

APPrO 2007

19th Annual Canadian Power Conference and Networking Centre

***Get Energized: Find out where
“What’s Next?” is happening...***

Stay Ahead of the Curve with The latest in energy technology innovations

Direct from the laboratories of leading Ontario researchers and companies, APPrO and the Ontario Centres of Excellence are pleased to invite you to a mini-demonstration theatre of cutting-edge technologies – the innovations that could provide your company with a competitive advantage in today’s fast-paced market. New this year, take advantage of exclusive presentations designed to bring energy professionals up to date with the latest technical developments and opportunities.

On November 13 and 14, see for yourself how exciting new connections are being made between the energy industry and leading scientific and engineering experts. A series of live presentations built into the Power Networking Centre program will allow the researchers themselves to elaborate on the results of key projects and what they could mean to electricity generators. Or meet the experts one-on-one in the Innovation Lounge of the APPrO 2007 exhibit hall. This is your chance to connect with this country’s untapped potential and to meet those who are bringing Canadian innovations to market.

The Power Networking Centre features exhibits from more than 50 of Canada’s top suppliers to the power industry and live presentations including such notable authorities as the following:

- Dr. Andrew Jardine, University of Toronto: November 13, 10:00 am
- Dr. Rajiv Varma, University of Western Ontario: November 13, 11:00 am
- Dr. Donald Kirk, University of Toronto: November 13, 1:30 pm
- Dr. Roger Newman, University of Toronto: November 13, 2:30 pm
- Jan Buijk, DDACE Power Systems: November 13, 3:30 pm
- Sid Lethbridge, LEHDER Environmental Services Limited: November 13, 4:30 pm
- Dr. Handan Tezel, University of Ottawa: November 14, 10:00 am
- Dr. David Johnson, University of Waterloo: November 14, 11:00 am

Descriptions of the Innovation Centre Presentations

Industry-Guided Research: Recent Developments in Maintenance Optimization

Dr. Andrew Jardine, University of Toronto:

November 13, 10:00 am

Potential for Resonance in Generators with Series Compensated Lines

Dr. Rajiv Varma, University of Western Ontario:

November 13, 11:00 am

Engineering Activated Carbon for a Clean Environment

Dr. Donald Kirk, University of Toronto, Department of Chemical Engineering and Applied Chemistry:

November 13, 2:30 pm

Using a patented, novel activation process, by-product carbons such as fluid coke, can be engineered to have specific surface areas, pore distributions and surface chemistries. The ability to manipulate these characteristics has allowed the activated carbon to be tailored as a highly effective mercury absorber for flue gas emission control or as a waste water metal ion and organic removal agent, or surprisingly, as a energy storage supercapacitor. The work very clearly demonstrates that high surface area is not sufficient for achieving rapid capture and removal of impurities or for achieving rapid electrochemical charge-discharge characteristics. The pore distribution must also be engineered to allow rapid access to the interior nanoscale structures. In addition, the surface chemistry must be controlled to allow selective capture and retention of contaminants or active ions. Data supporting these applications have been compiled for scale-up to larger demonstrations and use. A key benefit from using by-product cokes is that the starting material is both inexpensive and pre-carbonized and thus should lead to low cost, highly efficient activated carbon for many applications.

Control of Stress Corrosion Cracking in Current and Future CANDU Systems

Dr. Roger Newman, University of Toronto:

November 13, 2:30 pm

An ongoing project funded jointly by OCE and the Candu Owners' Group involves a team of investigators from Engineering, Materials and Chemistry departments at Ontario universities. The research is focused on the interaction between metal oxidation and near-surface stress development during the initiation of stress corrosion cracking. Novel technique development for stress and strain measurement is being pursued at the Canadian Synchrotron Light Source.

Innovative Use of Gas Fuelled Reciprocating Engines for Distributed Generation Applications

Jan Buijk, DDACE Power Systems:

November 13, 3:30 pm

This presentation will outline recent developments in gas fuelled reciprocating engine technology and how these technologies are being applied for distributed generation applications.

Integrated Environmental Information Management

Sid Lethbridge, LEHDER Environmental Services Limited:

November 13, 4:30 pm

Regulators, Shareholders and the Public are increasingly calling upon Industry to report on environmental emissions and discharges – both actual and potential - at their facilities and the potential impact on the surrounding environment and communities. Integrated Environmental Information Management allows industrial facilities to interpret, report and present multimedia data to a variety of stakeholders.

Examples of regulatory initiatives driving this trend include the National Pollutant Release Inventory (NPRI) and O.Reg. 419 – Local Air Quality. Looming on the horizon is O.Reg. 224/07 – Spill Prevention and Contingency Plans, which comes into effect September 1, 2008. It requires plans and drawings presenting a wide range of on and offsite information including details of onsite material storage and handling; air emission points; onsite sewer systems; history of spills; location of residential areas, daycares, schools in the vicinity, etc. The LEHDER Environmental Information Management Service (LEIMS) was developed to address the requirements of these initiatives.

Energy Storage and Production of Natural Gas from Landfill Gas

Dr. Handan Tezel, University of Ottawa:

November 14, 10:00 am

In this talk, 2 important topics that make our society more sustainable will be discussed:

- 1) Energy storage: that could be applied to solar systems, energy mobility, etc. This process involves non-toxic materials for storing energy for short and long periods of time to be used for space heating afterwards.
- 2) Production of natural gas from landfill gas as sustainable energy source.

Wind Energy Research at the University of Waterloo

Dr. David Johnson, University of Waterloo:

November 14, 11:00 am

The presentation will discuss the current projects underway at the Wind Energy Laboratory at the University of Waterloo including the very large scale wind turbine test facility, turbine noise studies and mitigation, laser-based blade dynamic stall studies and turbine performance modeling.



**Ontario Centres of
Excellence**

Where Next Happens

Ontario Centres of Excellence (OCE) Inc. drives the commercialization of cutting-edge research across key market sectors to build the economy of tomorrow and secure Ontario's global competitiveness. In doing this, OCE also fosters the training and development of the next generation of innovators and entrepreneurs, and is a key partner with Ontario's industry, universities, colleges, research hospitals, investors and governments. Celebrating 20 years of innovation in 2007, OCE's five Centres work in communications and information technology, earth and environmental technologies, energy, materials and manufacturing, and photonics. For more information see <www.oce-ontario.org>.



APPrO

**ASSOCIATION OF
POWER PRODUCERS
OF ONTARIO**

APPrO is a non-profit organization representing Ontario's power generation industry. As part of APPrO's annual conference, APPrO 2007, APPrO's Power Networking Centre has teamed up with the Ontario Centres of Excellence to present these technology showcases. The conference, the Power Networking Centre and the showcases are all taking place on November 13 and 14 2007, at the Metro Toronto Convention Centre, South Building, Toronto, Ontario. Please note, you will need to register as a Conference Delegate or Networking Centre Guest to attend. To register as a Guest in advance, or to find out more about the full range of conference and Networking Centre activities, please visit our conference website at <http://conference.appro.org> or our main website at <http://www.appro.org>