

September 2014

WEST TORONTO CHAPTER
PROFESSIONAL ENGINEERS ONTARIO
<http://www.westtoronto.peo.on.ca>

Chair's Message for Fall 2014 by Eugen Karanxha, P.Eng.

The times, they are a changing. How true this is at any time, and how true for our profession now. With the integration of social media and other programs from PEO – education, mentorship, and the government liaison program (GLP) – the engineering profession is creating a closer community and moving toward the spotlight and becoming more visible than before in society and the political arena. What is happening in West Toronto chapter?

The Ontario Society of Professional Engineers (OSPE) is the engineering advocacy body. Sharing many members with PEO, the link is very organic, so working together on joint events is very important to maintain this link. Together, we organized two successful back-to-back events.

Recognizing Toronto transit as an ongoing issue, WTPEO also recognized this as an opportunity to contribute an informed opinion. The symposium started with a history lesson, beginning with the successful implementation of a transit system in the '50s, followed by endless planning. This was a successful event, well-attended by our membership, city councillors and experts in the field. The presenters, one by one, gave detailed information and data, reinforcing the need for action. This event started a great collaboration with George Brown College. A volunteer group is working on a white paper.

On the education front, WTPEO had a successful outreach event with the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) at Runnymede Senior Public School. Our Women in Engineering Committee had a great multi-session event on "Women in Engineering and Science Case Competition" for young girls (grades 6 to 8) to encourage girls to explore engineering and science. The chapter is also running the engineering scholarship program at this time.

Our new website is up and running and a team of volunteers is working on completing the transfer of information from the old one. Our social media widgets are featured in the title bar for ease of access by the membership.

Our monthly events have always been free, and the chapter has worked hard to find interesting topics, secure the best venues and refreshments. In the beginning of the year, we had a huge success on the registration process with all the events being sold out; however, the no-show rate was very high. The chapter decided to introduce a minimal fee and our no-show rate dropped from 50 per cent to less than 10 per cent. The funds were used for our scholarship program, and your feedback on this new practice is needed for future planning.

Electrical Energy Storage Options by Tom Markowitz, P.Eng.

On the evening of March 26, the West Toronto Chapter of PEO presented a short seminar on Electrical Energy Storage Options for Ontario.

Energy storage includes traditional technologies, like pumped hydro-electric storage, compressed air, lead-acid batteries, and chilled water thermal storage, and also newer technologies, like advanced cycle storage batteries, flywheels, and advanced capacitors.

According to Ontario's Long-Term Energy Plan, "Energy storage technologies have the potential to revolutionize the electricity system, increasing its efficiency, lowering costs and increasing reliability for the consumer. With storage, electricity could be stockpiled during periods of low cost generation, and then used when demand and prices are highest. Storage technology offers the potential to increase the usable energy from renewable energy sources." The Ontario government is proceeding with several important policy and program activities to promote and integrate energy storage within Ontario's electricity system.

The guest speaker was Rick Hohendorf, P.Eng., a member of OSPE Board. Rick is the Senior Manager, Computers and Control Design, Components Engineering Division, Nuclear Engineering, Ontario Power Generation. Rick's presentation, Electrical Energy Storage Options, is one of 12 Joint OSPE-PEO Chapter Policy Presentations.

The PowerPoint files of these 12 presentations can be downloaded from the web address: http://www.ospe.on.ca/?page=adv_peochap

The seminar included two special guests, who joined Rick at the end of his presentation for a lively discussion with the audience:

- Geoff Osborne is the Analyst for NRStor Inc., a privately held Toronto-based energy storage project developer focused on accelerating the commercialization of industry-leading energy storage technologies. NRStor's website is at <http://www.nrstor.com/>.
- Robert Stasko is the Executive Director of a newly-created industry association, Energy Storage Ontario, whose website is at <http://energystorageontario.com/>.

Rick's presentation and the comments by the special guests revealed a surprising opportunity for energy storage to enhance the efficiency and reliability of Ontario's electrical system, and a surprisingly robust level of activity in development and demonstration of energy storage technologies in Ontario.

Welcome New P.Eng. Licence Recipients – Licensing Ceremony, Tuesday, May 13, 2014 by Georg Kralik, P.Eng.

On Tuesday, May 13, 2014, the West Toronto Chapter of Professional Engineers Ontario, welcomed 16 new professional engineers to PEO and our 2900-member-strong West Toronto Chapter. The ceremony was held at the Islington Golf and Country Club in Toronto, and MC'd by **Richard Weldon**, P.Eng. The licence recipients presented to the assembly at this ceremony were:

<p>Ahmed E Aljuaidi, P.Eng. Paul David Blizzard, P.Eng. Hoang Kien Dang, P.Eng. Jenny Janette Earle, P.Eng. Paul Kurtis Fritze, P.Eng. Gillian Anne Mae Gardhouse, P.Eng.</p>	<p>Vladimir Mikhailovitch Gavrilin, P.Eng. Alexandru Gheorghe, P.Eng. Bailey Rae Gutkin, P.Eng. Catharine Huong Hancharek, P.Eng. Michael Rabindra Kartick, P.Eng.</p>	<p>Mark Wheeler Milne, P.Eng. Abdolreza Saebimoghaddam, P.Eng. Carlos Eduardo Sanchez Griborio, P.Eng. Hugo Ricardo Sanchez Reategui, P.Eng. Riyaz Ahmed Sheikh, P.Eng.</p>
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The head table guests presiding over this ceremony included **Matthew Ng**, P.Eng., FEC, PEO Chapter Manager; **Danny Chui**, P.Eng., FEC, PEO Junior Regional Councillor, West Central Region; **Thomas Chong**, P.Eng., FEC, PEO President-elect; **Gerard McDonald**, MBA, P.Eng., PEO Registrar, and our guest speaker **Dr. Geoff Fernie**, P.Eng., Director for Research, Toronto Rehabilitation Institute, University Health Network (TRI/UHN).

On behalf of **Eugen Karanxha**, P.Eng., West Toronto Chapter Chair and the chapter board, we want to congratulate all who received their licence certificates at this ceremony. We also want to gratefully acknowledge the contributions made by friends, family, and guests of our licence recipients who attended the ceremony in support.

The chapter executive would also like to take this opportunity for all our new licence recipients to join us at upcoming seminars and events organized by the chapter. You will automatically receive e-blasts of upcoming chapter events, but you should also frequently check the calendar on the chapter website (<http://www.westtoronto.peo.on.ca>) for upcoming chapter events. Follow the tabs to the Events Calendar.

For services rendered to the profession, **Georg A. M. Kralik**, P.Eng., was also awarded the additional title of Fellow of Engineers Canada (FEC). This honour is being bestowed by Engineers Canada to registered professional engineers who have served in a volunteer capacity for 10 years with Engineers Canada, or on a committee of any of the provincial engineering regulatory organizations. **Matthew Ng**, P.Eng., FEC, made the presentation on behalf of Engineers Canada.

I would also like to thank all the volunteers who helped to make this one of the smoothest running and successful ceremonies for the West Toronto Chapter.

For pictures of this ceremony please, visit <http://www.westtoronto.peo.on.ca>. Just follow the tabs to Licence Presentations.

WTPEO Hosts Successful Panel on Flooding in Toronto by Heather Murdock, EIT

On January 20, the West Toronto PEO hosted an event entitled "Flooding in Toronto: What caused the July 8 floods and will they happened again?" This event featured David Khellerson from the City of Toronto, Geoff Coulson from Environment Canada, Michael Herallal from the Toronto and Region Conservation Authority (TRCA), and Paul Marsh from Hatch Mott MacDonald. Moderated by Heather Murdock, EIT, and hosted by the West Toronto PEO chapter, this event brought together over 80 engineers and members of the public on the University of Toronto campus.

Each speaker gave a presentation that provided an overview of the July 8 flood from a different point of view, depending on their expertise:

- Geoff Coulson, from Environment Canada, demonstrated that from a meteorological perspective, the rain event over Toronto on July 8 was very geographically concentrated on the centre and western part s Toronto and Mississauga.
- Michael Herallal, from the TRCA, then provided an overview of flooding in the Toronto and region watershed, as well as the TRCA's approach to flood mitigation and overland flow routing.
- David Khellerson was able to share his personal experience on July 8, where he was intimately involved with mitigating the effects of this flood event on behalf of the city.
- Paul Marsh provided a broader context for the history of these types of events in Ontario, dating back to Hurricane Hazel in 1954.

Several questions were asked by the moderator, followed by questions from the audience. The speakers shared some perspectives on how the public should react to these situations and how to avoid damage to their property. One strategy mentioned for the long-term reduction of basement flooding is the program to phase out reverse-sloped driveways. Geoff Coulson summarized some of the advice on public safety during rain events nicely, sharing the saying that if you see a flooded road "don't drown, turn around!"

Over 15 questions were taken from the audience with many more left at the end, and spirited discussions followed the official closing of the event. The speaker presentations are available on the PEO website (<http://www.westtoronto.peo.on.ca>). Thank you to everybody who attended!

PEO West Toronto Chapter Technical Tour of Portlands Energy Centre by Tiffany Persaud

On May 24, 2014, PEOBTC's Environment Committee had the privilege of hosting a technical tour at Portlands Energy Centre, Toronto, a natural-gas-fired plant of 550MW capacity comprising three generators, twin gas turbines and one steam turbine. Portlands Energy Centre is located at the east end of the Toronto waterfront, beside the (closed) Hearn Generating Station.

Ontario's **33,000MW** of installed generation capacity includes nuclear, hydro, gas, wind, and solar. In 2012, 14 per cent of Ontario's total electrical energy was generated by natural gas. Gas-fired generators are a convenient source of "peak" electric power, because they can be started and stopped easily.

Portlands Energy Centre first operated in June 2008, generating 240MW, in a single-cycle operation. After complete installation of the two gas turbines with its heat-recovery system and steam turbines, it became fully operational with its designed output of 550MW by the second-quarter of 2009.

Portlands has three noteworthy features:

- The "waste" heat in the gas turbine exhaust is used to raise steam for the steam turbine generator.
- A sophisticated automation system optimizes efficiency in combustion.
- Naturally cool water from Lake Ontario is used to condense steam at the steam turbine exhaust.

Portlands includes two GE 7FA combustion turbine generators, generating 160 megawatts each, with dry low-NOx combustors. The hot exhaust from the combustion turbines is used to raise steam in two heat recovery steam generators, which supply high pressure steam to one Alstom 230MW steam turbine.

Gas turbine combustion is regulated automatically to minimize emission of CO and NOx in the exhaust. NOx emission from the twin stacks is about 10 ppm, well below Ontario's Guideline of 25 ppm.

Portlands purchases natural gas as fuel from Enbridge. Automated systems like EDAC (Enhanced Day-Ahead Commitment Process) allow Portlands to purchase gas more economically.

The entire plant can be operated at any time by two personnel, one in controls and the other on the ground. Contingency plans are designed for myriad situations.

Portlands borrows water from Lake Ontario. The incoming Lake Ontario water is naturally cool (averaging about 10° Celsius). Portlands treats this water and uses it to condense the steam at the steam turbine exhaust, before releasing the cleaned lake water back into Lake Ontario.

The WTPEO Lake Ontario Environment Committee is grateful for the Portlands tour with technical staff, and has been impressed by the contribution of natural gas generators to the electrical grid in Ontario, and their innovation in mitigating the collective carbon footprint on the environment caused by electricity generation.

The Art of Engineering Leadership presented by Dawn Frail, report by Vesna Nedic

The intense presentation was held for 1.5 hours in front of an audience of 50 people and was followed by a question and answer period.

During this presentation, the audience learned that leadership in an engineering environment presents a unique set of challenges and hurdles. As leaders, engineers will begin to experience the pull between technical expertise and leadership excellence. Engineers who want to be successful leaders in the high-pressure world of engineering must learn about the core elements of leadership. In this session, the audience learned about:

- the importance of becoming a trusted advisor and the key behaviour needed to achieve it;
- the key communication skill that drives either success or failure;
- the elements of leadership psychology that influence conflict, change and communication; and
- the additional barriers women face as engineering leaders.

Dawn Frail is the President of the Eagle Vision Leadership Development Group.

WIES Design Competition by Georg Kralik, P.Eng.

The Women in Engineering (WIE) Committee of the WTPEO recently hosted the Women in Engineering and Science (WIES) Design Competition in partnership with the Toronto Rehabilitation Institute and the Ontario Brain Institute. Held over one month, this design challenge

had girls in grades 6 to 8 designing a new device to prevent falls, or injuries from falls. Brenda McCutcheon and William Hancharek coordinated the event.

The WIES Design competition was held from July 12th to August 9th in which participants gathered for three workshops to work on a design challenge with their Engineer mentors. Over the course of the three workshops, participants had a chance to design a new product, prototype their device using a 3D modelling software (tinkerCAD), use a state of the art Falls Lab, and of course, learn more about engineering and science from their mentors. Participants presented their final designs at the Toronto Rehabilitation Institute on August 9th. We are very proud to announce the winners of the first WIES Design Competition!

- First Place: Julianna Botros and Rachel Tam
- Second Place: Seher Moosabhoy and Sabrina Hwang
- Third Place: Swanee Douglas and Sabrina Wong
- Award for most Intriguing Design: Medha Krishnan
- Award for most Innovative Design: Eilish Neal

The 2014 WIES Design Competition had 17 teams, and included Thomas Chong, President-elect of PEO, as a workshop observer and competition day judge. It is expected that future turn-outs will be higher. This design competition was made possible through generous financial and in-kind support by the WTPEO, the Toronto Rehabilitation Institute, and by staff participation from the Ontario Brain Institute.

For additional information and photographs from this design competition, please visit <http://www.westtoronto.peo.on.ca>.

Networking & Summer BBQ – July 9, 2014 by Roman S. Lysiak, P.Eng.

As a yearly tradition, and to conclude the current season of seminars, events and symposia, the West Toronto Chapter hosted a relaxing, informative and entertaining event with a goal of providing an opportunity to network with engineers in an informal setting. Eighty registered West Toronto Chapter engineers and guests attended the event at 33 Charles St. East.

The guests included:

- Marisa Sterling, P.Eng. (PEO staff)
- Thomas Chong (PEO president-elect)

Thanks to those who helped organize the event:

- Catherine Hancharek, Leona Hancharek, who provided the meeting place, and friends – food, cleanup, etc.
- Georg Kralik – flyer, beer delivery, event photographer
- Barry Westhead – food and refreshments pickup and delivery
- Eugen Karanxha – beer provision
- Ahmad Al-Dabbagh – Eventbrite registration
- Alex Dolnycky – telescope viewing of night sky
- Roman Lysiak – barbecuing!

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