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Details at www.scarborough.peo.on.ca

CHAIR'S MESSAGE

Ranee Mahalingam, M.Eng. P.Eng.
Chair
[<raneemahalingam@rogers.com>](mailto:raneemahalingam@rogers.com)

I had the honour and privilege of serving PEO Scarborough Chapter, first as Vice-Chair for two years and then as Chair for the following two years. In the last four years, our Chapter has expanded its scope in many ways, including the development of new programs for the benefit of the community, especially school children, new international engineering graduates and engineers at large.

Our success in education is due to the chapter executives and to the volunteers who have given their time, energy, commitment, and innovative thinking. Educating our children in mathematics and science is vital to maintaining our nation's technological advantage. We strive to be a good and caring organization by identifying important areas of need and developing coordinated programs to address them. The Mathletics competition we launched in 2006 is a great example. We are even exploring the possibility of taking this competition to the regional and provincial level.

While we celebrate our past, we also look forward to the future. Our Chapter is continuing to have a positive impact on our community. We view our work in the community as an important measure of our success as an organization. That's why we approach our engineers at large for support. In this regard we specifically focus on the following activities:

- Mentoring Program: Volunteer to join a pool of mentors to help new EITs. They will learn from you, become licensed engineers and serve our society better.
- Ask your organization to sponsor our Mathletics and Bridge Building Competition. The funds raised are used as prizes for the students who succeed in the competition.

It is your innovative ideas that will take our chapter to a higher level. I urge you to come forward and volunteer in chapter activities.

I am personally honoured by the loyalty of my executive team, and committed volunteers, and I know that our continuity is assured by the experience and dedication we share as the senior executives of Scarborough Chapter.



NEWS AND EVENTS

Denis Carlos, M.B.A., P.Eng.

Past Chair <dcarlos@teksavvy.com>

Licensing

Many engineers start their new careers and lives in Scarborough. The following proposal recently taken to Council could

potentially streamline and simplify the licensing process for them. Academic requirements may be redefined in terms of depth and breadth instead of a Canadian engineering degree. Graduates from programs accredited by the Canadian Engineering Accreditation Board (CEAB) within the last eight years would be exempted from writing examinations. Academics of Canadian applicants over the eight-year limit will be scrutinized more closely. Each applicant would also be required to submit a Canadian criminal record check. Experience requirements are strengthened in terms of demonstrated practice skills and competencies.

Now for a couple of fun events. Our Chapter is proud to participate during National Engineering Week with:

5th Annual Bridge Building Contest



When: Saturday, 23 February 2008

Where: Scarborough Civic Centre

Organizer: Jason Ettore <jason_ettore@yahoo.com>

Here, students in grades 4-6 and grades 7-8 get to build bridges out of Popsicle sticks, and we get to break them! But this is no small task as some of them are really strong. Last year, three bridges were in the 1600N area; which means they could hold three times my weight!

Over the years that this competition has run, I have noticed that the quality of the best bridges and their strength/weight ratio has consistently improved. The students are learning and getting better. Great. One thing still puzzles me though; why do the



junior grades produce bridges that consistently do better than the seniors? Visit our website and look at the results we have measured over the years.

You can join us by volunteering for an exciting day of networking, learning, engineering, and bridge building fun. Some of the functions are registration, computer entry, judging, ushering, and bridge testing. Hundreds of students, teachers, and parents and engineers will come to have fun and learn a little about engineering.

Mathletics Competition



When: April 2008

Where: Scarborough Civic Centre

Organizer: Raju Chander <chanderpv@yahoo.com>

The goal is to create a passion in the application of mathematics in solving day-to-day scientific and engineering problems. In contrast to standard exam based mathematics competitions, our competition is interactive and allows the audience of parents, teachers and friends to “virtually participate”. The final round is run like the TV Jeopardy game show.

Students are challenged to be active and creative in the use of practical engineering mathematics – not mathematical jugglery. To this end we need you, as engineers to send us practical questions that involve engineering solutions. Naturally, the level of mathematics has to fall within the school curriculum (Calculus is out).

Questions are in two parts; the first is explanatory, where the scientific/engineering principle is explained, and the second part contains the question, which applies this principle.

Mathletics 2007 received lots of great feedback. Other PEO chapters are now planning similar events. Presentations and discussions to expand this event to a regional and/or provincial event have taken place at a couple of PEO conferences.

We are also looking for a company to sponsor the students' prizes. If your company has a community program that would consider this event worthwhile, please let us know.

Self Regulation

On to another perennial topic, as the end of this year draws to a close, so do the terms of several elected positions in the management of our profession. At our Chapter level, we will have our AGM in January. At the PEO level, elections for Council take place around February. A continuing problem faced by PEO is to find members willing to run for these posts. For far too many positions, only one person is nominated which leads to an acclamation.

The whole concept of a *democracy* where your vote means something is lost. While recycling our waste materials is good for the environment, the all too common practice of recycling our past PEO councillors is not. What incentive is there for our acclaimed representatives to respond to the needs of the members when there is no pressure to do so? How can our profession respond to its current needs when there is a lack of energy in our governance? We need people who understand what the current engineering fields are and have a vision of the future. Our profession needs to be brought up to date; we need *young practising engineers* to bring their ideas and take an active role in governing our profession.

I encourage you to participate in our Chapter. Here you will have many opportunities to have a positive effect on our community. As you learn how PEO operates, you will gain the knowledge, experience and exposure to move into exercising your good judgement at the Council level.

All of us *must* exercise our right to **VOTE**.

NOTICE

Annual General Meeting

When: 19 January 2008

Where: will be posted on our website

Organizer: Ron Nicholson <doron@pathcom.com>

Nominating Committee Chair

Our AGM will be held in accordance with our bylaws to elect our 2008 Board. Please visit <www.scarborough.peo.on.ca> to read our bylaw on how to run for a Board position and to obtain nomination forms. The AGM will be followed by a presentation of a Canadian soldier's experience in Afghanistan.

At any time, you may volunteer for any sub-committee or assist in organizing an event by contacting us.

COUNCILLORS' CORNER

Capt. Corneliu E. Chisu, CD, M.Eng., P.Eng.
Junior PEO East Central Region Councillor
Chapter Past Chair <cchisu@rogers.com>



I would like to emphasize the importance of an active participation in the affairs of our association by joining the Chapter Board. On my part I will see to it that actual guidelines as per the chapter's manual are followed and are improved from time to time by the Regional Councillors Committee (RCC).

A working group was formed in the last meeting, of which I am a part, and I assure you that I will look into it seriously. There were heated debates on the allocation of the funds by regions. Unfortunately I was not able to get the best deal for our region despite my best efforts. However the lesson we learned for the future is that we need to prepare better, for which we need the support of our chapters and their members.

Sustaining PEO chapters

Thomas Chong, M.Sc., P.Eng.
Senior PEO East Central Region
Councillor <thomas.chong@rogers.com>



In my opinion, PEO East Central chapters have problems with inadequate funding. In PEO today, I feel that the chapter system is confronted with ever increasing downloading of regulatory and government liaison programs from PEO. However, chapter funding may not be adequately adjusted to make such downloading sustainable.

At the East Central Region Congress on September 25, 2007, our chapter chairs and vice chairs voiced their views. I concur with their views and took it to the RCC.

Even though my efforts would not increase funding for 2008, the RCC has established a Chapter Business Plan Model Subcommittee to study a better funding model for 2009. This subcommittee is likely to restore balance.

We all share a common goal of making PEO sustainable. Every step that each of us can take to make chapter funding more equitable and realistic will be a collective step forward in the right direction.

THE FUTURE OF WIND ENERGY

Saeed A. Khan, M.Eng., P.Eng.

Secretary

<khansa59@hotmail.com>

Global warming has been acknowledged as a serious issue by the international community and is of major concern to humanity. To minimize the impact of global warming, it is our responsibility to think seriously about employing renewable energy resources and technologies.

According to Environment Canada, the burning of fossil fuels to generate electricity creates 18% of Canada's greenhouse gases. Global warming has several adverse impacts on the environment, like the rise in average temperatures, fluctuations in weather patterns, severe droughts and floods. Pollution from fossil fuels has health consequences, such as asthma, lung cancer, premature births, low birth weight, stillbirths and infant deaths. Acid rain harms our forests, lakes and the wildlife they support. It corrodes buildings and economic infrastructure such as bridges.

Several renewable technologies can be used to reduce greenhouse gas emissions, e.g. wind energy, solar energy, bio-fuel, biomass/solid biomass and geothermal. Wind energy is the leading, fastest growing and least expensive renewable energy technology available now.

Wind energy was harnessed for the first time in 6000 BC when the first sailboat sailed along the Nile. A single one MW wind turbine can displace 1,600 tons of CO₂, nine tons of SO₂ and four tons of nitrous oxide annually. Nowadays, wind turbines of more than five MW capacities are being installed around the world.

Although the energy captured from the wind is variable, it fits well into hydro-based grids where dams can be used to store water. When the wind is not blowing, the stored energy in the dam can be released and used to match demand.

Turbines, roads and associated substations use less than 5% of the area of a typical wind farm. Wind turbines that use the latest designs for their blades are very quiet. Current research demonstrates that the average wind turbine is responsible for no more than two bird fatalities per year, which is far less



than the millions of deaths due to crashing of birds into buildings, windows and vehicles every year.

Wind energy technology is evolving. Historical trends show that the weight of the turbine has been reduced by 50% in the last five years; sound levels have decreased by 50% in the last three years and the annual energy output per turbine has increased 100 fold in the last 15 years. Worldwide, the use of wind energy has tripled in the last five years.

According to the study, *Evaluation of Global Wind Power* by Christina L. Archer and Mark Z.

Jacobson conducted under the Global Climate and Energy Project (GCEP) and funded by NASA and Stanford University, the global wind power potential for the year 2000 was estimated to be 72 TW. This is over five times the world's current energy consumption and 40 times the world's current electricity consumption. This means that there is a lot of potential wind energy available.

Technologies and resources have to be developed to exploit this potential. Trends indicate that the global use of wind energy is increasing 30% annually, while the cost of this energy has decreased by 80% over the last two decades. As long as the sun shines, we will never run out of wind energy. In contrast, the cost of oil and gas continues to increase rapidly as reserves are steadily depleted.



Canada has a great potential to harvest wind energy due to its vast landscape, three coastal lines, plains and mountains. Canada stands at number 12 in the world with an installed capacity of 1588 MW.

Canada has a 51% average annual growth rate and has made a record growth of 113% in 2006 led by Ontario and Quebec. It is very important for Canada as well as the international community to promote wind energy to provide a better environment for current and future generations.