TEACHING ENERGY EFFICIENCY POLICY AT THE POST-SECONDARY LEVEL

SUMMARY OF JULY 16/17 WORKSHOP

DRAFT

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SPONSORED BY

Names/logos of

Enbridge, FES, Powerstream, Rodan

**BACKGROUND**

Energy policies related to encouraging energy efficiency and conservation have become more important as society addresses the environmental and economic challenges associated with energy production and consumption. A number of leading university and college professors have identified this as an important societal trend and have developed courses to provide students with the knowledge and tools to be able to be part of this important policy debate.

Alan Meier of University of California Davis organized the workshop “Teaching Energy Efficiency to Graduate Students” June 25-26, 2009 which was attended by leading professors from across the US. There were plans to organize a similar workshop that would focus on both undergraduate and graduate students in the summer of 2012 but this did not happen.

Peter Love of York University’s Faculty of Environmental Studies was aware of Alan’s workshop and through his previous role as Ontario’s first Chief Energy Conservation Officer, knew many of the professors in Ontario who were teaching courses on energy efficiency policy. With the financial support of Enbridge, York’s Faculty of Environmental studies, Powerstream and Rodan, the workshop was organized at York’s Executive Learning Centre July 16-17, 2014. Special thanks to Brad Cochrane for the tour of York’s co-gen plant, the staff at York’s Schulich School of Business’s Executive Leaning Centre and to Jennifer Ferdinands for all her help with logistics. This report summarizes the proceedings and concluding discussion from this workshop.

**PRESENTATIONS**

Invitations to attend this workshop were sent to professors know to be teaching courses on energy efficiency policy from across Ontario as well as a few from other provinces. Invitations were also distributed at the annual workshop held by the Ontario Network for Sustainable Energy Policy (ONSEP).

The workshop was attended by 23 professors or energy professionals, most of whom participated during both days. The list of attendees in in Appendix A.

There were 19 presentations with 13 from professors summarizing the courses they teach and 6 from energy professionals on various aspects of energy efficiency policy. The agenda summarizing the speakers and the titles of their presentations is contained in Appendix B. Copies of presentations are available online at \_\_\_\_\_\_.

It is beyond the scope of this short report to summarize each presentation; the following is a very brief summary of a few of the main points made in each presentation:

Gord Miller, Environmental Commissioner of Ontario

* His focus was on the importance of teaching energy efficiency
* Referred to his recent report “Looking for Leadership: The Cost of Climate Inaction”
* Discussed carbon content of world’s proven reserves (2900 Gt) compared to the allowable budget (1000 Gt) resulting in 1,900 Gt of unburnable carbon

Alan Meier, Professor U C Davis

* Summarized 7 fundamental principles of his course
* Noted that about 60% of electrical use is for motors
* Ended with suggested topics for discussion during the workshop

Barry Beale, Director Conservation & Distributed energy Branch, Ontario Ministry of Energy

* Summarized past, present & future of energy conservation in Ontario
* Discussed government’s “Conservation First” and “Long Term Energy Plan”
* Overview of current conservation policy initiatives

Raegan Bond, Vice President Conservation & Demand Management, Powerstream

* Why, how and who of energy efficiency for LDCs
* Past, present & future structure of the LDC
* Recommendations for teaching energy efficiency

Judith Ramsey, Senior Advisor DSM, Enbridge Gas Distribution

* History of gas utilities with DSM
* Recent policy developments & emerging energy policy issues
* Next DSM Framework

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

* Politics of CDM
* CDM barriers in Ontario
* Concerns re Conservation First initiative including role of CDM in environment of falling demand

Paul Parker, Professor, Geography & Environmental Management, University of Waterloo

* 4th year course focusses on developing problem solving skills
* Initial module on global climate/energy systems
* Other modules on home energy (50% reduction) and community (75% reduction)

Gary Thompson, Centre for Urban Energy, Ryerson University (also Toronto Hydro)

* Focus is on technical & policy dimensions on energy conservation
* Common theme – consumer behaviour & need to conserve
* Includes weekly news challenge

Adam White/Andrew Knox, Faculty of Applied Science & Engineering, University of Toronto (also AMPCO/CLEAResult, respectively).

* Use reverse lectures (students see video of prof first then do homework during class)
* Also uses Policy Feud and Open Space debates
* Students submit Briefing Note that is reviewed twice before final submission

Julia McNally, Osgood Law School, York University (also Ontario Power Authority)

* Students about half lawyers; others include engineers
* Course covers policy rationale, policy tools & actions
* Capacity building, consumer behaviour & nudge theory also featured

Kerry Johnston, Professor, School of Applied Technology, Humber College

* Course is on Renewable |energy & Green Building Policy and Programs
* Prepares students for project management roles
* Uses material from Jeremy Rifkin’s “Third Industrial Revolution”

Harsha Munasinghe, Professor, Sustainable Development & Built Environment, George Brown College

* Course links development, environment & economy
* Noted different uses of buildings (state – strength; public – communal feeling; commercial – attract customers; home – warmth & well being)

Christina Hoicka, Faculty of Environmental Studies, York University

* Will be teaching new course in Community Energy Planning as part of planning degree
* Explores relationship between sustainable communities & sustainable energy systems
* Includes theory (resilient communities, integrated approaches) & practice

David Layzell, Professor, University of Calgary & Director Canadian Energy Systems Analysis Research (CESAR)

* Mandate of CESAR is to develop data resources, analytical tools & research community
* Applications include decomposing energy systems
* [www.cesarnet.ca](http://www.cesarnet.ca)

Stephen Hill, Associate Professor, Energy & Resource Sciences/Studies, Trent University

* 2nd year interdisciplinary course; focus on energy, numeracy &policy context
* Efficiency design principles (need for service, # steps & highest efficiency at each stage)
* Currently uses video/lecture software [www.panopto.com](http://www.panopto.com); considering flipped class in future (peer instruction)

Danny Harvey, Professor, Department of Geography, University of Toronto

* Course follows chapters on supply and end use energy efficiency in his text book “Energy Efficiency & the Demand for energy Services”, published by Routledge
* Focus of course is on transportation & buildings (industry & agriculture covered qualitatively)
* Extensive Excel-based problem sets for transportation & buildings

Alexandra Mallett, Assistant Professor, School of Public Policy & Administration, Carlton University

* Masters course as part of Sustainable Energy Policy & Engineering program
* Purpose is to teach non-technical dimensions of energy efficiency to engineers
* Includes what, why & how of public policy

Peter Love, Adjunct Professor, Faculty of Environmental studies, York University (also Summerhill and Energy Services Association of Canada)

* 4th year course; modules focus on policy aspects
* Guest speakers most weeks; also discuss strategies for employment in sector
* Group projects are Cabinet submission and assessment of a campus building

William Grove, VP Rodan

* Described main features of Demand Response
* Summarized past and current programs offered in Ontario

**CONCLUDING DISCUSSION**

At the close of the workshop, there was a wide ranging discussion; the following are some of the themes that emerged:

* Teaching energy efficiency lends itself well to a cross-disciplinary approach
* Need to have courses that teach engineers about policy, social considerations & communication
* Need to have courses that teach policy students how to get tech info from tech resources
* No one ideal department that should have sole responsibility for teaching energy efficiency
* May need to sneak in course on energy efficiency if one not yet offered
* Use homes energy efficiency as portal onto broader understanding of energy efficeincy
* Importance of using case studies
* Would be interesting to consider having a mandatory course in energy efficiency as part of civic duty
* Rather than referring to courses in energy efficiency or energy issues, [perhaps refer to energy systems change
* Should be funding for curriculum development
* A common library of resources would be helpful
* York’s Faculty of Environmental Studies offered to post presentations with summary report on their website

APPENDIX A

APPENDIX B

AGENDA