

THE BEATRICE AND ARTHUR MINDEN
SYMPOSIUM ON THE ENVIRONMENT

**Taking Action:
Achieving Ontario
and Canadian
Climate Change
Goals**



School of the Environment
UNIVERSITY OF TORONTO

2015

2015 MINDEN SYMPOSIUM ORGANIZING COMMITTEE

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December 2015

Taking Action: Achieving Ontario and Canadian Climate Change Goals

The Inaugural Beatrice and Arthur Minden Symposium on the Environment

**Hosted by the University of Toronto's
School of the Environment
September 29 - 30, 2015**

Symposium Proceedings

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MESSAGE FROM THE DIRECTOR

The School of the Environment was pleased to host the inaugural **Beatrice and Arthur Minden Symposium on the Environment** in September 2015. This event was made possible by a generous endowment from the Beatrice and Arthur Minden Foundation. The Symposium will be an annual event intended to ‘make a difference’ by serving as a forum for scholarly and public discussion and debate on environmental issues of the day.

I would like to express my deep appreciation to Cynthia, George, Jo-Ann, and Robert Minden for their generosity and for choosing the School of the Environment to honour the memory and philanthropic spirit of their parents.

The School of the Environment encourages interdisciplinary study of many environmental issues, bringing together scholars from a wide range of disciplines and students interested in the environment. With events such as this, we are expanding opportunities for engagement and interaction between faculty, students, and the wider community beyond the University. Our hope is that these Symposia will catalyze meaningful dialogue and collaborations on critical issues, leading to bold new ideas and insights, proposals for workable solutions, and much-needed impetus for action.

Accordingly, with this inaugural Minden Symposium, **Taking Action: Achieving Ontario and Canadian Climate Change Goals**, we chose to focus on the pressing issue of climate change and how it can be addressed by provincial and federal policy through the development of carbon pricing mechanisms. Our goals were two-fold. The first was to identify opportunities and challenges facing Ontario policy-makers as the province develops a cap-and-trade system, and the second was to provide recommendations to the incoming federal government regarding

national climate change policy. This report provides a summary of the proceedings of the Symposium, serving as a record of the discussions, which we hope will be of value to the wider community as the Ontario and Canadian policy processes continue to develop.

I would like to take this opportunity to thank my co-organizers, Doug Macdonald and Gray Taylor, and especially Aubyn O’Grady who was invaluable as our Coordinator. Thanks also to our Assistant and photographer Minrui Fu and to our Rapporteur Heather Millar. Our speakers and panelists provided insightful, provocative, and timely presentations and remarks, and we were particularly fortunate to have the Honourable Glen Murray, Ontario Minister of Environment and Climate Change deliver an inspiring keynote address. Thank-you to all who participated in the Symposium; your questions, comments, and contributions all served to make this inaugural Minden Symposium on the Environment a great success.

Kimberly Strong
Director, School of the Environment



Photo by William Suarez

MESSAGE FROM JO-ANN MINDEN

Hello, and thank you to the organizers of this inaugural event and to the participants who are here to lend their voices to finding solutions to this complex and pressing topic of global warming.

During my father's lifetime, there was no mention of global warming. He was in his late thirties at the end of the Second World War and Canada's economy was growing – it was a golden time. My mother lived a long life, to nearly 100 years old, and awareness about climate change became widespread during the last 20 or so years of her life. One of the legacies left to us, the next generation, is the stark reality and undeniable science pointing to the role human impact plays in global warming. Finding solutions is now urgent.

Our parents were generous and understood the importance of sharing and giving back to society. Mom began and maintained a family foundation directing support to cultural, social, and medical institutions in Toronto. After her death, we were tasked with finding a meaningful home for the corpus of The Beatrice and Arthur Minden Foundation. There were numerous opportunities for directing this capital.

Why did we choose U of T? Well, U of T had a great impact on our father. He was the first of his generation to attend university and later, Osgoode Hall. He inspired those around him with his generous, warm-hearted spirit and vision. When we discovered U of T's new School of the Environment, we felt this was an appropriate and relevant opportunity for the Foundation.

Our parent's lives made a difference and we want to honour that. Rather than a generic endowment to the School however, we, along with Dr. Strong, imagined the creation of an annual event that would bring together experts

and visionaries to tackle one of the paramount issues of today.

On behalf of my siblings, Robert, George, and Cynthia, and my parents, Arthur and Beatrice, it gives me great pleasure to open this Symposium on Climate Change. It is our greatest hope that these discussions will result in bold new initiatives that might offer viable options for an enormously challenging global problem.

Jo-Ann Minden
Former Director of the
Beatrice and Arthur Minden Foundation



INTRODUCTION

The inaugural Beatrice and Arthur Minden Symposium on the Environment, hosted by the University of Toronto's School of the Environment, took place on September 29th & 30th, 2015. The Symposium brought together 47 academic researchers, government officials, business representatives, and environmental and NGO professionals to address two distinct objectives: (1) to identify opportunities and challenges facing Ontario policy-makers as the province develops a greenhouse gas pricing system, and (2) to provide recommendations to the incoming federal government regarding national climate change policy.

We first envisioned the topic for this Symposium last winter, with the objective of providing meaningful input into the development of Ontario's plans for carbon pricing. Since then, a steady stream of events and announcements has made the discussions presented in these proceedings even more timely:

- In April, Ontario announced that it will join the Québec-California cap-and-trade program.
- In May, the Government of Canada announced that Canada plans to reduce its greenhouse gas emissions by 30% below 2005 levels by 2030.
- Provincial governments, working through the Council of the Federation, have released their national Clean Energy Strategy.
- The newly elected government of Alberta is working to put in place more effective climate change policy in that province.
- The new federal Liberal government, elected October 19, has announced plans to work with the provinces on a new national climate program, with possible changes to the 2030 target.

- The twenty-first session of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change will be taking place in Paris just two months after the Symposium.

With all the talk about climate change and carbon pricing, there is real potential for a significant break-through on this issue in Canada. The stars seem to be aligning on several fronts, although there remain significant challenges to achieving progress. The debate is no longer about whether to act to reduce greenhouse gas emissions, but instead about how to do so in the most effective, fair, and efficient manner. The opportunity is here. It can only be seized, however, through a major policy effort for both the design of the Ontario cap-and-trade program and the coordination of the national effort. This is the motivation for holding this Symposium now.

The proceedings which follow provide a summary picture of the discussions that took place during the Minden Symposium. They have been organized following the format of the Symposium program. For each panel, a brief review is provided of the key points made by each speaker, followed by a summary of the main points raised during the plenary discussion, with indications of areas in which there was more or less agreement among participants. Additional materials from the Symposium, including speakers' slides, can be found at <http://www.environment.utoronto.ca/MindenSymposium.aspx>. We hope that the proceedings will provide an interested and knowledgeable reader who was not present at the event with a clear understanding of the views of speakers and participants, most particularly in terms of the major challenges faced by the governments of Ontario and Canada as they develop climate change policy, and also in terms of possible means of addressing those challenges.

PART ONE:

Designing Ontario's Carbon Pricing System

PANEL 1: LEARNING FROM THE EXPERIENCE OF OTHERS

The first panel of the Symposium convened three speakers to review the experiences of Québec, California, and the European Union with regard to cap-and-trade systems. Topics of interest included the major emissions sources covered; the percentage of total sources covered; the means of providing allowances; the use of revenues; and some estimate of the success of programs to date; as well as suggestions on how Ontario and national program design, can profit from lessons learned.

Experience to date with the California trading system

Mark Purdon, Professeur invité, Département de science politique, Université de Montréal

Experience to date with the Quebec trading system

Jean-Yves Benoit, Directeur, Marché du carbone, Ministère du Développement durable, de l'Environnement et de la lutte contre les changements climatiques, Québec

Experience to date with the EU Emissions Trading System

Karsten Mecklenburg, Head of the Trade and Economic Section, Delegation of the European Union to Canada

PANEL 1 SUMMARY

Jean-Yves Benoit, Directeur, Marché du carbone, Ministère du Développement durable, de l'Environnement et de la lutte contre les changements climatiques, Québec, spoke on experiences to date with the Québec trading system. Mr. Benoit noted that much of the design of the Québec system emerged from its participation in the Western Climate Initiative. Québec implemented a regulation respecting a cap-and-trade system for greenhouse gas emission allowances in 2011, and in 2014 Québec joined with California to create a linked market. Mr. Benoit reported that Québec's current cap-and-trade program covers close to 85% of greenhouse gas emissions, regulating electricity generation; industrial processes, goods and manufacturing; and transportation fuels and natural gas distributed or sold in Québec. Québec currently has a target of a 37.5% reduction below 1990 levels by 2030. Mr. Benoit stressed that a key innovation in Québec has been to introduce a minimum auction price to set a price floor in order to reduce price fluctuations.

Mark Purdon, Professor in the Department of Political Science at the Université de Montréal, presented the California trading system. Professor Purdon stated that the program currently covers approximately 80% of greenhouse gas emissions in California. A notable characteristic of the California case is that the state is highly dependent on external sources of energy and has historically depended on imports of oil and gas. Purdon noted that "dirtier" – i.e. more fossil-fuel dependent economies tend to decarbonize at a more rapid pace initially because it is easier to address "low-hanging fruit" such as moving away from coal-powered generation in the electricity sector. Professor Purdon suggested that relatively "clean" jurisdictions entering into markets are more likely to be buyers than sellers of allowances, which was supported by Purdon's modeling of Québec-California trade to 2020.

Professor Purdon posited a linked scenario in which Québec would buy approximately 14.4-18.3 MtCO₂e in allowances from California at the cost of \$428-\$644 million. These dynamics suggest that California may be looking for new trading partners with more fossil-fuel intensive economies, such as Mexico.

Karsten Mecklenburg, Head of the Trade and Economic Section, Delegation of the European Union to Canada, provided a review of experiences to date with the European Union (EU) Emissions Trading System, which is the largest cap-and-trade system in the world. Mr. Mecklenburg stated that in the period 1990-2012, greenhouse gas emissions in the EU have decreased by 19% while GDP has grown by 44%. Mr. Mecklenburg acknowledged that the EU Emissions Trading System has been plagued with price volatility, which has stemmed in part from over-supply of emission allowances that emerged when the European Union economy constricted after the 2008 recession. Mr. Mecklenburg noted that to address this challenge the European Union is planning to implement a market stability reserve. The reserve creates a more flexible auction supply by putting allowances in the reserve in the case of too high a surplus and releasing allowances from the reserve when allowances are scarce.



The 2015 Minden Symposium begins in the East Common Room of the Hart House at the University of Toronto.

PANEL 1 PLENARY DISCUSSION

Participants commended Québec and California for their leadership in creating a linked market and anticipated significant environmental benefits with Ontario's proposal to join their trading system. Participants argued that linked-up carbon markets should increase the capacity of jurisdictions to reduce emissions at a relatively stable price, although one participant noted that we have little evidence for this to date. One participant suggested that there are other benefits of linked markets, such as exchange of information between jurisdictions regarding clean technology.

Several participants questioned whether the dynamics of revenue flows across jurisdictions may have political ramifications for policy makers. For example, a participant expressed concern that the outflow of capital from Québec to purchase allowances from California could have negative political repercussions. Another participant noted that modelling results are quite sensitive to assumed exchange rates, and stressed that trade flows are likely to be dynamic over time, which could result in a reversal of allowance trade flows between Québec and California post 2020.

Although some participants expressed concerns that the price signal under cap-and-trade systems is less likely to change consumption patterns than carbon taxes, other participants stressed that the primary aim of cap-and-trade systems is to control and regulate emissions. Beyond that aim, a few participants argued that there is a symbolic weight to cap-and-trade that signals a long term commitment of governments to greenhouse gas reductions and that this has a behavioural effect on consumers.



*Top: Members of the first panel, Jean Yves Benoit & Mark Purdon
Middle: Panel member Karsten Mecklenburg
Bottom: John Godfrey, David Houle, and Glen Toner during the plenary discussion.*



PANEL 2: DESIGNING THE ONTARIO CAP-AND-TRADE PROGRAM (I)

The second panel of the Symposium convened three panelists to discuss opportunities and challenges associated with implementing a cap-and-trade program in Ontario. Topics covered included how to set the cap to achieve Ontario targets; the industrial sectors covered; what issues arise regarding competitiveness, costs, and economic opportunities; and how we can ensure distributive equity while maximizing political acceptability.

Setting the cap to achieve Ontario targets and sectors covered

David Sawyer, Economics Advisor and CEO, EnviroEconomics

Addressing competitiveness and economic opportunity issues

Adam Auer, Director of Sustainability, Cement Association of Canada

Ensuring distributive equity, maximizing political acceptability

Brian Murray, Director for Economic Analysis at the Nicholas Institute for Environmental Policy Solutions, and Research Professor at the Nicholas School of the Environment at Duke University

PANEL 2 SUMMARY

David Sawyer, CEO of EnviroEconomics addressed setting the cap to achieve Ontario targets and sectors covered. Mr. Sawyer presented modeling showing greenhouse gas emissions scenarios for Ontario from 2010 to 2050 both without a cap-and-trade system (i.e. only existing measures in place) and on the basis of achieving Ontario's commitments for 2020, 2030, and 2050. In the latter scenario, reliance is placed on cap-and-trade and other measures to meet the targets. Sawyer stated that in 2020, we can anticipate that Ontario would emit 169 MT in the absence of cap-and-trade and other new initiatives, approximately 15 MT over the target of 154 MT. For 2030 and 2050, that 15 MT gap increase to 68 MT and 164 MT under the status quo without cap-and-trade and other measures. Assuming similar coverage to Québec and California cap-and-trade, Sawyer noted that Ontario's cap-and-trade program will cover about 83% of emissions (140 MT) in 2020. Emission reductions achieved through cap-and-trade in Ontario will need to be complemented by imports of allowances from California and Québec, permitted offsets, or other complementary policies. Mr. Sawyer stressed that Ontario's success in reducing emissions after 2020 will likely depend on how quickly the transport sector can switch to alternative decarbonized energy.

Adam Auer, Director of Sustainability from the Cement Association of Canada, spoke on addressing competitiveness and economic opportunity issues. Mr. Auer provided a snapshot of the challenges facing emissions intensive trade exposed (EITE) industries in carbon tax and cap-and-trade markets. Mr. Auer suggested that the cement industry illustrates that EITE industries can be in support of carbon pricing, despite the potential adverse economic ramifications for the industry. Mr. Auer noted that it is important to consider that the lifecycle emissions for EITE industries are sometimes lower than expected.

Mr. Auer stressed that beyond free allocations, there are a variety of mechanisms to mitigate carbon leakage, such as jurisdictional alignment, border carbon adjustments, offsets, and transition funding.

Brian Murray, Director for Economic Analysis at the Nicholas Institute for Environmental Policy Solutions at Duke University, presented on ensuring distributive equity, and maximizing political acceptability. Professor Murray defined distributive equity as "how benefits and costs of the policy are distributed across segments of the population." Professor Murray provided a number of examples of the ways in which the costs of climate change mitigation are unequally distributed among firms, households, and governments. The presentation explored some of the potential options to alleviate these inequities, namely providing free allocations to all emitters to gain political acceptability, providing financial support to EITE industries to increase competitiveness; and directing auction proceeds to low-income households to alleviate disproportionate impacts of increased electricity, transportation and heating fuel costs.



Clockwise from the top: David Sawyer & Brian Murray on the second panel, Adam Auer speaks, Gray Taylor facilitates.

PANEL 2 PLENARY DISCUSSION

Several participants stressed that cap-and-trade programs should be understood as one part of an integrated climate change policy system that includes complementary measures. One participant used the metaphor of a shopping basket: cap-and-trade provides the overall infrastructure (the basket) that holds together a wide range of measures such as offset markets, carbon sinks, electrification of transportation systems, new green building materials, lifecycle carbon pricing of products, and alternative transportation fuel technologies (e.g., biofuels).

In a related vein, some participants stressed that a core challenge facing policy makers is that deep decarbonisation will not be driven by cap-and-trade alone. One participant argued that lack of innovation can be linked to the lack of a price floor in the European Union and China, while another participant argued that if jurisdictions are concerned with the carbon price to spur innovation, then a carbon tax is more appropriate. It was suggested that to incentivize innovation, governments will need to implement complementary policies that address emissions from household and transportation sectors. One participant noted that technological development on biofuels in California has currently stalled due to high development costs.

Some participants noted that the relative costs and benefits of free allocations versus border carbon adjustments are uncertain. Participants expressed varying support for the use of free allocations to EITE industries, with some strongly supporting a generous component while others voiced concern about inadvertently providing EITE industries with a “windfall”. Several people noted the benefits of using border carbon adjustments to prevent carbon leakage but noted that the legal ramifications of these instruments with regard to the World Trade Organization are uncertain. One participant cautioned against Canada requiring border carbon adjustments

with the US for fear of sparking US protectionism.

A few participants noted significant variation in the ways in which different provincial governments have engaged with EITE industries, ranging from a direct engagement in Québec to a seemingly more laissez faire approach in British Columbia. One participant argued that it is important to build a constituency that supports carbon markets in the long term, which requires the participation of affected industries. Another suggested the need for a more transparent mechanism to include EITE industries in consultation processes.

One participant stressed that a significant challenge for policy makers is establishing criteria to evaluate the various environmental, economic, and political costs and benefits of different uses of revenues. It was argued that governments should weigh each of these aspects equally. Another participant suggested that the only calculus facing policy makers is a political calculus, which makes it difficult for policy makers to objectively estimate the optimum balance between these factors.

Another challenge raised was how to design cap-and-trade systems in the face of the increasing costs of climate change. One participant cited high insurance costs facing Toronto households after the 2013 flash flood as an example of the kind of increasing costs governments are likely to face in the future. It was also noted that governments cannot address all of the impacts of climate change with mitigation strategies alone, and argued that governments will also have to start spending on adaptation, perhaps by allocating revenues generated by cap-and-trade to adaptation initiatives.

KEYNOTE ADDRESS FROM THE HONOURABLE GLEN R. MURRAY

The Honourable Glen R. Murray, Ontario Minister of Environment and Climate Change began by presenting the realities of current climate change impacts, globally, within Canada and in Ontario. His message was clear – the problem is real, major and we have little time left in which to act if we wish to keep average global temperatures below a two-degree centigrade increase. Children born today will never know a world without a changing climate.

He emphasized that the cost of inaction is too high. We are already seeing the impacts of climate change on Ontario communities and their local economies. Climate change is affecting our infrastructure, water resources, energy, agriculture, tourism and health. The Insurance Bureau of Canada reports that in recent years, water and wind damage caused by severe weather has replaced fire as the top concern. The costs of climate change are adding up and far outweigh the costs of fighting climate change and investing in resilient, sustainable solutions.

Minister Murray described the climate change targets and actions that Ontario is pursuing, including a 2030 greenhouse gas emissions reduction target of 37% below 1990 emissions levels. Ontario will soon be releasing a new climate change strategy that will guide the province's long-term approach to climate change and outline a path towards the transformation to a low-carbon and resilient economy. This will be followed by a five-year action plan that will include a cap-and-trade program that puts a limit on greenhouse gas emissions, while also considering issues around competitiveness, clarity, and fairness.

Minister Murray stressed the fact that all of us have a role to play in the solution. Given the university setting, he shared his views on the roles and responsibilities of academic experts.

He said that in his opinion, belief in the need for perceived objectivity prevented academics from speaking as loudly or as passionately as they might. He recognized the need for empirical, objective analysis, but challenged academics to go beyond that and to speak directly to decision makers, pressing them to act. Take risks, he urged his audience.

During question period, it was suggested where real action is needed is in regions with rapidly growing economies – time and money spent in Ontario will produce far less global benefit than if spent in Southeast Asia. Minister Murray agreed and said that if one felt the need to act there one should do so. He, however, has an opportunity to act here, in Ontario, and would continue to do so. “But I need your help” he said, and returned to the theme of the need for experts to support public decision making.

He challenged those in the audience to first reduce their own carbon footprint, and then act to reduce the societal footprint. The time to act is now, he said – we face a challenge comparable to that of Britain in the summer of 1940 faced with imminent threat of invasion. Britain and Canada threw everything they had into meeting that challenge. We must do the same thing now, the Minister said.



Minister Glen Murray delivers his keynote address at the Minden Symposium Dinner in the Music Room of the Hart House.

PANEL 3: DESIGNING THE ONTARIO CAP-AND-TRADE PROGRAM (II)

The third panel of the Symposium concluded the focus on Ontario's proposed cap-and-trade program. Topics included the use of revenues; how Ontario's policy can be best coordinated with other Canadian and US sub-national governments; and complementary policies needed to achieve Ontario's emissions targets.

Use of revenues

Erik Haites, President, Margaree Consultants Inc.

Ontario policy coordination with other Canadian and US subnational governments

David Houle, SSHRC Postdoctoral Fellow, Center for Local, State, and Urban Policy (CLOSUP), University of Michigan Gerald R. Ford School of Public Policy

Complementary policies needed to achieve Ontario targets

Mark Winfield, Associate Professor, Faculty of Environmental Studies, York University

PANEL 3 SUMMARY

Erik Haites, the President of Margaree Consultants Inc, presented on the use of revenues. Mr. Haites explored the issue of how best to allocate funds generated through a cap-and-trade system. Mr. Haites noted that revenues generated from auctions are minimal in proportion to provincial budgets and stressed that the cap-and-trade system is designed to reduce revenues to zero as emissions targets are reached. Mr. Haites recommended that jurisdictions avoid locking themselves into funds with narrowly defined uses for revenues, and he noted that several jurisdictions direct funds into general revenue, although this has not tended to be the case in North America.

David Houle, Social Science and Humanities Research Council (SSHRC) post-doctoral fellow at the University of Michigan, described Ontario's policy coordination with other Canadian and US sub-national governments. Dr. Houle identified the challenges of coordination between sub-national units and also vertical coordination in federal systems. Dr. Houle noted that despite the advances and leadership of sub-national jurisdictions in developing carbon pricing systems in the absence of federal policy, there are strong limitations to the likelihood of continent-wide markets emerging in the absence of federal leadership. Dr. Houle's presentation stressed the importance of developing institutional structures to support secondary markets such as offset trading as a means of initial coordination.

Mark Winfield, Professor in the Faculty of Environmental Studies at York University, concluded the panel with a discussion of complementary policies needed to achieve Ontario targets. Professor Winfield provided an overview of the range of complementary policies available to Ontario. He noted that carbon taxes, extensive public transportation systems, new building practices, increased renewable

electricity production, and carbon sinks are all viable courses of action. Professor Winfield stressed that Ontario will be facing the risk of a significant rise in emissions from the electricity sector post 2020 because of the required refurbishment of Ontario's nuclear facilities if nuclear power generation is replaced by natural gas in the interim. During the transition, Ontario will be either reliant on natural gas generation with concomitant greenhouse gas emissions or on imported hydro from Québec. Professor Winfield stated that Ontario is currently in talks with Québec to import hydro as a temporary solution during refurbishment; he suggested that ongoing trade with Québec or other jurisdictions for hydro imports could be a permanent contributor to decarbonisation in Ontario.



Top: David Houle, Erik Haites, & Mark Winfield on the third panel. Bottom: Mark Winfield speaks on the third panel.

PANEL 3 PLENARY DISCUSSION

Several participants noted that there is some uncertainty as to which carbon pricing systems other Canadian provinces are likely to adopt, leading to difficulties in coordination. Some suggested that developing a coordinated offset market between Ontario-Québec-California-Alberta could be a first step towards integration. Other participants suggested that carbon tax coordination between British Columbia and Alberta is possible, although another participant disagreed, arguing that a carbon tax is likely not politically feasible in Alberta. One participant suggested that British Columbia's recent integration with Alberta with regard to emissions intensity requirements for liquefied natural gas, which can be met using offsets as in Alberta, suggests that British Columbia is more likely to follow Alberta's lead.

The majority of participants agreed that successful coordination between sub-national jurisdictions is challenging in the absence of national coordination. A number of participants supported Dr. Houle's proposal regarding the development of institutions to support secondary offset markets as an initial step towards policy coordination between jurisdictions using different carbon pricing systems (e.g., between Alberta and Ontario).

The participants discussed the varying trade-offs between establishing a dedicated fund for revenues and channelling funds into general revenue. One participant cautioned that adopting a narrow mandate for a dedicated fund leaves jurisdictions unable to respond to a variety of changing conditions, making funds ineffective and potentially stuck supporting obsolete technologies.

There was some disagreement as to whether governments perceive cap-and-trade as a revenue generation program. Although one participant suggested that governments engage in cap-and-trade as revenue generation, other participants stressed that revenues generated from allowances are auxiliary to the primary goal of the program, which is to reduce emissions. Building on Mr. Haite's presentation, one participant argued that economic modelling suggests that for cap-and-trade to be effective, the closer a jurisdiction is to attaining deep decarbonisation targets the more its cap-and-trade revenue will fall. The participant argued that funds from cap-and-trade should not be considered adequate to sustain other complementary measures (e.g., public transit) in the long-term.

Participants discussed a variety of proposals regarding the allocation of cap-and-trade revenues. One participant argued that revenue-neutral programs – i.e. those flowing funds into general revenue coupled with corporate and income tax cuts of an equal size – are most likely to generate economic benefits and political acceptability. Other participants argued the complete opposite, contending that dedicating funds to public transportation or low-carbon infrastructure would provide support to sustaining complementary measures and would increase public acceptability. Other participants suggested funds would be best allocated to adaptation measures. As well, some participants argued that funds should be directed toward alleviating the cost-burden imposed on low-income households. Overall, participants did not come to a general agreement on the preferred use of revenues in a cap-and-trade system.

PART TWO:

Developing National Climate Change Policy

PANEL 4: THE CHALLENGE OF DEVELOPING COORDINATED NATIONAL POLICY

The fourth panel addressed the second major topic of the Symposium and identified key challenges facing the Canadian federal government. Panelists addressed Canadian intergovernmental relations and climate policy; the differing costs of action; the Alberta contribution to national policy; and the Canadian Energy Strategy.

Canadian intergovernmental relations and climate policy

Kathryn Harrison, Professor, Department of Political Science, University of British Columbia

Differing costs of action and the Alberta contribution to national policy

Dylan Jones, President and CEO, Canada West Foundation

The Canadian Energy Strategy

Monica Gattinger, Associate Professor, School of Political Studies, and Director of the Institute for Science, Society and Policy, University of Ottawa

PANEL 4 SUMMARY

Kathryn Harrison, Professor in the Department of Political Science at the University of British Columbia, presented on Canadian intergovernmental relations and climate policy. Professor Harrison identified some of the drivers of collective action problems with regard to provincial coordination. Professor Harrison argued that cross-provincial dialogue on climate change mitigation must begin from a frank recognition of unequal distribution of costs and benefits regionally. There are extreme differences in provincial costs of mitigation stemming from historical development and geographic positioning of natural resources. Professor Harrison argued that the significant differences among provinces belie rhetoric that each province is entering negotiations with an equal distribution of costs and benefits. This suggests that expectations that the provinces will reach consensus are irrational. Professor Harrison noted that federal leadership on the issue is not automatic, in part because federal leaders are likely dependent on the votes of residents in fossil-fuel dependent jurisdictions such as Alberta. She stressed that there is an inherent tension between a model of the economy driven by unconventional oil expansion and Canada's greenhouse gas reduction targets.

Dylan Jones, President and CEO of the Canada West Foundation, described the differing costs of action and Alberta's contribution to national policy. Mr. Jones stressed that it is important to put Canada's mitigation efforts in a global context and argued that there are limited benefits to reducing Canada's greenhouse gases if we do not also address the rise of emissions in the developing world. Treating export sector emissions the same as more captive sources can result in an increase in global emissions as production moves to other jurisdictions. Mr. Jones suggested that one avenue to do so is to develop transferable technology that can

be deployed in production in the developing world. He noted that to date, companies in Alberta have not done this, focusing mainly on innovation in oil sands remediation, which is not deployable elsewhere. Mr. Jones stated that we need to consider benefits of east-west trade. For example, Manitoba is currently facing a hydro surplus because of the decline of US demand; this supply could be directed to Saskatchewan and Alberta to replace industrial consumption of natural gas.

Monica Gattinger, Professor in the School of Political Studies at the University of Ottawa, presented on the Canadian Energy Strategy. Professor Gattinger explored the changing dynamics of Canada's energy sector and noted a shift in energy policy-making away from quiet politics. Professor Gattinger stated that today's policy makers have to arbitrate between a variety of goals vis a vis markets, environment, security, and social acceptability. She noted that the US shale gas "revolution" has dramatically transformed the global energy market, resulting in the loss of the US as a primary market for Canadian energy. In addition, US shale gas has made energy politics much more salient to the general public. As a result of these dynamics, as well as the unequal distribution of the costs and benefits of natural resources across different provinces, Professor Gattinger argued that the Canadian Energy Strategy has focussed on the lowest common denominator of agreement, which will likely reduce the overall effectiveness of the strategy to mitigate climate change. Professor Gattinger concluded the presentation with the suggestion that Canada needs to convene a national conversation on a Canadian Energy Transition Strategy to move from the aspirational to the operational.

PANEL 4 PLENARY DISCUSSION

A number of participants argued that the federal government should make addressing distributional equity among provinces a key priority. Several other participants agreed with Professor Harrison that provincial inequities in resource endowments need to be frankly acknowledged at the outset of talks. Some participants suggested that the federal government must open discussion regarding potential compensation to governments with stranded assets – i.e. fossil-fuel resources that are economically infeasible to extract because of climate change regulation and policy. A participant noted that the federal government has not had much success in mediating provincial disputes over transfer of resources. Another participant stressed that inter-governmental talks need to seriously consider the role of indigenous governments in climate change policy or those governments need to be prepared to face ongoing challenges in the courts.

Several participants raised concerns regarding the role of the oil and gas sector in helping or hindering deep decarbonisation at the national level. One participant stressed that achievement of Canada’s 2050 mitigation goal is only possible through a significant shift away from fossil fuel expansion, noting “we have a short-term fossil-fuel-dependent prairie provinces problem.” Some participants were more concerned with reducing intensity of emissions from oil sands production, while others raised the possibility of sun-setting fossil fuel production altogether. Others suggested that from a global perspective, mitigation in developed countries is a red herring and that national efforts should be directed at developing mitigation technologies that can be deployed to developing countries. Some participants argued that Canada should reframe the debate to focus on its role as a renewable energy superpower. Other participants stressed that this kind of framing upholds the idea that

“we can have it all”, namely that we can mitigate emissions without limiting fossil fuel production. Other participants emphasized that discussion of “big emitters” obscures the role of consumption in driving greenhouse gas emissions, arguing that national leadership is needed to encourage a broad base of citizens to reduce consumption.

Numerous participants agreed that Canada must have a national conversation on climate change. Participants had different suggestions as to the preferred mechanism for dialogue – one participant suggested convening a Royal Commission, while another participant suggested Canada could hold sectoral consultations akin to free-trade consultations held prior to NAFTA. Another participant suggested smaller-scale consultations with stakeholders across the country as with Paul Martin’s budget conversations.



Clockwise from the top: Dylan Jones & Kathryn Harrison on the fourth panel, Monica Gattinger speaks, Tom Markowitz asks a question during the plenary discussion.

PANEL 5: FEDERAL GOVERNMENT LEADERSHIP FOR NATIONAL CLIMATE CHANGE POLICY

In the fifth panel, representatives of three of the four national parties (the fourth declined several invitations to participate) examined the topical issue of federal government leadership for national climate change policy. Following a review of the challenges facing the next Government of Canada in working with the provinces to develop effective coordinated national policy, panelists presented their party positions on how that can best be done.

Government of Canada role in developing coordinated national policy

Mr. John Drexhage, Senior Advisor, Sustainable Development, Climate Change and Energy, Coop Carbone

New Democratic Party of Canada plans

Mr. Matthew Kellway, Member of Parliament for Beaches-East York

Liberal Party of Canada plans

Mr. John McKay, Environment Critic, Member of Parliament for Scarborough-Guildwood

Green Party of Canada plans

Mr. Chris Tolley, Green Party Candidate, Toronto-Danforth

PANEL 5 SUMMARY

John Drexhage, Senior Advisor at Coop Carbone and moderator of the panel set the context for panel discussion by outlining the Government of Canada’s role in developing coordinated national policy. Mr. Drexhage highlighted the problem of coordination between two different, sub-national “ships” potentially operating in the Canadian context: first Alberta-British Columbia coordination on intensity emissions and possibly tax, and second Québec, Ontario, and California’s linked cap-and-trade markets. Mr. Drexhage stressed that the federal government should address issues of compliance, monitoring, verification and reporting, as well as determining international trading mechanisms, which remain the jurisdiction of a sovereign government. Mr. Drexhage also highlighted the need for strong federal leadership to convene a national conversation on climate change policy.

Matthew Kellway, Member of Parliament for Beaches-East York described the NDP’s policy platform regarding climate change. Mr. Kellway outlined the NDP’s proposal for a Climate Change Accountability Act, which would set binding emissions targets at the federal level. Mr. Kellway stated that an NDP government would establish a national cap-and-trade system, but noted that in this plan the provinces would have the option to opt out if their current initiatives enable them to exceed the national targets.

John McKay, Environment Critic and Member of Parliament for Scarborough-Guildwood, outlined the Liberal party’s climate change plans. Mr. McKay noted some of the key announcements made by Liberal leader Justin Trudeau during the campaign and stated that within 90 days of taking office the Liberal government would convene a meeting with the provinces to begin talks. Mr. McKay stressed that the federal government would function primarily as a facilitator, and that targets would be set using a process similar to that

which led to the establishment of Medicare. Mr. McKay stated that Mr. Trudeau would represent Canada at the Paris Conference of Parties on the UN Framework on Climate Change (COP 21) to be held in December 2015.

Chris Tolley, Green Party Candidate for Toronto Danforth, presented the Green Party of Canada’s plans. Mr. Tolley stated that a Green Party government would convene a “Council of all Canadian Governments”, including municipal and first nations governments to discuss climate change policy. Instead of a cap-and-trade program, the Green party would to establish a “fee and dividend system” which places a fee on carbon emissions from fossil fuels at the point of origin or landing for imports. Generated funds would be distributed directly to every Canadian over 18 in the form of an annual dividend.



Top: Douglas Macdonald moderates the fifth and final panel Bottom: Minden Symposium participants during the plenary discussion.

PANEL 5 PLENARY DISCUSSION

Following the presentations, the representatives of the different parties responded to questions from the Symposium participants. The following summary of questions posed provides insight into the key challenges facing the new federal government post-election.

- How should the federal government respond to provincial leadership that does not want to participate in coordination or fully co-operate in achieving a national target?
- Should climate change policy apply to only larger emitters or all emitters?
- How to square ambitious targets for emissions reduction with economic plans rooted in the expansion of the oil sands and other fossil fuel development?
- How can the federal government help compensate provinces to incentivize them not to develop carbon-intensive resources such as unconventional oil and gas?
- How can the federal government help negotiate and/or intervene in energy conflicts between provinces (e.g., Newfoundland and Labrador/Québec over hydro)?
- How can federal governments engage the public in a discussion that positions Canada as a leader in renewable energy power?
- How to incorporate the role of carbon sinks into climate change policy?

- How to facilitate inter-party cooperation on climate change policy
- How would the federal government persuade people that sustainable cities are better than sprawl?
- What is the federal role in protecting competitiveness during crucial transition periods as sub-national actors advance ahead of trading partners?
- How should federal governments address problems of carbon leakage and the needs of EITE industries?



Minden participants chat with members of the fifth panel during the break.



Members of the fifth panel, L-R: John Drexhage, Chris Tolley, John McKay, & Matthew Kellway

CONCLUDING PLENARY: ONTARIO IN CANADA, CANADA IN THE WORLD

Douglas Macdonald, Academic Associate Director at the School of the Environment, concluded the Symposium by providing a brief review of the discussion in previous sessions and encouraged participants to identify key policy problems or solutions facing policy makers at both the provincial and federal levels.

With regard to Ontario's proposed cap-and-trade program, several participants asserted that Ontario should enter into an integrated market with Québec and California as soon as possible. One participant argued that Ontario should legislate its commitment to the proposed greenhouse gas reduction targets, and suggested that legislation could also help clarify potential cross-border issues. Another participant stressed that the Ontario government's political will for action on the climate change file is there.

As in the earlier plenary discussion, participants did not agree on the relative allocation of revenues generated by cap-and-trade markets to other programs and initiatives. Some argued that generating technological innovation is of the highest priority and so funds would be most efficiently invested to establish research institutes or alternative incentive structures for R&D. Others argued specifically for targeted investment into low-carbon technologies such as building materials and electrification. Another participant stressed that there are other ways of incentivizing innovation other than direct funding of R&D, and expressed concern that governments are likely not the best situated to pick "winners." One person suggested that 50% of revenues should be allocated to adaptation; another disagreed, arguing that funding for adaptation measures should be sourced out of general revenues. Yet another favoured direction of revenues to low income households and other groups experiencing distributive inequities under a cap-and-trade system. One participant

expressed concern as to who should be responsible for determining revenue allocation, and asked whether the decision should lie with elected officials or an arms-length institution. It was also observed that the twin goals of cap-and-trade systems are economic efficiency and emission reduction and that these criteria should guide allocation decisions.

With regard to national climate change policy, several participants concluded that despite jurisdictional restrictions, there are a number of policy levers available to the federal government. Some called for national standards to be set based on equivalency agreements, while others suggested that Alberta be encouraged to join the Québec-Ontario-California cap-and-trade market. One participant suggested that the federal government could implement a national plan to preserve lands and sequester carbon; other participants stressed that the federal government could take active leadership over mitigating emissions from air/rail transportation. One participant suggested that Canada take firmer leadership on reducing consumption, despite the political challenges it might face in doing so. A proposal that gained the support of a number of participants was for Canada to explore institution building for a more robust offset market. Finally, several participants agreed with a proposal to create a Government of Canada gasoline tax as a first step toward a coordinated national policy.



Douglas Macdonald facilitates the final plenary discussion.

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Adam Auer

Director of Sustainability, Cement Association of Canada

Adam Auer has over a decade of experience as a sustainability professional working with public, private and non-profit institutions. As Director of Sustainability with the Cement Association of Canada, Adam works with government, industry, environmental and other civil society groups to promote and enhance concrete's contribution to sustainability, with a specific emphasis on life cycle approaches to climate change mitigation and adaptation. Prior to joining the CAC in 2012, Adam managed Environment Canada's Corporate Environmental Innovation initiative - a multi-stakeholder program to promote the business and financial case for corporate environmental leadership and the link between sustainability and an innovative and competitive economy. Adam holds a B.Sc. from the University of British Columbia and a Masters' of Environmental Studies from York University.

Jean-Yves Benoit

Directeur, Marché du carbone, Ministère du Développement durable, de l'Environnement et de la lutte contre les changements climatiques, Québec

Jean-Yves Benoit holds a Bachelor's degree in Actuarial Mathematics and a Master's degree in Economics from the University of Montreal. He worked for many years in the private sector before joining, in 2006, Québec's Ministry of Sustainable development, Environment, Wildlife and Parks. Mr. Benoit is the Director of the Carbon Market Division. His team is responsible for the development and implementation of Québec's cap-and-trade system and its linking with California's system. He represents the government of Québec at the Western Climate Initiative (WCI), and is a member of the Board of Directors of WCI Inc., a non-profit organization created to support the implementation of WCI's Regional Cap-and-Trade Program. He is also co-chair of the International Climate Action Partnership (ICAP). ICAP is a forum of more than 30 governments and public authorities that works at promoting carbon pricing and facilitating cooperation between countries, sub-national jurisdictions and supranational institutions that have established or are actively pursuing carbon markets through mandatory cap-and-trade systems.

John Drexhage

Senior Advisor, Sustainable Development, Climate Change and Energy, Coop Carbone

John Drexhage has worked on the issue of climate change, sustainable development and resource development for over twenty years. Initially, John worked for the government of Canada and was responsible for developing Canada's First National Action Program on Climate Change in 1994. He shifted to the multilateral side a year later and served as Associate Director on Climate Change's International Division in Environment Canada from 1995 – 2001. In 2002, switched to the independent policy research community by accepting a position as Director of Climate Change with the International Institute for Sustainable Development, covering international and national mitigation and energy policy issues as well as ground level programs in the areas of adaptation and land use change. Starting in the spring of 2011, John served as Director of the Climate Change Program with the International Council on Mining and Metals in establishing their climate change, where he helped to launch a principles based approach to carbon pricing. Currently, John is a Senior Fellow with Coop Carbone, a Québec based company that is an active player in the Québec-California cap-and-trade regime, and Vice Chair on the board of the Verified Carbon Standard. He also provides consultation services for the extractives and fertilizer industries on international negotiations

relating to the post 2015 sustainable development agenda and climate change. John has developed a strong reputation for championing a pragmatic, solutions based approach to climate change and sustainable development issues. His focus is to develop a more positive understanding of the way in which business can augment its contributions to a sustainable future.

Monica Gattinger

Associate Professor, School of Political Studies, and Director of the Institute for Science, Society and Policy, University of Ottawa

Monica Gattinger is Director of the University of Ottawa's Institute for Science, Society and Policy, and Chair of the Institute's Collaboratory on Energy Research and Policy. She has written widely on Canadian energy policy and regulation, and the country's energy relations with the United States. Dr. Gattinger is spearheading Positive Energy, a three year initiative that uses the convening power of the university to bring together industry, government, aboriginal groups, environmental NGOs and the academy to identify how to achieve social acceptance and support for energy development in Canada. Monica was elected to the University of Ottawa's Board of Governors in 2012, and she sits on the Editorial Boards of the University of Ottawa Press and the journal Canadian Public Administration. She is a member of the Advisory Council of the Partnership for Resource Trade and was appointed to the Learning Council for Pollution Probe's Energy Exchange initiative on energy literacy. Her expertise is regularly sought out by energy firms, industry associations, parliamentary committees and government departments at the national and international levels. Dr. Gattinger is Associate Professor at the University of Ottawa's School of Political Studies and she holds a PhD in public policy from Carleton University

Erik Haites

President, Margaree Consultants Inc.

Erik Haites has worked on emissions trading systems since the PERT demonstration project in Ontario in 1996. He has contributed to designs of greenhouse gas emissions trading programs for Alberta, Australia, Canada, the European Union, the United Kingdom and the United States. He has been a consultant to the UNFCCC secretariat since 1998 on the Kyoto mechanisms and climate finance. Dr. Haites has published several papers on emissions trading, linking emissions trading schemes, the Kyoto mechanisms, and technology transfer. He is the editor and co-author of several chapters of International Climate Finance. He was a lead author of the recent IPCC Working Group III chapter on climate finance and contributed to four other IPCC reports. He helped draft the first biennial assessment for the UNFCCC's Standing Committee on Finance.

Kathryn Harrison

Professor, Department of Political Science, University of British Columbia

Kathryn Harrison is a Professor of Political Science and Senior Associate Dean in the Faculty of Arts at the University of British Columbia. She has a Bachelor's degree in engineering from the University of Western Ontario, Master's degrees in political science and chemical engineering from the Massachusetts Institute of Technology, and a Ph.D. in political science from UBC. Before entering academia, she worked as a chemical engineer in the oil industry, and as a policy analyst for both Environment Canada and the United States Congress. Dr. Harrison is the author or editor of several volumes, the most recent of which is Global Commons, Domestic Decisions: The Comparative

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Politics of Climate Change, and has published widely on Canadian and US climate and environmental policy. Frustrated by policymakers' continued rejection of scientific consensus, she also has become increasingly active in two volunteer NGOs: UBCC350 and Voters Taking Action on Climate Change.

David Houle

SSHRC Postdoctoral Fellow, Center for Local, State, and Urban Policy (CLOSUP), University of Michigan Gerald R. Ford School of Public Policy

David Houle is a SSHRC postdoctoral fellow associated with the Centre for Local, State, and Urban Policy at the Gerald R. Ford School of Public Policy at the University of Michigan. David completed a PhD in political science and environmental studies at the University of Toronto after obtaining a M.A. in Policy Analysis and a B.A. in Economics and Politics at Laval University (Québec City, Canada). His primary area of research is sub-national climate change policy in North America, especially carbon pricing in the provinces and states. David's secondary areas of research include the transition to a low carbon economy and renewable energy policy. His research has recently been featured in *Global Environmental Politics* (MIT Press) and the *Journal of Public Policy* (Cambridge University Press). David is also a co-founder of the Carbon Québec Institute, a non-profit research institute on climate policy.

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Dylan Jones

President and CEO, Canada West Foundation

Dylan Jones joined the Canada West Foundation as President and CEO on June 1, 2012. Previously, Dylan was the Deputy Minister, Intergovernmental Affairs, Executive Council in the Government of Saskatchewan. Dylan's career has been diverse, focusing on many dynamic areas that range from health care reform to international trade policy. His impressive background comprises legal and policy roles within the federal government, including the Federal Court of Canada and the Canadian Radiotelevision and Telecommunications Commission (CRTC), and various senior positions in the Saskatchewan government. As Deputy Minister, Dylan's portfolio included key files such as the creation of the New West Partnership, the Canada-Europe Trade Agreement, and foreign investment strategy. Dylan's academic credentials include an LL.B. from the University of British Columbia and a Masters degree in Law from Oxford University. He is a Wesbrook Scholar, a Chevening Scholar, and is the recipient of many prestigious awards, including the Premier's Award for Excellence (Leadership).

Matthew Kellway

MP Beaches-East York, New Democratic Party of Canada

Elected as Member of Parliament in 2011, Matthew Kellway represented the Toronto riding of Beaches—East York. In that role, Matthew served as critic for Urban Affairs and Infrastructure. He authored the NDP's white paper - *An Urban Agenda: Our Vision for Canadian Cities*, which recognizes the urban character of modern Canada and sets out a path to fairer and sustainable cities with a prosperity more equally shared. While in office Matthew has championed the preservation of natural and farm lands surrounding Toronto, taking constituents and media on tours of the Mega Quarry, Pickering Lands and the Rouge Park. In 2014 Matthew tabled a Private Members Bill that was an updated and revised version of Jack Layton's Climate Change Accountability Act. It remains

the only piece of legislation to be tabled in Parliament that mandates emission reduction targets. It forms the basis of the NDP's international commitment to arrest global warming.

John McKay

Environment Critic, MP Scarborough-Guildwood, Liberal Party of Canada

John McKay, P.C., M.P. is the Liberal Member of Parliament for the riding of Scarborough-Guildwood in Ontario. A native of Scarborough, he was first elected in 1997 and has been subsequently re-elected five times. Between 2003 and 2006 he served as the Parliamentary Secretary to the Minister of Finance, helping to oversee the tabling of two consecutive balanced budgets. He has served as the Chair of the Government Operations and Estimates Committee. From 2011-2013 he served as the Critic for Defence for the Liberal Party of Canada, Vice-Chair of the Defence Committee, and is now serving as the Party's Environment Critic and Vice-Chair of the Environment Committee.

Karsten Mecklenburg

Head of the Trade and Economic Section, Delegation of the European Union to Canada

Karsten Mecklenburg has been the Head of Trade and Economic Section at the EU Delegation in Canada since September 2013. He holds a University degree in both Law and Political Science, with a specialisation on Public International law and International relations, and has passed all State Exams as a lawyer in Germany. Mr. Mecklenburg has been working with the European Union Institutions in Brussels since 1997, in different assignments at the European Parliament and the European Commission, and with responsibilities covering EU Enlargement, Russia, Ukraine, Southeast Europe and Turkey as well as International Relations under the European Space Policy. Prior to his posting in Ottawa, Mr. Mecklenburg has been from 2009 to 2013 the Head of Political, Trade & Press Section at the Delegation of the European Union in Burkina Faso (West Africa). In addition to German, English and French, he also speaks Russian.

Brian Murray

Director for Economic Analysis at the Nicholas Institute for Environmental Policy Solutions, Research Professor at the Nicholas School of the Environment at Duke University

Brian Murray is director of the Environmental Economics Program at Duke University's Nicholas Institute for Environmental Policy Solutions and was recently the visiting Fulbright Scholar at the Institute of the Environment, University of Ottawa. He is widely recognized for his work on the economics of climate change policy and has advised governments at the national, state and provincial levels on policy development. This includes the design of cap-and-trade policy elements to address cost containment and inclusion of offsets from traditionally uncapped sectors such as agriculture and forestry. Murray is among the original designers of the allowance price reserve approach for containing prices in carbon markets that was adopted by California and the Regional Greenhouse Gas Initiative (RGGI) cap-and-trade programs. Throughout his 23-year research career, he has produced many peer-reviewed publications on topics ranging from the design of market-based environmental policies and the effectiveness of renewable energy subsidies to the evaluation of programs to protect natural habitats such as forests, coastal and marine ecosystems.

Glen Murray

Ontario Minister of Environment and Climate Change

Glen Murray was first elected to the Ontario legislature in 2010 as the MPP for Toronto Centre. He was re-elected in 2011 and 2014. Murray currently serves as Minister of the Environment and Climate Change. He was appointed the Minister of Infrastructure and the Minister of Transportation in February 2013. He has had a lifetime of activism in urban planning, sustainable development and community health. Murray is a founding member of the Canadian AIDS Society. He was Director of Health Education and HIV Prevention Services at the Village Clinic/9 Circles Community Health Centre in Winnipeg. Murray was also part of the World Health AIDS Service Organization's working group for the Global Program on AIDS. He served as mayor of Winnipeg from 1998 to 2004. As Chair of the Big City Mayors' Caucus, Murray led the successful campaign to transfer the equivalent of five cents per litre of the federal gas tax to municipalities for infrastructure renewal and construction. In 2004, he moved to Toronto and served as Senior Resident at Massey College and a Visiting Fellow at the Faculty of Architecture and Landscape Design at the University of Toronto. Murray was a Managing Partner of AuthenticiTY, a Toronto-based urban sustainability consulting and planning firm. He was appointed Chair of the National Round Table on the Environment and the Economy by former prime minister Paul Martin in 2005. Murray became president and CEO of the Canadian Urban Institute in 2007. He has served on several university, hospital and community boards, including the Expo 2015 Bid Committee and the Toronto District School Board's Reference Group for Improving Services for Marginalized Students. He has logged more than 5,000 kilometres cycling for Habitat for Humanity to raise money for affordable housing. Murray has won several public service awards, including the Queen's Jubilee Medal and the Fight for LGBT Justice and Equality award from Egale Canada in 2003. Murray was born in Montreal, where he earned a diploma from John Abbott College. He then attended Concordia University's School of Community and Public Affairs for four years, majoring in Urban Studies.

Mark Purdon

Professeur invité, Département de science politique, Université de Montréal

Mark Purdon is an expert on climate change policy and political economy, working at the intersection of comparative politics and international relations. He is currently visiting professor at the Département de science politique at the Université de Montréal. He earned a PhD in political science at the University of Toronto in 2013 and completed a SSHRC postdoctoral fellowship at the London School of Economics in 2014. Much of his research has been on climate change politics in the developing world. His PhD represents one of the only comparative studies of the effectiveness of carbon offset projects operating under the Kyoto Protocol's Clean Development Mechanism (CDM), with extensive empirical work conducted in Tanzania, Uganda and Moldova—findings forthcoming at World Development. His postdoctoral research has extended this line of investigation towards new climate finance instruments including REDD+, NAMAs and climate change adaptation. Other dimensions of his research include the international politics of climate finance, particularly the fund vs market debate, as well as the political economy of the nascent North America carbon market being established between California and Québec (and Ontario). Given the lack of progress at the UN level and rapidly evolving climate policy in North America, Mark has established with colleagues the Institut québécois du carbone (IQCarbone). He has also worked on climate change issues with

the CGIAR, UNDP, Transparency International, Sustainable Prosperity, the Gold Standard Foundation and CIDA, amongst others and is affiliated with the Swedish-led Environment for Development Initiative. He is taking a leadership role on comparative environmental politics as co-editor, with Catherine Boone, of a forthcoming special issue of *Global Environment Politics* entitled “Advancing Comparative Climate Change Politics: Theory & Method”. This includes paper a co-authored with David Houle and Erick Lachapelle on the comparative politics of implementing the Western Climate Initiative.

David Sawyer

Economics Advisor and CEO, EnviroEconomics

David Sawyer is a leading environmental economist with a twenty year track record in solving policy challenges for sustainable development. His diverse portfolio of work is focused on energy and climate change, air pollution, ecological goods and services, toxics, waste management and water. He applies his international experience and knowledge to assess regulatory proposals and policy instruments, estimate health and environmental benefits, and assess competitiveness impacts. He has held positions with Environment Canada, Canada’s Commissioner of Environment and Sustainable Development and leading Canadian consultancies. Most recently, he was the International Institute for Sustainable Development’s vice-president for climate, energy and partnerships, leading a team of 20 adaptation and mitigation specialists working on low carbon, climate resilient development globally.

Chris Tolley

Green Party Candidate, Toronto-Danforth

Chris Tolley is the Green Party candidate for Toronto-Danforth. He is a long time resident of this community and is proud to be running in a riding that has strong historic ties to the Green Party. Chris is also an award-winning playwright and theatre director. With a strong focus on social justice, his work has been seen across much of Canada and into the US. Chris has been active in the Green Party since 2010, serving on the riding executive and contributing to the development of the party’s current set of national policies. He has also helped fight two elections in Toronto-Danforth by serving on the core campaign team for the party’s former Climate Change Critic.

Mark Winfield

Associate Professor, Faculty of Environmental Studies, York University

Mark Winfield is an Associate Professor of Environmental Studies at York University. He is also Co-Chair of the Faculty’s Sustainable Energy Initiative, and Coordinator of the Joint Master of Environmental Studies/Juris Doctor program offered in conjunction with Osgoode Hall Law School. Prior to joining York University Professor Winfield was Program Director with the Pembina Institute and prior to that Director of Research with the Canadian Institute for Environmental Law and Policy. He has published articles, book chapters and reports on a wide range of environmental and energy law and policy topics. His book, *Blue-Green Province: The Environment and Political Economy of Ontario* was published by UBC Press in 2012.

Kimberly Strong

Director, School of the Environment

Kimberly Strong has been Director of the University of Toronto's School of the Environment since July 2013, and a Professor of Physics since 1996. She has a B.Sc. from Memorial University of Newfoundland and a D.Phil. from the University of Oxford, and has held postdoctoral appointments at the University of Cambridge and York University. Her expertise is in atmospheric remote sounding using ground-based, balloon-borne, and satellite instruments for studies of greenhouse gases and climate, air quality, and stratospheric ozone chemistry. She is the Deputy Principal Investigator for the PAHA (Probing the Atmosphere of the High Arctic) network, which runs the Polar Environment Atmospheric Research Laboratory on Ellesmere Island. She is Director of the NSERC CREATE Training Program in Arctic Atmospheric Science; founder of the University of Toronto Atmospheric Observatory; Co-Investigator on the ACE and Odin satellite missions; and Principal Investigator of the Canadian FTIR Observing Network. She also co-chairs the School's Environmental Finance Advisory Committee. She supervises a large and active research group and has published more than 110 refereed papers in her field.

Douglas Macdonald

Academic Associate Director, School of the Environment

Douglas Macdonald is Senior Lecturer and Academic Associate Director at the School of the Environment, University of Toronto. He is currently doing research in two areas: (1) Canadian federal-provincial national climate change policy making; and, (2) distributive effects of climate policy and associated political resistance. He is the author of *Business and Environmental Politics in Canada* (Broadview Press, 2007) and other academic and professional works.

Gray Taylor

Adjunct Professor and Distinguished Visiting Fellow in Environment, School of the Environment, University of Toronto

Gray Taylor is the principal of Gray Taylor Law with its world headquarters in downtown Toronto. Gray was identified in Chambers Global, the leading lawyer rating journal, as "being universally recognized as the godfather of Canadian climate change law". He is the past Chair of the National Environmental, Energy and Resources Law Section of the Canadian Bar Association and a former director of the International Emissions Trading Association. In April 2015, he was appointed the inaugural Distinguished Visiting Fellow in Environment at the School of the Environment, and he is a member and former co-chair of the School's Environmental Finance Advisory Committee. He has been placed in the highest levels by Lexpert, Who's Who Legal, Best Lawyers and the Legal 500 for both climate and environmental law.



Taking Action: Achieving Ontario and Canadian Climate Change Goals

The Inaugural Beatrice and Arthur Minden Symposium on the Environment hosted by the University of Toronto's School of the Environment

Final Program

Dates: Tuesday, September 29 – Wednesday, September 30, 2015

Location: East Common Room, Hart House, St. George Campus, University of Toronto

Background

The potential currently exists for a significant break-through in Canadian efforts on climate change. There is growing consensus among business leaders and others on the need to price carbon: Ontario has announced that it will join the Quebec-California cap and trade program and set a new target of a 37% greenhouse gas emission reduction below 1990 levels by 2030; the Government of Canada has announced a Canadian post-2020 target as a 30% reduction below 2005 levels by 2030 as its contribution to the international agreement to be reached at the December 2015 Paris Conference of the Parties to the Framework Convention on Climate Change; and provincial governments, working through the Council of the Federation, seek to finalize a national Clean Energy Strategy and cooperate on carbon pricing. The debate is no longer about whether to act, but instead about how to do so in the most effective, fair, and efficient manner.

However, a number of significant factors present challenges to achieving progress:

- Current analysis shows that Canada will fail to achieve its 2020 target of a reduction of emissions to 17% below 2005 levels by a significant margin;
- Ontario too is in danger of missing its 2020 target;
- The effectiveness of the Ontario trading system will depend upon decisions still to be made concerning such issues as the cap, sources covered, availability of offsets and use of revenues;
- While some provinces are acting, efforts to develop coordinated national policy are hampered by a lack of federal leadership;
- In the absence of such coordinated national policy, currently planned greenhouse gas emissions increases in the major oil-producing provinces could overwhelm and cancel out reductions made by other provinces.

The opportunity is here. It can only be seized, however, through a major policy effort for both the design of the Ontario cap and trade program and the coordination of the national effort.

The Minden Symposium

The Beatrice and Arthur Minden Symposium on the Environment, made possible by the generous support of the Beatrice and Arthur Minden Foundation, is intended to serve as a forum for discussion and debate on urgent environmental issues of the day. Accordingly, this inaugural Minden Symposium is intended to bring together academic researchers, in dialogue with professionals in government, business, and environmental organizations, to contribute to the search for solutions to challenges such as those listed above.

The ice is breaking up and the policy rivers are starting to flow, but log jams are a very real possibility. We are confident that a day-and-a-half of intense, focussed discussion among academic and professional experts can help keep the waters moving. Total participation has been limited to fifty and the Symposium will remain in full plenary throughout. There will be five panels of ninety minutes, with each divided roughly equally between presentations (maximum 15 minutes each) and plenary discussion. For each panel, we will have three or four presentations, divided roughly equally between academics and professionals. There will also be two open plenary sessions and a dinnertime keynote address.

Program and Speakers

Day One

1:00 – 1:30 **Welcome and Opening Remarks**

- Prof. Kimberly Strong, Director, School of the Environment
- Ms. Jo-Ann Minden, former Director of the Beatrice and Arthur Minden Foundation
- Dr. Douglas Macdonald, Academic Associate Director, School of the Environment
- Mr. Gray Taylor, Adjunct Professor and Distinguished Visiting Fellow in Environment, School of the Environment, University of Toronto

1:30 – 3:00 **Learning from the Experience of Others** (Moderator: K. Strong, Facilitator: G. Taylor)

- **Experience to date with the California trading system**
Prof. Mark Purdon
Professeur invite, Département de science politique, Université de Montréal
- **Experience to date with the Quebec trading system**
M. Jean-Yves Benoit
Directeur, Marché du carbone, Ministère du Développement durable, de l'Environnement et de la lutte contre les changements climatiques, Québec
- **Experience to date with the EU Emissions Trading System**
Mr. Karsten Mecklenburg
Head of the Trade and Economic Section,
Delegation of the European Union to Canada

3:00 – 3:30 Break, informal discussion

3:30 – 5:00 **Designing the Ontario Cap-and-Trade Program**
(Moderator: K. Strong, Facilitator: G. Taylor)

- **Setting the cap to achieve Ontario targets and sectors covered**
Mr. David Sawyer
EnviroEconomics
- **Addressing competitiveness and economic opportunity issues**
Mr. Adam Auer
Director of Sustainability, Cement Association of Canada
- **Ensuring distributive equity, maximizing political acceptability**
Prof. Brian Murray
Director, Environmental Economics Program, Nicholas
Institute for Environmental Policy Solutions, Duke University

5:00 – 5:30 **Plenary Discussion** (Facilitator: G. Taylor)

5:30 – 6:30 Social event with open bar in the Music Room of Hart House

6:30 Dinner in the Music Room of Hart House

- **Keynote address** (Moderator: K. Strong)
The Honourable Glen Murray, Ontario Minister of Environment and
Climate Change

Day Two

9:00 – 10:30 **Designing the Ontario Cap-and-Trade Program (continued)**
(Moderator: K. Strong, Facilitator: D. Macdonald)

- **Use of revenues**
Dr. Erik Haites
President, Margaree Consultants Inc.
- **Ontario policy coordination with other Canadian and US
subnational governments**
Dr. David Houle
SSHRC Postdoctoral Fellow, Center for Local, State, and
Urban Policy (CLOSUP), University of Michigan Gerald R.
Ford School of Public Policy
- **Complementary policies needed to achieve Ontario targets**
Prof. Mark Winfield
Faculty of Environmental Studies, York University

10:30 – 11:00 Break, informal discussion

11:00 – 12:30 **The Challenge of Developing Coordinated National Policy**
(Moderator: K. Strong, Facilitator: D. Macdonald)

- **Canadian intergovernmental relations and climate policy**
Prof. Kathryn Harrison
Department of Political Science, University of British Columbia
- **Differing costs of action and the Alberta contribution to national policy**
Mr. Dylan Jones
President and CEO, Canada West Foundation
- **The Canadian Energy Strategy**
Prof. Monica Gattinger
School of Political Studies, University of Ottawa

12:30 – 1:30 Lunch

1:30 – 3:00 **Federal Government Leadership for National Climate Change Policy**
(Moderator: K. Strong, Facilitator: D. Macdonald)

- **Government of Canada role in developing coordinated national policy**
Mr. John Drexhage
Senior Advisor Coop Carbone
- **New Democratic Party of Canada plans**
Mr. Matthew Kellway
MP Beaches-East York
- **Liberal Party of Canada plans**
Mr. John McKay
Environment Critic, MP Scarborough-Guildwood
- **Green Party of Canada plans**
Mr. Chris Tolley
Green Party candidate, Toronto-Danforth

Mr. Drexhage will sketch the challenges facing the next Government of Canada in working with the provinces to develop effective, coordinated national policy. MP Kellway, MP McKay, and Mr. Tolley will then present their party positions on how that can best be done. This will be followed by non-partisan plenary dialogue, intended to help the NDP, Liberal, and Green parties further develop their policy planning. (The Conservative Party of Canada has also been invited to participate.)

3:00 – 3:30 Break, informal discussion

3:30 – 4:25 **Closing Plenary Discussion: Ontario in Canada, Canada in the World**
(Facilitator: D. Macdonald)

- **Where do we go from here?**

4:25 – 4:30 **Closing Remarks**

Prof. Kimberly Strong, Director, School of the Environment

Translation services will not be provided but participants will be free to speak in either of Canada's two official languages. A record of discussion will be made, to be used in preparing a short report setting out the major areas of debate, consensus and recommendations for action. We hope that the report will be of value to all involved as the Ontario and Canadian policy processes continue to evolve.

Minden Symposium Organizing Committee:

- Prof. Kimberly Strong, *Director, School of the Environment, University of Toronto*, director.environment@utoronto.ca
- Dr. Douglas Macdonald, *Academic Associate Director, School of the Environment, University of Toronto*, douglas.macdonald@utoronto.ca
- Mr. Gray Taylor, *Adjunct Professor and Distinguished Visiting Fellow in Environment, School of the Environment, University of Toronto*, gray.taylor@utoronto.ca
- Ms Aubyn O'Grady, *Minden Symposium Coordinator*, 416-458-2907, aogrady@atmosp.physics.utoronto.ca
- Ms Minrui Fu, *Minden Symposium Assistant*
- Ms Heather Millar, *Minden Symposium Rapporteur*

Generous donation to the School

Beatrice and Arthur Minden Foundation establishes symposium and fellowship

BY BARRETT HOOPER, FACULTY OF ARTS & SCIENCE

U of T's School of the Environment has received a huge boost to its educational and research capacities thanks to the vision and generosity of the Beatrice and Arthur Minden Foundation in establishing the Beatrice and Arthur Minden Symposium on the Environment and the Beatrice and Arthur Minden Graduate Research Fellowship

The symposium will enable the School of the Environment to bring together international researchers and cross-disciplinary scholars on an annual basis to discuss and debate the most urgent environmental issues. "We hope that this annual event will catalyze meaningful new collaborations on key environmental issues, leading to new ideas and insights, proposals for workable solutions and plans for future interactions," says the School's Director, Kimberly Strong.

The graduate research fellowship, meanwhile, will support PhD students by enabling their participation in conferences, summer schools, field work and collaborative visits to research groups across Canada and around the world. "These fellowships are intended to make a real difference to our students," Strong says, "giving them new opportunities to expand and strengthen their research on environmental issues."

The Beatrice and Arthur Minden Foundation was established by Beatrice Minden in honour of her late husband, Arthur, a lawyer and philanthropist who co-founded the Muscular Dystrophy Association of Canada in 1954. Arthur came to Canada from Russia in 1912, when he was only two, and attended U of T (BA 1932) -- the first in his family to go to university -- and Osgoode Hall before setting up his law practice. Well-known for his enthusiasm, good spirit and generous character, he was heavily involved in the community, and in Toronto's arts and Jewish communities, in particular. Following his death in 1966, Beatrice set out to continue his philanthropic work and legacy through the foundation, which has supported a range of activities, from university scholarships in Israel to cultural events and hospitals in Toronto

After Beatrice passed away in 2009, their children, George, Robert, Jo-Ann and Cynthia continued the work of the



Beatrice and Arthur Minden Foundation

foundation. In each of the four years since their mother's death, the siblings took turns deciding which activities the foundation would support, after which time they decided to find a single cause to support. Earlier last year, they settled on the School.

"We wanted to find a home for the foundation, a way to honour our parents, their spirit and their legacy. We were all excited about the new School of the Environment at U of T and felt this was a great fit: the city in which our parents spent their lives, the university that so inspired our father and the potential to develop cutting-edge solutions to some of the most pressing problems humanity is facing regarding climate change," says Cynthia, whose three siblings attended U of T. "My parents had a passion for education, and my father had a tremendous appreciation for how U of T altered the course of his life in such a profound and significant way. It was pivotal for him to go to U of T and he was always grateful for that opportunity."

Cynthia says that she and her brothers and sister all feel very strongly about supporting solutions to ecological problems. A longtime resident of Denman Island, BC, she's been a concerned citizen who has protested clear-cut logging in Clayoquot Sound and other local causes that spotlight the exploitation of natural resources. "Environmental studies is something that we all support and it is important to us to direct the foundation's capital to where it would have the greatest impact. I think we've found that at U of T."

The School was established in 2012 to leverage the enormous breadth and depth of environmental teaching and

research expertise within U of T's Faculty of Arts & Science. The School offers undergraduate programs in environmental studies and environment and science, and partners with other departments and programs to offer collaborative specialists, majors and minors. At the graduate level, interdisciplinary collaborative programs in environmental studies, and environment and health are offered, with other programs in development.

"We love the idea of supporting new and ongoing research and teaching in this area, especially given the alarming issue of climate change," Cynthia says. "And I'm pretty sure my parents would feel that it's an important cause, as well."

Arthur Minden being awarded Honorary Fire Chief of Toronto in 1955, honouring his work as co-founder and national president of Muscular Dystrophy Association of Canada.



Beatrice and Arthur Minden Foundation



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