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Bryne Purchase

**Dr. Bryne Purchase is Executive Director of the Queen's University Institute for Energy and Environmental Policy and an Adjunct Professor in the School of Policy Studies. He is a former Chief Economist of Ontario and a former Deputy Minister of Finance, Deputy Minister of Revenue and Deputy Minister of Energy, Science and Technology in Ontario. He has a Ph.D. in economics and is the author and editor of a number of publications relating to economics and competitiveness.**

**Andrew Pollard is a Professor of Mechanical and Materials Engineering, and a Queen's Research Chair. He received his education in Canada and England. He has consulted widely for industry in both Canada and abroad. He serves on the editorial boards of various academic journals and on the scientific advisory committees of several international symposia. He is a member of various international and national government, university and scientific review panels, councils, committees and fora. He is an Alexander von Humboldt Fellow, Fellow American Society of Mechanical Engineers, a registered professional engineer and a member of various academic and professional societies. He is the inaugural Director of the Sustainable Bio-economy Centre at Queen's.**



Andrew Pollard

## Introduction

In my experience, rarely has a potential fuel source served so many different important policy objectives. Biomass in the Great Lakes regional economy potentially offers far greater geopolitical security in our primary energy supply. It offers the chance to greatly diversify our energy sources and, in particular, to reduce risks related to resource depletion of oil and natural gas. Just as importantly, biomass offers the potentially enormous additional advantage of being a carbon-neutral source of energy, or indeed a possible means to net carbon sequestration.

Biomass also represents huge economic development opportunities for our great region of North America. Collectively, the Great Lakes economies are still, if somewhat diminished of late, a heartland of vast wealth, of industrious people and of robust public and private institutions for innovation. Biomass has the potential to see us bring all these things together with our own natural resource endowment in order to further develop our economy and society for years to come.

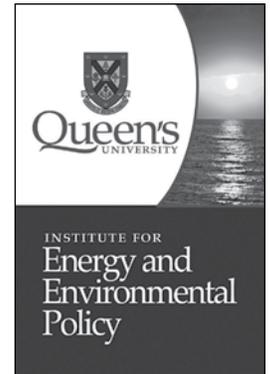
To be sure there are economic and policy barriers to overcome. We must find ways to build the infrastructure to bring this resource to market. And we must deal with the legitimate concerns for the impact of these developments on both environmental and social objectives, not the least of which is world food supplies. On that last point especially, I would emphasize that we know many more things than we did only a few short years ago, and that the impetus for new policy is already in the right direction.

This conference is but the first small step in unleashing the enormous potential of biomass, a sustainable answer to the challenges facing not only the people of this region, but indeed the world.

## QIEEP

We all have opinions, but as a society we are clearly better off if the public policies on offer reflect well-informed and reasoned alternatives. The Queen's University Institute for Energy and Environmental Policy is dedicated to the basic premise that public policy debates and public policy initiatives should be firmly grounded in fact and reason.

Our approach is multidisciplinary, bringing together experts and specialists from physical and social sciences, engineering, business and law for policy debate and review. Our intent is to make available the results of these deliberations to a wide audience of policy practitioners in government, business and non-governmental organizations. Accordingly, we are pleased to help organize and launch this conference.



## Sustainable Bioeconomy Centre

The Sustainable Bioeconomy Centre (SBC) at Queen's University focuses on bioenergy and other biomass opportunities in the Great Lakes region. The SBC vision is to build a coordinated and inclusive community, where stakeholders actively participate in the development of sustainable environmental, economic and ethical uses for biological resources.

With the support of Queen's renowned academic team, and building upon the foundation of engaged stakeholders assembled by BIOCAP Canada, SBC continues to develop an inclusive and integrated community dedicated to developing the bioeconomy of the Great Lakes region.

The SBC community will engage like-minded researchers and individuals, government and industry, and will become the source for credible information, discussion, idea sharing and expert opinion. United with a common vision, SBC is creating a community of opportunity.

## Syracuse Center of Excellence in Environmental and Energy Systems

(syracusecoe.org) is a federation of more than 200 businesses and institutions that collaborate on sustainable innovations to improve built and urban environments. Members of the Syracuse CoE federation work on research, development, and educational projects relating to clean and renewable energy, indoor environmental quality, and water resources.





{ Event Sponsors }



Dinner Sponsor: Plasco Energy Group



Lunch Sponsor: Ministry of Environment



Coffee Break: KEDCO



Coffee Break: Lafarge North America

## JUNE 8

3:30 pm Registration

5:30 pm Reception

7:00 pm Dinner

Dinner Speaker: Hon Donna Cansfield, Ontario Minister of Natural Resources

## JUNE 9

7:00 am Continental Breakfast:

8:00 - 8:30 am Opening remarks

Speaker: Hon John Gerretsen, Ontario Minister of Environment

### Session One Forest Biomass 8:30 - 10:00 am

Chair David Lindsay, Deputy Minister, Ministry of Natural Resources

Speaker 1 David Layzell, Queen's University and ISEEE – *"The Future of Biofuels"*

Speaker 2 Warren Mabee, Queen's University – *"Processing and Transport Options and Issues"*

Speaker 3 Ed White, SUNY – *"Short Rotation Woody Biomass"*

Break 10:00 - 10:30 pm

### Session Two Agriculture Biomass 10:30 am - 12:00 noon

Chair Bruce Archibald, Deputy Minister, Ontario Ministry of Agriculture, Food and Rural Affairs

Speaker 4 Nathan Rudgers, Farm Credit, Western NY – *"Barriers to Development"*

Speaker 5 Jake Debruyn, OMAFRA – *"Distributed Electricity from Agricultural and Food Resources in Ontario"*

Speaker 6 Roger Samson, REAP Canada – *"Opportunity for Thermal Energy from Densified Energy Grasses"*

Lunch 12:00 - 1:30 pm

Lunch Speaker: Jens Bo Holm-Nielsen, University of Southern Denmark and Aalborg University  
*"Europe's Progress Toward Energy Security and Greenhouse Gas Reductions Through an Intelligent Renewable Energy Strategy"*

### Session Three Bio-Energy Systems

1:30 - 3:00 pm

Chair: Margaret McCuaig-Johnson, Assistant Deputy Minister, Natural Resources Canada

Speaker 7: Jim Twomey, Ontario Power Generation – *"Electricity from Biomass"*

Speaker 8: Brant Peppley, Fuel Cell Research Centre, Queen's University –  
*"Distributed Energy/Energy From Waste"*

Speaker 9: Geoffrey Whitfield – *"Incorporation of Bio-Energy Systems into the Great Lakes Economy"*

Break 3:00 - 3:30 pm

### Session Four European, US and Canadian Research and Policy

3:30 - 5:30 pm

Chair: George Ross, Deputy Minister, Ministry of Research and Innovation

Speaker 10: Shabnam Fardanesh, US Department of Energy – *"Biomass and Energy Options: U.S. Policy"*

Speaker 11: Susan Wood, Queen's University

Speaker 12: Frank Dottori, Greenfield Ethanol – *"Leading the Cellulosic Revolution: A Sustainable Market Policy for Canada"*

Networking Reception



## Donna Cansfield

Donna Cansfield was elected as MPP for Etobicoke Centre in 2003 and re-elected in 2007. In 2005, she was appointed Minister of Energy where she was instrumental in implementing the government's energy plan to build cleaner generation capacity, maximize Ontario's existing generation and transmission assets and create a culture of conservation. Cansfield also introduced Bill 21, the Energy Conservation Responsibility Act, which was passed by the legislature in February 2006.

In 2006, Cansfield was appointed Minister of Transportation. She brought forward the "one person, one seatbelt" legislation and the Safer Roads for a Safer Ontario Act, which set new standards for road safety, with some of the toughest sanctions in Canada to target drinking and driving, stunt driving, and street racing. In May 2007, Cansfield held the first sustainable transportation conference, TransForum, to help create a transportation system that supports the needs of today while protecting our environment for future generations.



## John Gerretsen

John Gerretsen, Minister of the Environment for Ontario, was first elected in 1995 to represent Kingston and The Islands. He was re-elected in 1999, 2003 and 2007.

While Minister of Municipal Affairs and Housing, John Gerretsen was responsible for new stronger planning legislation and for raising the Ontario Building Code to the most energy efficient standards in Canada. As well, he brought forward the award-winning Greenbelt Plan which permanently protects 1.8 million acres of agricultural and environmentally sensitive land around the Greater Golden Horseshoe Area.

His tireless support and personal commitment to brownfield redevelopment earned him a Special Recognition Canadian Urban Institute Brownie Award. As well, he introduced the New City of Toronto Act, providing Ontario's capital city with tools to help it thrive in a global marketplace.

Mr Gerretsen is the former mayor of Kingston, Ontario. A graduate of Queen's, he has practised law in the city since 1971. He lives in Kingston with his wife Assunta.



## Jens Bo Holm-Nielsen

Professor Holm-Nielsen has many years of experience in the field of Biogas production and Anaerobic Digestion. He served as a Board member of the R, D & D committee of the Danish inter-ministerial group of biogas development from 1993 to 2002. He has been secretary, board member and chairman of numerous biogas and bioenergy organisations, and has experience with international projects in Europe and in China.

His personal research has focused on development and demonstration programmes in integrated agriculture, environment and energy systems. He has also conducted research and development projects with a primary focus on anaerobic digestion systems.

Professor Holm-Nielsen's teaching has included courses and project supervision on fermentation, anaerobic digestion processes and systems, biogas purification, nutrient balances and upgrading technologies.

Professor Holm-Nielsen has also conducted international courses, training programmes and supervision for academic staff, governmental bodies and experts in organic waste care emphasizing integrated solutions and core technology of anaerobic digestion.



## Sean Conway

Sean Conway is the Special Advisor for External Relations to the Principal of Queen's University and a Fellow in the School of Policy Studies at Queen's University.

A member of the board of the Ontario Centres of Excellence, Mr. Conway chairs the recently created Centre for Energy. He is also a public policy advisor with the law firm Gowling, Lafleur Henderson LLP, and a public affairs analyst on TV Ontario.

Prior to joining Queen's, Mr. Conway was a Member of the Ontario Legislature for 28 years, including five years as a Cabinet Minister in the Government of Premier David Peterson. While in Cabinet, Mr. Conway served as Minister of Education, Government House Leader and Minister of Mines. He is a former Energy Critic for the Official Opposition and served on two Ontario Select Committees on Nuclear Affairs.



## David Lindsay

David Lindsay became Deputy Minister of Natural Resources in January 2008. Previously, he was Deputy with the Ministry of Tourism from September 2006 to December 2007. Previously he was President and CEO of the Association of Colleges of Applied Arts and Technology of Ontario (ACAATO), representing the 24 community colleges of Ontario.

In August 2004, David was the founding President and CEO of the Ontario SuperBuild Corporation. From September 1997 to December 1999, he headed up the Ontario Jobs and Investment Board as President and CEO.

He is a Fellow of the School of Policy Studies at Queen's University as well as a Director of the Ireland Park Foundation, a past Director of the Ontario Innovation Trust, the World Wildlife Fund, the Canadian Tourism.



## David B. Layzell

From 1998 to 2008, Dr. Layzell served as President and CEO of BIOCAP Canada ([www.biocap.ca](http://www.biocap.ca)), a national foundation supporting multi-disciplinary research on bioenergy and greenhouse gas emission offsets from agriculture and forestry. With support from governments, industry and environmental groups, BIOCAP facilitated research involving over 250 faculty and 400 graduate students at 38 universities across Canada. Dr. Layzell's work as a professor of Plant Science at Queen's University has led to more than 100 peer-reviewed publications and 7 US patents, and to his election as a Fellow in the Royal Society of Canada. In July 2008, Dr. Layzell will take over as the Executive Director of the Institute for Sustainable Energy, Environment and Economy ([www.iseee.ca](http://www.iseee.ca)) at the University of Calgary.



## Warren Mabee

Mrs. Margaret McCuaig-Johnston was named the Assistant Deputy Minister of the Energy Technology and Programs Sector at Natural Resources Canada in October, 2004. The Sector provides corporate leadership for building and maintaining energy technology research and knowledge capacity in the Department. The Sector is responsible for directing the planning, organization and activities of highly specialized research and development to support hydrocarbon, non-hydrocarbon, alternate energy and energy efficiency sectors and the relevant and associated industries across Canada. The efficient use of energy resources is key to addressing issues regarding climate change and the generation of greenhouse gases. The Sector is also responsible for developing and implementing



## Ed White

Edwin White is Professor Emeritus of Forest Soil Sciences and Assistant Director of the State University of New York Center for Sustainable and Renewable Energy. He is also Associate Director of the Syracuse Center for Excellence in Environmental & Renewable Energy Systems.

From 1992 to 2005, Professor White served as Dean of Research Programs at SUNY-ESF, and previously served as Director of the Forest Soil Fertility Laboratory and Coordinator of Graduate Education/Research in the Faculty of Forest and Natural Resources Management.

Professor White has over thirty years research experience in developing short-rotation woody biomass systems producing feedstocks for conversion to biofuels, bioenergy and bioproducts. He is currently a member of the USDA-USDoE Biomass Research and Development Technical Advisory Committee.



### Bruce Archibald

Deputy Minister Archibald first joined the Ontario Ministry of Agriculture, Food and Rural Affairs as a soil and crop specialist. After serving in the ministry's extension services, he became Acting Director of the Horticultural Research Institute of Ontario at Vineland Station — an operation once headed by his father.

In 1998, he became Assistant Deputy Minister, Science and Technology, of the Ministry of Energy, Science and Technology. He returned to OMAFRA in 2000 as Assistant Deputy Minister, Policy and Farm Finance Division. In this role, he became intimately involved with the development of the Agricultural Policy Framework (APF) and national champion of the Science and Innovation Chapter of the APF.

Deputy Archibald has also served at the federal level and as an advisor to the Prime Minister on infrastructure and science.

He is a graduate of the University of Guelph (BSc Agriculture, 1979) and holds a MSc and PhD from that institution.



### Nathan Rudgers

Nathan L. Rudgers is Senior Vice President for Farm Credit of Western New. In his capacity as Director of Business Development, he is responsible for bringing resources to Farm Credit's clients who are planning or undergoing major business changes. He is a frequent speaker in state, national and international forums on such topics as renewable energy, food safety, international trade, agriculture policy and economic development. He also currently serves on the steering committee for 25 X 25, a group of industry leaders dedicated to fostering Agriculture and Forestry's role in providing 25 percent of U.S. energy from renewable resources by the year 2025.



### Jake DeBruyn

Jake DeBruyn is the Engineer for New Technology Integration at the Ontario Ministry of Agriculture, Food and Rural Affairs. His primary focus is on biogas and renewable energy systems. His current projects include: providing technical guidance to the Ontario Biogas Systems Financial Assistance Program, a \$9 million fund to kick start the biogas industry; work on a new biogas utilization standard with the Canadian Standards Association; and development of a biogas safety training course, working with partners from Germany.

Jake is responsible for normal farm practice and environmental issues for the regions of Halton and Peel.



### Roger Samson

Mr. Samson has been involved since 1986 with Resource Efficient Agricultural Production-Canada, a nonprofit research and development organization working to develop sustainable farming and bioenergy systems in industrialized and developing nations. He is a leading Canadian expert on biomass energy systems and is involved in emerging BioHeat and liquid fuel industries. He was the first scientist in Canada to work with switch grass as an energy crop. His main research interest is in developing grass pellets as an energy source for thermal applications in industrialized and developing countries. Mr. Samson has a B.Sc.Agr. from Guelph University (1984) and an M.Sc (Plant Science) from McGill University 1989.



## Margaret McCuaig-Johnston

Mrs. Margaret McCuaig-Johnston was named the Assistant Deputy Minister of the Energy Technology and Programs Sector at Natural Resources Canada in October, 2004. The Sector provides corporate leadership for building and maintaining energy technology research and knowledge capacity in the Department. The Sector is responsible for directing the planning, organization and activities of research and development to support hydrocarbon and non-hydrocarbon alternate energy and energy efficiency across Canada.

Previously she held the position of Director General, Manufacturing and Processing Technologies Branch in the federal department of Industry Canada from 1995 to 1999, responsible for the government's efforts to encourage the adoption of advanced manufacturing technologies by Canadian manufacturers.

Mrs. McCuaig-Johnston holds a Master's Degree in International Relations from York University with a specialisation in international organisations and China, and an Honours Bachelor's Degree in Political Economy from the University of Toronto.



## Jim Twomey

Jim Twomey is Executive Vice President, Fossil at Ontario Power Generation Inc. (OPG), a position he has held since November 2005. Previously he was Senior Vice President of Production at OPG.

Mr. Twomey was Chief Executive Officer, from 1996 to 2000, of Australia's Hazelwood Power, a company partly owned by International Power, the successor company to Britain's National Power.

Throughout his lengthy career with National Power, Mr. Twomey held many senior positions, including General Manager, International Generation, from 1994 to 1996; and General Manager, UK Generation, in which position he was responsible for 22 United Kingdom power plants.

Mr. Twomey is a member of the British Institute of Managers and of the British Institute of Mechanical Engineers. He holds degrees from Portsmouth University and University of North Staffordshire.



## Brant Peppley

Brant Peppley has been working in the field of fuel cell research since 1986. He is the Canada Research Chair in Fuel Cells at Queen's University. He is the project leader for the Ontario Fuel Cell Research and Innovation Network, a \$16M five-year program involving 17 researchers and 8 universities funded by the Ontario Government and a range of private sector partners. He is also the Director of the Queen's-RMC Fuel Cell Research Centre ([www.fcrc.ca](http://www.fcrc.ca)), a multi-disciplinary research group of 11 faculty members and numerous postdoctoral fellows and graduate students from Queen's University and the Royal Military College of Canada.



## Geoff Whitfield

Geoff Whitfield retired as a Principal Research Scientist in 2001 after a 32-year career with the du Pont Company, based in Canada. His work took him throughout North America, and to parts of Asia and Europe. The focus of his contribution was the 'elevation-to-practice' of new technology. In his last major assignment, he was the Senior Technical Officer in a tripartite joint venture in China.

His current interest is in the decision analysis cycle associated with business investment, and in lowering the risk of bad consequences – e.g. impaired or stranded asset and infrastructure investments. Specifically he is interested in effective decision-making regarding the long



### George Ross

George Ross was appointed Deputy Minister of Research and Innovation in January 2008. Previously, Mr. Ross held the dual position of Assistant Deputy Minister and Chief Operating Officer of the Ministry of Research and Innovation (MRI). Mr. Ross has a wide range of executive experience, including extensive work with stakeholders, policy and program development, and government operations. Before joining MRI, Mr. Ross was the Assistant Deputy Minister of Field Services at the Ministry of Natural Resources (MNR). Working with environmental and industry stakeholders and first nations Mr. Ross led MNR's support for key Ontario government initiatives promoting the wise stewardship and sustainable use of Ontario's natural resources and development of Ontario's northern and rural communities.



### Shabnam (Shab) Fardanesh

Shabnam (Shab) Fardanesh joined the U.S. Department of Energy, in January 2000. She currently manages outreach and infrastructure activities in the Office Energy Efficiency and Renewable Energy's Biomass Program. Previously she managed Federal Fleet alternative fuel-related legislative and Presidential mandated requirements.

### Susan Wood

Dr. Susan Wood is a graduate of the Ontario Agriculture College, University of Guelph and of Queen's University Department of Biology, where she has held a position since 2001. Dr. Wood brings the experience of her own NSERC-funded research on fast-growing biomass crops and of her work with the not-for-profit research foundation, BIOCAP Canada. As co-author of a 2003 national inventory of Canada's biomass feedstock resources Dr. Wood helped focus an emerging national dialogue on the technical, economic and social implication of using Canada's vast biological resources to underwrite a "bioeconomy". Dr. Wood is currently the Director of the Office of Research Services, Queen's University.



### Frank Dottori

Frank Dottori founded Tembec Inc. in 1972 and served as the company's President and CEO until his retirement in 2006. Under his leadership, Tembec grew from a small pulp mill in Temiscaming, Quebec to a leading integrated forest products company with 9,000 employees. A chemical engineer and recipient of the Order of Canada, Mr. Dottori has served as chair of the Free Trade Lumber Council, the Pulp and Paper Association, the Forest Engineering Research Institute and the Pulp and Paper Research Institute, and co-chair of the Canadian government's Forest Sector Advisory Council. He now leads GreenField Ethanol's cellulosic ethanol division.

