of environmental management and technology feasibility along with a number of peer-reviewed articles in the areas of sustainability evaluation and the application of cleaner production to industry.

Michelle is also the Director of the Eco-Efficiency Centre. The Centre is a university based research and outreach organization that promotes sustainability and responsible stewardship of resources (economic, natural and human) within business and communities. It was most recently recognized as a “Champion

of Sustainability in Communities” by the Sustainable Endowments Institute, a special project of the Rockefeller Philanthropy Advisors.

Zoë Caron

Zoë Caron is the co-author of *Global Warming for Dummies*, written with Elizabeth May, Leader of the Green Party of Canada. She is a member of the Board of Directors of Sierra Club Canada and has worked with non-profit companies and organizations within strategic planning, organizational mandates, carbon footprint assessments, solution-based programming, environmental activism, education and social mobilization; Organizations include the Zerofootprint Group, Taking it Global, Students on Ice Expeditions, Dalhousie University, Energy Action Coalition, Sierra Club Canada, Carbon Zero, Green Content Creation Group, and the Canadian Youth Climate Coalition.

Her experience in facilitating and chairing multi-stakeholder committees and dialogues ranges from experience in the Environmental Non-Governmental Organization delegation at United Nations Climate Change Conferences, international youth dialogue on board International Polar Year Expedition to Antarctica, the Dalhousie Senate, the Canadian Climate Action Network, and various high-level conference panels.

The core of her work lies within institutionalizing local and regional sustainability. She worked for two years on a national Sustainable Campuses program, focusing on Atlantic Canada - administrative Sustainability Director positions were created at both Memorial and Dalhousie Universities during this time, representing the majority of the campus community in Atlantic Canada. Zoë has worked with and trained university students to develop multi-stakeholder relationships to achieve sustainability objectives and has developed extensive relationships within the environmental community in Atlantic Canada. Zoë works regularly as an assistant on a PhD research project within the McGill University Business School focusing on the implementation phase of regional, collaborative sustainable development strategies in Canada.

With an academic background in international development and environmental science, Zoë has been named as one of the "Top 30 Under 30" to watch in Halifax, the "Top 50 Green List" of leading environmentalists in Canada, and among "Global Citizens" in Vanity Fair's Green Issue.

Bronwyn Burke

Bronwyn Burke is enrolled in the Masters of Public Administration student at Dalhousie University. Prior to attending Dalhousie University, she worked in research and communication in the public and private sectors. During her time in the public sector, Bronwyn researched and wrote medical research grant proposals, quarterly newsletters, correspondence and annual reports. As a first point of contact, she met with stakeholders, local businesses, and government representatives from all levels to inform and advise politicians and senior staff members about local current and pressing issues.

Bronwyn developed and facilitated community meetings and roundtables with special guests, stakeholder groups, and members of the community on issues such as: the environment, crime, the status of women, and Darfur. From a legislative perspective, she monitored, researched and responded to various Government and Private Members' Bills, advising on the effects of each bill on the local community and economy.

She has also completed research studying the effects of environmental disclosure in industrial operations in Canada, and, more recently, completed a research paper entitled, *A Study on Carbon Pricing for the Halifax Chamber of Commerce*. She has applied public policy and quantitative analysis in papers and projects on banking and financial regulation, and immigration patterns in Nova Scotia.

Bronwyn has been actively involved in various civic organizations and was the Dr. Trudy Eagan Women in Business Award which is awarded to a third year, female business student for outstanding academic

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and extracurricular achievements. She holds an undergraduate degree in Finance with Honours from St. Francis Xavier University.

Murray Coolican

Murray Coolican has held leadership positions across a number of sectors including not for profit, government, politics and the private sector. He has worked on environmental and aboriginal issues, in the energy and natural resources sectors, and in financial services.

He served as Senior Executive Vice President at Maritime Life, and Vice President at a number of companies including Nova Scotia Power, Corporate Communications Limited and National Sea Products. In government he worked as Deputy Minister of Native Affairs in the Government of Ontario and Special Assistant to the Rt. Hon. Robert Stanfield. He was also Executive Director of the Canadian Arctic Resources Committee, an environmental NGO when it won the Governor General's Conservation Award.

As a volunteer he Chaired the Halifax Metro United Way, the Halifax Chamber of Commerce and served as Vice-Chair of the Dalhousie University Board of Governors. He has also served as a Director of the Canadian Geographic Society and the World Wildlife Fund Canada.