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SUMMER 2015

> "I can confidently say that APEGA's much-discussed transformation is beginning to pay dividends. Members and applicants can count themselves as recipients of these benefits, and so too can the public"

Connie Parenteau, P.Eng.
APEGA's 96th President

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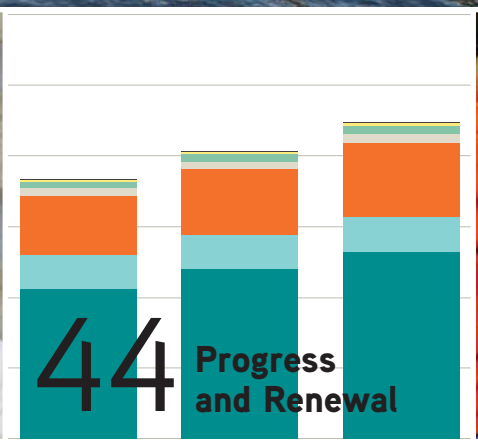

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Editor **George Lee** ✉ glee@apega.ca

Administrative Assistant **Catherine Hiemstra** ✉ chiemstra@apega.ca

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APEGA CONTACT INFO

HEAD OFFICE

1500 Scotia One
10060 Jasper Avenue NW
Edmonton AB T5J 4A2
PH 780-426-3990
TOLL FREE 1-800-661-7020
FAX 780-426-1877

www.apega.ca

email@apega.ca

CALGARY OFFICE

2200 Scotia Centre
700 Second Street SW
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PH 403-262-7714
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Everyday Leadership — Pass it On

BY **CONNIE PARENTEAU,** *P.ENG., FEC, FGC (HON.)*
APEGA President

My journey to the APEGA presidency began with the perfect career choice — a choice that stemmed from the right suggestion from the right person at the right time. I was one of perhaps 100 high school students my guidance counsellor would talk to in an average year, but he knew who I was and what I might become. He saw things in me that I didn't know were there, and he made a suggestion that would, as it turns out, profoundly affect my life.

I've said this before but it bears repeating: Being your President is a huge privilege. I get to lead a great organization at a critical time in its history. But I did not get here without the support, influence, and leadership of others. The same holds true for my other professional and career accomplishments.

And it all started with a counsellor who was simply doing his job. "There's a panel discussion on engineering happening at the university," he said. "Your math and science marks are strong. Perhaps you should go." I knew nothing about engineering. In fact, I didn't even understand what it was. So of course I had no clue it would turn into an incredible career. Still, I acted on my counsellor's suggestion, and in doing so found my passion.

I'm embarrassed to say I can't remember the counsellor's name. But in a way that's appropriate. All leadership — but especially the everyday kind that's available to us all — is not centred on the person doing the leading. It's centred on the recipient of the kind word, the timely piece of advice, the positive reinforcement, the nudge in the right direction, the carefully crafted criticism.

Everyday leaders sometimes fade into the background of your life, but their impact carries on as you carry on. They are empathetic, understanding and selfless. They find time, as they go about their regular business, to recognize the abilities and strengths of others. Sometimes the things they notice are latent or well-hidden — it takes that outside observer to make them apparent. That's certainly been my experience.

THE APEGA CONNECTION

By now you may be wondering, what does any of this have to do with being a Professional Engineer or Geoscientist? Let me connect it to you and your Association.

North American society has a propensity for celebrating the individual. (I make this point in an edition of *The PEG* that features about 10 photos of me!) There's really nothing wrong with this propensity, but we do need to remind ourselves that individual achievement is only one element in any success story.

Most of the recipients of our Summit Awards are individuals. Listen to their words and a universal truth emerges: no one succeeds without support. Do recipients heap praise on themselves? No. Instead, they inspire us all with their humility and their willingness to give others credit.

At least four Summit Awards directly connect to the topic of this column, in that

President's Notebook

they celebrate Members for influencing or helping others. The Outstanding Mentor Award, the Community Service Award, the Excellence in Education Award, and the Women in Engineering and Geoscience Champion Award — these go to Members with roles particularly suited to everyday leadership.

Our awards are examples of the selflessness and service that lie at the core of professionalism. A leadership thread, after all, runs through our *Code of Ethics*. I'll single out the requirement that we "uphold and enhance the honour, dignity and reputation of (our) professions and thus the ability of the professions to serve the public interest."

To me, this says that our individual reputations affect the overall reputation of our professions. Most of us hope that others describe us in positive terms, even when they disagree with us. We hope we matter, in other words. We hope we're having a positive impact on the people around us — the stranger on the bus, the student in our class, the Member-in-Training on our work team.

But hope is a really poor strategy. If you want to matter, you have to make yourself matter. There is certainly value in quietly and competently going about your technical work. But there is also value in influencing others to be the best they can be.

Here's another connection. APEGA requires that all of us keep current, through the Continuing Professional Development Program (CPD Program). The opportunities for everyday leadership in CPD are legion. CPD is not only about taking courses or attending presentations. Giving back to your professions, your technical societies, and your communities — all of this qualifies as professional development.

APEGA considers giving back to be part of your own education. The Association even offers a formal mentoring program, allowing you to give back in a direct, one-on-one, everyday leadership way.

THE EVERYDAY LIST

This is a subject dear to me, so I hope you'll excuse a bit of corniness. Let me offer you an everyday way to be an everyday leader, by providing a few suggestions you can use in your own lives and careers.

- Recognize — What positive things have I said about others?
- Empower — How have I helped others reach their goals?
- Demonstrate Self Respect — What have I done to be good to myself?
- Express Gratitude Often — Have I said thank you to someone?

THANK YOU

With the last point in mind, I have to say that my high school counsellor was but one of many influences. A parade of other leaders have played important roles in my personal and professional growth. Among them are my colleagues, students, other professional women, APEGA Councillors and other APEGA volunteers, and, of course, APEGA staff — including CEO Mark Flint, P.Eng., and his predecessor, Neil Windsor, P.Eng., FEC, FGC (Hon.), FCAE, P.E. (Hon.), along with Al Schuld, P.Eng., FEC, FGC (Hon.), a former Registrar of APEGA who recently retired.

FINAL KEEP-IN-MIND POINTS

- Great leaders create opportunities.
- Never underestimate your ability to influence the future.
- Recognizing the simple does not mean little.

So thank you, everyone. Lead on!

Questions or comments?
president@apega.ca

Let's Adjust our Self-Regulation Model To Leverage the Contribution of Volunteers

BY **MARK FLINT,** *P.ENG.*
APEGA Chief Executive Officer

Self-regulation is a powerful model. Canada is fortunate to have a system that so fully supports the standards, ethics, and qualifications required of professionals to manage — in the public interest — their work, their careers, their teams, and all of their other business activities.

In the early days of self-regulation, engineers banded together to create a system of ensuring professional oversight in the delivery of engineering services. It was based on a cooperative of volunteers, through which Professional Engineers would donate their time and resources to ensure that the public would be protected.

The numbers were small in those days and the community closely tied. It included geoscientists, who eventually emerged with their own professions (and then a single profession) under the same regulatory umbrella.

Today, the number of Members has increased significantly. The regulatory space has also increased, to include corporate practice and continuing professional development. Although the concept of self-regulation is still sound, it is time to rethink the manner by which we self-regulate.

It is impossible to calculate the amount of time and effort that volunteers have given to the professions. APEGA currently enjoys the contributions of about 1,500 active volunteers. Some of them have been actively volunteering for over 40 years. Some of them work 15 to 20 hours a week to ensure that people applying to the professions are suitably competent. That's right — 15 to 20 hours per week.

It is unbelievable, the commitment and dedication volunteers put towards serving the professions and the public. But as our membership grows, the complexity of our business environment increases, and the demand for innovation and better service becomes even greater. We have to ask ourselves: Is the volunteer model that was the genesis of the engineering and geoscience professions sustainable in its current form?

Let me be clear. It is not viable to operate a self-regulatory body of the size and complexity of APEGA without the unfailing support of volunteers. Even if APEGA engaged another 40 or so employees to offset the efforts of our 1,500 volunteers, it would still be necessary to draw on the breadth of experience available in the wider membership to advise on issues that are investigated. The issue is not *whether* a self-regulating profession should use volunteers. Rather, it is *how* to optimize the impact of the valuable knowledge our volunteers offer.

Those of you who volunteer with any organization understand the balancing act it takes to juggle a full-time career, family commitments, and volunteer contributions. A common experience is that you receive an agenda of several hundred pages a few days prior to a meeting. You're expected to digest everything in that package and be ready to discuss issues from an informed viewpoint. For those volunteering on governance boards, this typically happens four or five times a year. For those serving on some of APEGA's statutory boards, it's happening every month — and sometimes those agendas are 700 or 800 pages long.

For statutory boards, there is an expectation to perform significant analyses of complex situations. In some instances this could include ongoing efforts that continue for several years. The significance of the decisions that these boards make cannot be overstated. These are life-affecting decisions. They determine who is competent to become and remain licensed. While this is the very premise of self-regulation, I assert that we also have an obligation to properly enable these processes in a way that recognizes the need to preserve the concept of self-regulation along with the need to be efficient and responsive. We continue to ask more of our volunteers. Unless we adapt our system as we grow, we will find ourselves becoming less and less effective.

Here's a parallel drawn from our country's history. In the late 1800s, Canada recognized the need for a full-time army. We were a colony of England, so territorial defence was provided by British troops temporarily stationed here, with support volunteers from local militias. As Canada's permanency became clear, it was apparent that depending on a few professional soldiers and volunteer militias would not provide sufficiently for the defence of a country of Canada's size.

And so in 1871 Canada established the first permanent, regular force army unit in Kingston, Ont., and Quebec City, Que. It should not be forgotten that although Canada created a professional, full-time military, neither the First World War nor

CEO's Message

the Second World War would have been won without the sacrifice of Canada's volunteer service personnel.

As APEGA reviews the *Engineering and Geoscience Professions Act (EGP Act)* and prepares its submission of a substantial rewrite to the Government of Alberta, we have a huge opportunity. We can shape this legislation. In doing so, we can achieve a more appropriate approach to managing the task of self-regulation. In practical terms, what exactly might this look like?

This paradigm shift would, for the most part, be unnoticed by Professional Engineers and Geoscientists as they go about their daily lives and business. The difference lies in how authorities are delegated. The shift would place a greater reliance on permanent employees to manage the tempo of our business.

Many aspects of the day-to-day regulatory business are fairly routine. Yet the authority to perform them, as outlined in the *EGP Act*, rests with volunteers. It must be said that over the years APEGA has done a good job developing policy solutions to address some of these issues. But it is time to formally address them in the Act.

Here's an example. The Registrar cannot cancel the registration of a Member without Council's approval, even if the Member wishes to withdraw voluntarily. It makes sense that before Members leave the professions we ensure, on behalf of the public, that there are no administrative issues. Still, this arrangement does not appear to make the best use of volunteers' time.

Another illustration involves statutory boards. Some meet regularly and some meet much less frequently. Due purely to the size of our current membership, the original intent and expectations of some of these boards, as described in the Act, would overwhelm a part-time board. According to the Act, the Practice Review Board is supposed to administer the continuing professional development program. At APEGA's current size this is already a significant, full-time activity.

Expecting Members to volunteer their time to administer a core program is unreasonable. However, asking volunteers' guidance to help develop parameters is entirely appropriate. I believe that's exactly what our predecessors intended.

Given the volume of the work, the complexity of the issues, and the administrative effort required to prepare these boards to make decisions, we need to rigorously review how work and authorities are apportioned. When our statutory functions are not seen to be operating efficiently, we put our social licence to regulate at risk.

APEGA has a highly dedicated and professional team of full-time employees. Some of them are Professional Engineers and Geoscientists, and they too bring considerable experience and skill to bear on our professions. It is our full-time staff members who need to be appropriately empowered to set the timelines for the administration of certain functions and to perform routine statutory functions.

If we reconstruct our system slightly so full-time employees are better able to manage processes, and if we also focus volunteers solely on making decisions rather than supplementing administration, we will make the best use of the volunteer expertise we need and value. Let's concentrate on each volunteer's experience and judgment. That way, we will improve volunteer engagement and the satisfaction they gain from contributing.

APEGA is experiencing unprecedented regulatory challenges. This is the new normal for our professions, and we need to make our model sustainable. By rebalancing the authorities and responsibilities of employees and volunteers, we will enable our system to adapt and evolve to meet the challenges ahead.

I believe that self-regulation will continue to rely on the selfless dedication of volunteers. But to preserve the integrity of our system, we must make adjustments. The result will be a more effective and efficient team, and the continued success of a model that has served the public well.

Questions or comments?
ceo@apega.ca

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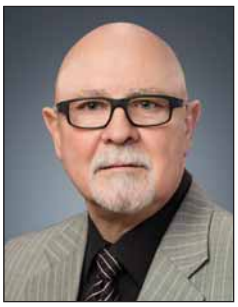

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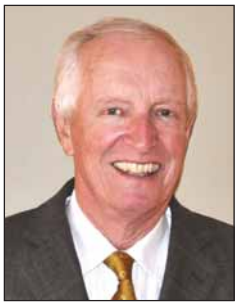

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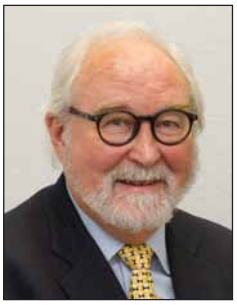

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* Denotes newly elected.

2015 Summit Award Recipients

The Summit Awards honour and recognize the contributions APEGA Members make to the engineering and geoscience professions and to society. Congratulations to all award recipients!

Centennial Leadership Award

Douglas LaValley
P.Eng.

In recognition of the highest distinction as an executive or director of a continuing enterprise

Early Accomplishment Award

Anastasia Elias
P.Eng., PhD

In recognition of exceptional achievement in the early years of a professional career

Excellence in Education Award

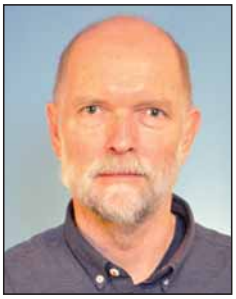
Pierre Mertiny
P.Eng., PhD

In recognition of exemplary contributions to teaching and learning

Frank Spragins Technical Award

Brian Howes
P.Eng.

In recognition of integrity and expertise, and for outstanding accomplishments in fields related to engineering or geoscience



Environment and Sustainability Award

David Wood
P.Eng., PhD

In recognition of excellence in the preservation of the environment and the practice of sustainable development

Women in Engineering and Geoscience Champion Award

Laleh Behjat
P.Eng., PhD

In recognition of achievement as a champion of women in engineering and geoscience

Outstanding Mentor Award

Saumya Barua
P.Eng.

In recognition of exceptional achievement as a mentor

Community Service Award

Anita Rossall
P.Eng.

In recognition of an outstanding contribution made to society

Project Achievement Award

Imperial Oil's
Mahkeses Heat-Recovery Steam Generator Replacement Project

In recognition of a substantial contribution to technical progress and the betterment of society

APEGA

Meet the President

She focused much of her career on strategic thinking and planning. Now, Connie Parenteau, P.Eng., FEC, FGC (Hon.), is putting those skills to work as APEGA's 96th President

APEGA continues to improve the regulation of Professional Engineers and Geoscientists, says President Connie Parenteau, P.Eng., FEC, FGC (Hon.), and she's thrilled to play a leadership role in the process. The 96th President enjoys giving back to the professions she loves by putting her strategic planning skills to good use.

"I am in the right place at the right time — a time when I can confidently say that APEGA's much-discussed transformation is beginning to pay dividends. Members and applicants can count themselves as recipients of these benefits, and so too can the public," says Ms. Parenteau.

Although she'd been named President beforehand, her swearing-in took place April 24 at the APEGA Annual General Meeting in Calgary. (She began leading APEGA after last year's President resigned in November.) In recent years, the St. Albert resident served APEGA as Vice-President and President-Elect, so she's played key roles in driving change.

Born in Edmonton, Ms. Parenteau is a graduate of the University of Alberta's electrical engineering program. Over a 33-year career with TELUS Communications, she held a variety of technical, managerial, and leadership positions. She introduced several new services and improved many existing ones — taking a strategic approach that serves her well as APEGA continues its evolution.

The PEG asked Ms. Parenteau a series of questions about her presidency and the issues she and APEGA face.

***The PEG:* You're a long-time APEGA volunteer. What motivated you to run for President? Why is it important to be involved with APEGA?**

Connie Parenteau Giving back to my profession is my motivation. My interest started at university, and continued when my employer encouraged me to volunteer for APEGA. My first volunteer role with APEGA was outreach to Grade 3 science students. I brought in children's toys that made various sounds. Then we discussed how the sounds were made, and we watched how waves propagated, using an overhead projector with water, an eye dropper, and Duplo blocks for obstacles.

I went on to serve as a Councillor and a Vice-President on APEGA Council, and the rest is history.

Along the way I've met many professionals and have always found it very rewarding. This past spring, I travelled Alberta meeting APEGA Branch Members. I've been talking with them about who we are and what we do.

***The PEG:* What have you learned from Branch Members?**

CP The visits confirmed for me that we are, in essence, innovators and influencers. We combine science with creativity to enable people to enjoy a high standard of living. We come up with new and better ways to make life easier and safer. We guide and shape the future of Alberta, Canada, and the world. And that is amazing to me.

***The PEG:* What are your priorities as APEGA's 96th President?**

CP More and more, Council's time is spent looking ahead and shaping the future. We are leaving operations where they belong: in the hands of CEO Mark Flint, P.Eng., and his staff. Our confidence in staff

and this separation of our roles means we are reacting less, and anticipating and planning more.

My top two priorities — reviewing the *Engineering and Geoscience Professions Act* and updating the *APEGA Strategic Plan* — are a reflection of this strategic approach.

As we review and revise the *EGP Act*, we need to engage stakeholders. This is the legislation's first major update in more than 30 years. Our Members are critical parts in this process, which will continue over the next several years.

That's why APEGA created our champions collaborative in 2014 — to bring the grassroots of APEGA into the process of developing a new and modernized Act to propose to the Government of Alberta. *For more about the legislative review, see page 47.*

Comprehensive engagement is needed to ensure that the decisions made enhance the self-regulation of our professions and fulfill our responsibilities to the public. I've been sharing details with everyone I meet about how they can get involved. One way is through the legislative review sessions being held across the province for both Members and Permit Holders.

***The PEG:* Where will the review process take APEGA?**

CP The desired outcome is that we have a more modern *EGP Act*, along with more modern regulations and bylaws. This enabling legislation belongs to Albertans, and we need to help the Government of Alberta make sure it serves them for many years to come.

***The PEG:* Could you tell our readers more about updating the *APEGA Strategic Plan*?**

CP The groundwork began in 2014 and continues this year, and will be complete in early 2016. Identifying significant risks for the professions has been the first step.

As I've mentioned in past columns in *The PEG*, we're taking a closer look at some major incidents that have occurred in other regions in Canada to identify significant risks for the professions. In other words, we're learning from the experiences of others.

'We can assume some constants about the future. But a good strategic plan must be resilient enough to accommodate the unexpected'

For example, in Quebec, Ordre des ingénieurs du Québec has had to adjust to revelations of corruption unearthed by the Charbonneau Commission. Professional Engineers Ontario is re-examining the way it regulates in the wake of the Elliot Lake Inquiry's report on the deadly collapse of the Algo Centre Mall. And in B.C., the failure of a tailings pond and the resulting spill at the Mount Polley Mine are raising questions about the pond's design — an issue of major concern to APEGBC. These are just a few examples we've been assessing.

The next stage is to determine what areas we need to focus on for the coming 2017 to 2019 timeframe, allowing staff to incorporate actions into the annual business plan.

We can assume some constants about the future. But a good strategic plan must be resilient enough to accommodate the unexpected.

***The PEG:* Another area you've said you want to focus on is making APEGA a stronger regulator. What is your vision in this area?**

CP APEGA's key functions are regulatory. To me, becoming a stronger regulator means that Members clearly understand their responsibilities as Professional Members. They need to demonstrate the competencies required for their licence, and they need to maintain these competencies throughout their career. In the coming months, Members can expect to see more emphasis on key aspects of our professions, such as professionalism, technical oversight, management oversight, and technical competency.

Members have a role in regulating the professions. They are not only responsible for themselves; they should also offer peer support when challenges arise. We should do this in a respectful and professional manner, with the goal of resolving an issue before it reaches the point of requiring a complaint to APEGA. Since we are all well aware of what goes into teamwork, this shouldn't be difficult to achieve in many, many situations.

When something is serious and the public interest is at immediate risk or has already been compromised, of course: file a complaint. But also remember to teach, coach, listen, and mentor.

Our current processes tend to be passive. We wait for a problem to arise and then we react. It's time for us to move to a more active approach.

***The PEG:* What other challenges lie ahead for APEGA and its professions? How should APEGA address them?**

CP Globalization of our professions will continue to grow. We can prepare for this by continuing to uphold our professional obligation to maintain our competency and integrity.

I recently met a Member who no longer lives in Alberta but has maintained his APEGA membership for more than 20 years. Why would you do that? I asked him.

In the country where he now resides, he said, business practices are sometimes unethical. When he is challenged for not following these practices, he simply says that he is an APEGA Member, and the behaviours are not allowed under his Code of Ethics.

When individuals become Members, it's a lifelong commitment to demonstrate our professionalism wherever we practise. Knowing this, I feel confident that our professions are making a difference around the world.

On a more tangible level, I'm looking forward to seeing continued progress in the improvement of APEGA's registration process. The addition of more software-based processes and better service to applicants is, for me, the story of the year.

Some people balk at calling applicants customers, but I have no problem with the word. Applicants represent the near future of our Association. Their licensure is the beginning of an important relationship with APEGA — and with the professional standards and ethics Albertans expect and require of them.

***The PEG:* You've volunteered as a role model in Women in Scholarship, Engineering, Science and Technology (WISEST) since 1991. What motivates you to inspire girls to explore careers in science? What do you say or do to encourage young people — girls in particular — to enter the professions?**

CP It surprises some people to learn that in my high school years, I was unaware of our professions. I had never met a Professional Member and I had no idea what engineers or geoscientists do.

I first got introduced to engineering through a student panel forum. Female engineering students from the University of Alberta spoke about their work and it really interested me. Fortunately, I had good marks in math and science, so I enrolled in the Faculty of Engineering at the University of Alberta.

The opportunity to hear from other women that there are exciting and fulfilling careers in engineering — that made a difference in my own career.

At university, I began to volunteer at schools to talk to children about engineering. I see taking part in programs like WISEST as a way to give back to our professions and perhaps offer other young women an opportunity to find out more about our professions.

What I like to say to young women is that engineering and geoscience careers are an opportunity to leverage their math and science skills, and ultimately improve everyone's quality of life.

I like to ask them: Are you interested in making a difference in the world? Do you enjoy understanding how things work? Do you love when a plan comes together? Then I encourage them to consider the engineering or geoscience professions.

We value public safety, societal well-being, and the environment. Our professions are deeply trusted by the general public because we care. Those things resonate with young people, and I like making sure they hear about them.

'The (Branch) visits confirmed for me that we are, in essence, innovators and influencers. We combine science with creativity to enable people to enjoy a high standard of living. We come up with new and better ways to make life easier and safer. We guide and shape the future of Alberta, Canada, and the world. And that is amazing to me.'

***The PEG:* For TELUS Communications, one of your roles was manager of the company's Graduate Engineer Program. You also continue to mentor engineering graduates. Why is mentorship of young professionals important?**

CP A lot of reasons. One of them is that it's essential to maintaining the self-regulation of our professions.

Members are responsible for the practice and technical expertise within their fields of work. Working with Members-in-Training at this critical time in their careers sets the framework for their future practice. My experience has been that Members-in-Training appreciate the mentoring, and mentors usually learn new, state-of-the-art approaches. Definitely a win-win.

I encourage all Members to stay familiar with the requirements for work experience and our Code of Ethics. We all need to refresh our knowledge of these important parts of self-regulation.

I have also been very involved in organizations that mentor graduates and young professionals about work-life balance. I recall when I was just starting out, it was helpful to bounce ideas off of others. When I was starting my family, I was fortunate to be able to work part-time at TELUS. I did this for five years and was able to keep engaged in the business while I was enjoying raising my children. I like to share these aspects of my career with others, and know that others can benefit from my experience and apply it to their situation. Each situation is different, and in the end what is important is that everyone makes the right decision for their particular situation.

Recently, APEGA published a document called *Managing Transitions*, a guideline for businesses and employees to help them strategically plan for absences from work. It has been recognized nationally for its forward-thinking suggestions. This guideline was developed by the Women in APEGA Committee, but its scope is not limited to women and maternity leave. I encourage anyone who is considering being away from business to check it out.

***The PEG:* How have mentors played a role in your own career?**

CP I've never had a formal mentor, but I've had informal mentors throughout my career. My employer offered support, mostly from my managers and directors. My most influential mentors were from my volunteer work at APEGA, including APEGA past-presidents, APEGA CEOs, and fellow Councillors.

But the strongest mentors for me have been, and continue to be, my female engineering peers. Many of these friendships go back 25 to 35 years. These are the people I call when I'm in a pickle.

***The PEG:* How would you define your leadership style?**

CP Transparent and approachable. I believe leaders should share as much information as possible with others. This is particularly important when a decision has to be made, and you are not available. Someone needs that knowledge and understanding, so those who fill in for you are confident — and you are confident that good decisions are made.

Listening is also important. I'm always interested in what others are thinking. Learning new ideas and approaches is a passion of mine.

It is important to me to know what needs to be done, and why. I'm very outcome focused. I like to have targets identified so you know when you hit them, or when you need to make adjustments.

***The PEG:* When you aren't volunteering for APEGA, what keeps you busy?**

CP With the summer here, I enjoy being outdoors. I love working in my yard, planting annuals, and creating enjoyable spaces to read a book, rest in the sun, or entertain a guest or two. And of course, I am always up for a round of golf.

Year round, on weekends, my husband and I enjoy walking to our favourite coffee shop in the mornings. If it's too cold, we head to the gym at Servus Credit Union Place in St. Albert. Going to movies and plays is also a favourite pastime, especially with family and friends. I enjoy going to hockey games, especially when the Edmonton Oilers win! I am also an Edmonton Eskimos fan and like get to a few of their games.

In my past, I've volunteered for Edmonton Meals on Wheels, Habitat for Humanity and the Edmonton Food Bank. I found this to be immensely rewarding. Meeting new people while supporting a worthy cause energizes me. What I can offer these organizations is simple — a bit of my time, knowledge, and skill.

***The PEG:* Is there anything you want to say that we haven't mentioned?**

CP This spring, I was honoured to accept two awards on behalf of APEGA and Professional Engineers in Alberta. In March, the Alberta Council of Technologies presented its first Innovation Award to all Alberta Professional Engineers for the significant contributions that professionals give to Alberta each and every day.

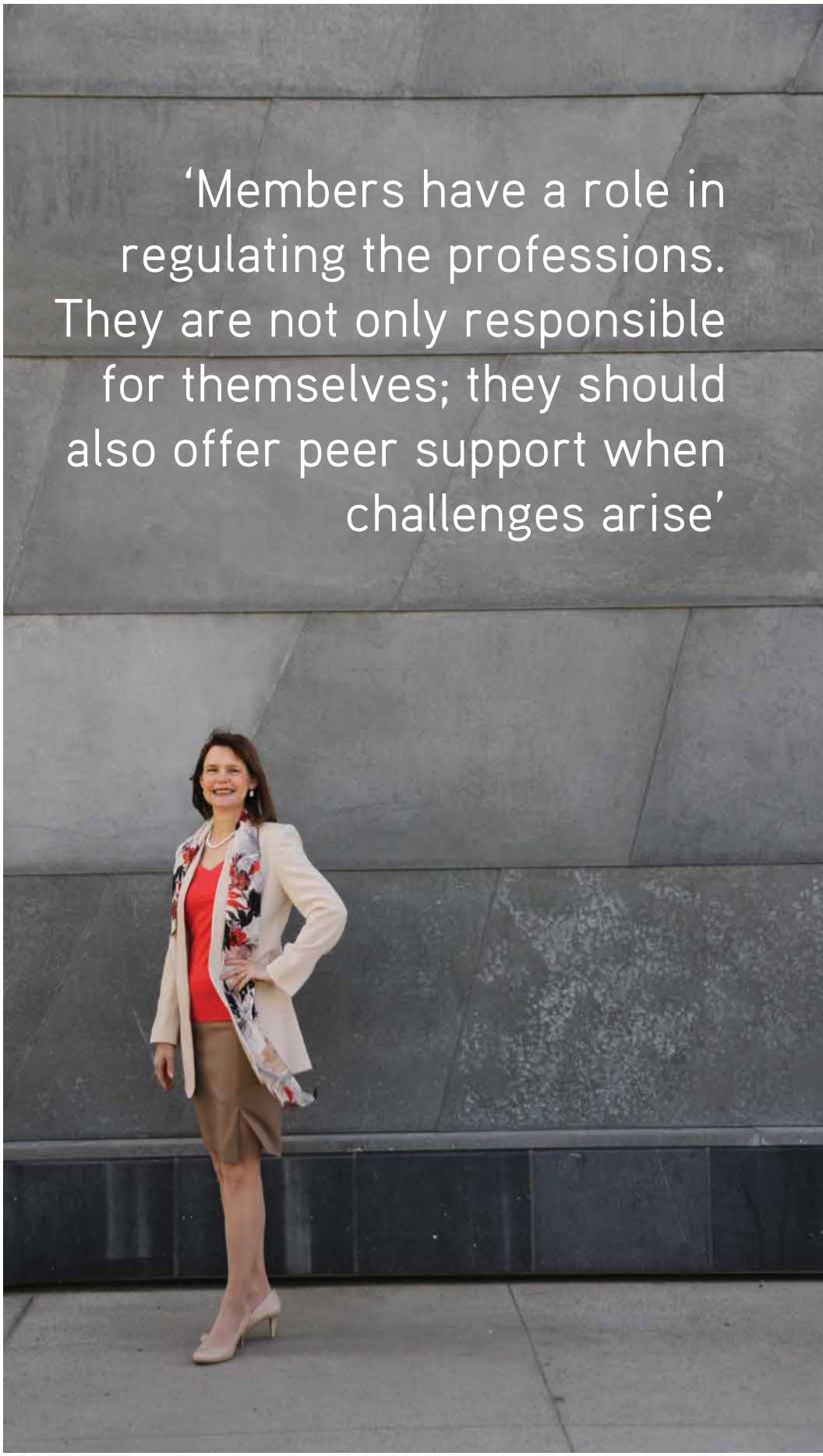
And in May, the Canadian Society of Petroleum Geologists presented APEGA its prestigious Partner Tracks Award, recognizing APEGA's role in regulating geoscientists, and ensuring they are legally and ethically committed to applying and maintaining their knowledge. This is a partnership that benefits all Albertans, one that has lasted for almost a century, and it is the basis for the CSPG award to APEGA.

Also, I've had the privilege of attending many AGMs for other societies and professions. I'm always impressed by their commitment to the public interest. Some of them have also called out APEGA as a model to aspire to.

Two other organizations I would like to mention are Engineers Canada and Geoscientists Canada. Both of these organizations represent the national faces of our professions. As APEGA President, I've had the honour of attending some of their events and business activities.

I'm in awe at these sessions. It is amazing to me to see how these individuals represent the vast knowledge and expertise that changes not only our province, but also our country and the world.

Serving APEGA Members and Albertans as the President of APEGA is the greatest honour and privilege of my career so far. I can't imagine what would top it. Thank you!



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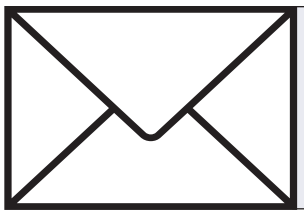
Readers' Forum



Readers' Forum submissions should be emailed to George Lee, *PEG* Editor, at **glee@apega.ca.** Please limit them to 300 words or less. Longer letters are printed at the discretion of the editor. Letters may be edited for brevity, taste, clarity, and legality. Please note: Readers' Forum items are treated as opinions and therefore are NOT peer reviewed. They do not necessarily reflect the views of APEGA Council, Executive Committee, or staff.

✉ PROFESSIONALS NEED BETTER COMMUNICATION SKILLS — AND HERE'S A GREAT PATH

No matter how ingenious your ideas are, for them to be implemented, you must persuade others to adopt them. Often, those who need persuading are not technical types but do hold the purse strings.

Through its network of clubs, Toastmasters International has successfully helped people improve their speaking and presentation skills for 90 years. There are about 70 in Calgary alone. A club provides a friendly, supportive atmosphere for you to become a better communicator. Although the club provides guidance manuals, you choose your own topics and words. Club colleagues are your audience, providing evaluation and feedback. You develop at your own pace.

As a mining engineer in a consultant firm, my Toastmasters experience has been invaluable. I learned to speak confidently at project meetings and with clients. I learned that structure, in both oral and written reports, is an essential part of communication. This helped my report writing and boosted client confidence. At a small gathering to honour new APEGA Life Members, I was the only one who responded to a call for a story from my engineering experience.

A club meeting includes an impromptu speaking session. Members are chosen to speak briefly on a given topic. This is not easy for beginners, but the skill can be developed. It's good practice for question-and-answer sessions at technical presentations. Some clubs include a business meeting in their agenda. This is when parliamentary procedure and chairing a meeting are practised — important skills for Professional Engineers assuming management roles.

Each club has a name. It may be a breakfast club, a noon-hour club or an evening club. Some clubs are company clubs, open only to the company's employees. There are clubs related to professions — the Calgary Society of Petroleum Engineers has one, for example. You can attend a club as a guest, at no cost, to see if it's to your liking. Every club has its own flavour, so check out a few before committing.

Membership fees vary according to the cost of the meeting place. Company-provided meeting places usually mean lower fees. Toastmasters is, in my opinion, the most effective and lowest-cost speaking and presentation training available.

To find clubs near you, visit d42tm.org. My own club, the 3,500 Foot Club in Calgary, meets on Wednesdays at 6:30 p.m. at St. Andrew's Centre on Southport Road SW. The centre is a 10-minute walk from the Anderson LRT Station. We have four Professional Engineers in our club — we'd love to have more.

ANTONY STRICKLAND, *P.ENG.*
Life Member
Calgary

✉ TANK CARS — CONTINUING THE DISCUSSION

Re: Tank Cars Present a Design Challenge, Readers' Forum, The PEG, *Winter 2014, and various responses, Readers' Forum,* The PEG, *Spring 2015.*

My letter suggesting that Professional Engineers have another look at our current tank car designs brought a good response. I am glad to be able to reply to some of the remarks.

Jim Blum, P.Eng., of Calgary, notes that the problem of curves can be ameliorated by the conical design of bogey wheels. On a curve, the one-piece wheelset slides outwards by centrifugal force until the outer wheel's flange rubs the outer rail, and the different rail contact diameters provide for different peripheral distances travelled.

It's only a partial solution, though. There are problems. What's called hunting oscillation, or the swaying motion of a train, occurs at higher speeds. On a long curve, wheel flanges will hammer the outer rail, bounce off, and return, usually at a cycle frequency related to train speed. This may account in some measure for rail failures.

Jim Benedict, P.Eng., also of Calgary, suggests that sloshing may result from my proposed egg-shaped tank, resulting in dangerous interior gas formation. Perhaps a cross-section of an equilateral triangle, with well-rounded corners, would make for less sloshing than would a cylinder,

which allows cyclical flow patterns to occur. Better beam strength, too.

Harald Witzler, P.Eng., of Sherwood Park, cites ease of service and reliability of the one-piece wheel sets. However, a big extra stock of wheel sets is needed, since if one wheel bearing goes, both wheels must be replaced.

To achieve the same lateral strength that two-wheel sets have, one could mount long-stemmed, single-wheel axles two together on one side of the bogey, and two apart on the other side, which would let every wheel turn at its own rotational speed. Better traction over muskeg based tracks, too.

Managers of the rail line to Churchill, Man., recently refused to carry crude oil. They chose grain as a cargo. It was easier to clean up after a wheat spill.

Calgary's Jason Arnot, P.Eng., is not concerned about a high centre of gravity and cites the use of double-stack container trains. Tipping stability of tank cars carrying dilbit and heavy oils is of major concern to shippers. It seems as dangerous as pipeline breaks. Tank cars have a fulcrum base much narrower than the track gage. It is really the width of the vertical bearing which allows the wheel carriage to swivel on turns.

What about my offhand remark about swayback older tank cars? I meant sagging by stress creep of the unsupported long tanks. The Transportation Safety Board of Canada also wants thicker steel specified for tank cars as quickly as possible. And Mr. Arnot's point about the higher cost of better train speed does not factor into oil market urgency.

Canada is a huge country, and good train transport policies can help us prosper.

HENRY A. SPENCER, *P.ENG.*
Life Member
Edmonton

✉ EARTHQUAKE-DAMAGED SCHOOL IN NEPAL NEEDS HELP

Recent earthquakes in Nepal have left a trail of devastation, with 15,000 schools out of action. Among these is Shree Mangal Dvip Boarding School, serving impoverished Himalayan families.

There had been little earthquake awareness at the school until the Canadian resident director was contacted about the need for strengthening buildings and training children and staff. Of the five school buildings, the four-storey dormitory building was selected for a retrofit due to its physical characteristics and the vulnerability of the several hundred children crammed within its walls.

During 2006 several Stantec engineers volunteered design time, producing detailed plans under the guidance of Antoni Kowalczewski, P.Eng., of Janto Engineering Inc. Funds were raised by individual donations and in 2007 a first phase was carried out, strengthening the stairwell and replacing with reinforced concrete the weak brick infill between columns on the ground floor.

Of the five buildings, three were badly damaged in the recent earthquakes, but there is no cracking of the dormitory, which had the potential of going down like a deck of cards.

There is now an urgent need for an assessment of the buildings and it is hoped that a volunteer can travel to Nepal and spend time at the school doing this. We are looking for help in any way, including technical input and, of course, direct donations through a Canadian or U.S. charity serving the school. Please note that students and staff have been able to assist local residents and also to send aid to remote villages.

For more information, please contact me at 780-504-1055 or amgmitch@gmail.com.

ANDREW MITCHELL, *P.ENG.*
Life Member
Edmonton

The Buzz

CALGARY HITS HIGH NOTE WITH NEW OPERA AND PERFORMING ARTS CENTRES

Wagner will meet the Wild West when the Calgary Stampede and Calgary Opera "pardner" up to build a $33-million opera centre on the Calgary Stampede Youth Campus near 12th Avenue and Fifth Street SE. Scheduled to open in 2017, the opera centre will form part of a new arts hub in the heart of the city, close to the new National Music Centre and the new Central Library.

Plans for the youth campus already include an arts academy charter school, a school of performing arts, and other cultural venues. The opera centre will also pony-up space for Calgary Opera's Emerging Artists Program, two rehearsal spaces — one of which converts into a 300-seat theatre — and shared space for non-profit and youth organizations.

Another Calgary performing arts venue, The Bella, will open its doors in September at Mount Royal University's Conservatory. The $90-million venue will include 43 soundproofed practice studios, an early childhood instructional suite, six rehearsal halls, and a 773-seat concert hall, whose ceiling sound reflector panels evoke the petals of Alberta's official flower, the wild rose.

-Jacqueline Louie

TRADES AND TECHNOLOGY EDUCATION GROWS IN LETHBRIDGE

Construction of a 15,000-square-metre Trades and Technology Facility at Lethbridge College is on schedule, with phase one — the Crooks Schools of Transportation — set to open in September. It will house the school's automotive service technician, parts technician, agriculture and heavy equipment technician classrooms. The second phase, which involves demolishing part of an existing structure, will open two years later. It will be home to the wind turbine technology, engineering design, geomatics, civil engineering, electrical, welding, and interior design programs.

The $65-million expansion will accommodate an additional 880 students, bringing the college's trades and technology capacity to 2,300 spaces.

COMING UP ROSES
The Bella concert hall at Mount Royal University will feature a sound reflector on the ceiling evoking the petals of Alberta's official flower, the wild rose.
-photo courtesy Mount Royal University

The building's structure is concrete, steel, glulam beams and columns, enveloped by brick and glazing and a thermoplastic polyolefin roof.

APEGA's Lethbridge Branch Members got a sneak peek of the LEED-certified facility during a lunch-and-learn tour at the end of May.

-Corinne Lutter

A FUNICULAR FIRST
Although the specific location is still being finalized, the funicular car proposed for Edmonton's North Saskatchewan River Valley would take riders down the river's north bank along a 55-metre track.
-photo courtesy City of Edmonton

EDMONTON FUNICULAR WOULD BE A FIRST FOR ALBERTA

Construction of Alberta's first funicular could start later this year, if Edmonton city council gives the final go-ahead. The $24-million project would improve access to the North Saskatchewan River Valley down its high, steep slopes.

A funicular car on a 55-metre track would travel below the Hotel McDonald on the river's north bank. The car would be self-operated, with room for up to four passengers, two bicycles, and a trailer. It would run year-round, at no cost to users.

The city held open houses this spring asking for the public's input on the funicular's exact location and design. Money for the project has been approved — with funding from three levels of government and the River Valley Alliance — but the plan still needs council support.

It's part of a long-term project to improve access to the river valley, including new docks and boat launches.

-Caitlin Crawshaw

FLAMES HOPE TO SCORE BIG WITH PROPOSED MULTI-SPORT COMPLEX

The Edmonton Oilers' $480-million new home is well on its way. Now, the team's rival to the south is looking for its own new sports complex. The Calgary Flames have big plans for the future — and not just for hockey, but also for football and other sports in the city.

The organization is exploring options to build a multi-sport complex just west of the city's downtown core, with a new hockey arena, a football stadium, and an amateur sports fieldhouse for soccer, track, and other sports.

The proposed location is 16th Street and Bow Trail SW in the city's West Village, on a four-hectare site recently purchased by the City of Calgary. The Flames' current home, the Scotiabank Saddledome built in 1983, is among the National Hockey League's oldest arenas.

-Jacqueline Louie

MEDICINE HAT EVENT CENTRE ROARS INTO HOME STRETCH

Edmonton and Calgary aren't the only Alberta cities with a love for hockey. In Medicine Hat, the Western Hockey League's Medicine Hat Tigers will soon move into a bigger, more modern arena, in the Box Springs Business Park.

Construction is wrapping up on a $75-million Regional Event Centre, which is on track for an August opening. The multi-use centre will also host concerts, trade shows, figure skating, and curling events. It's LEED Silver Certified, with seating for up to 7,000 at concerts. The old Medicine Hat Arena, built in 1970, seats 4,000 and will still be used by the community.

-Corinne Lutter

MEDICINE HAT SCORES NEW ARENA
Fans will soon cheer on the Medicine Hat Tigers in a new $75-million Regional Events Centre, with game-day seating for up to 6,100 people.
-photo courtesy City of Medicine Hat

U OF A RESEARCHERS DRIVING EFFORTS TO BRING HYDROGEN VEHICLES TO MARKET

As countries around the world struggle to reduce carbon emissions, the race is on to find greener transportation options. Engineering researchers at the University of Alberta want to see hydrogen vehicles make it to the finish line.

Hydrogen fuel-cell technology isn't new — but it's been too costly to bring to market. Dr. Marc Secanell Gallart, P.Eng., who directs the university's Energy Systems Design Laboratory, is finding ways to lower costs by reducing the amount of platinum needed. This rare and expensive metal acts as a catalyst in the chemical reaction that creates electricity from hydrogen.

He's been collaborating with Mercedes Benz and Ford, which have both used his research to release hydrogen vehicles on a small scale. The companies plan to expand their offerings in the next couple of years as hydrogen fill-up stations become more common. Hydrogen vehicles run five-times longer than battery-pack electric cars and are refueled quicker — in just a few minutes, rather than the 30 minutes to several hours needed to charge electric cars.

You may have read about Dr. Secanell Gallart in the *The PEG* before — he received the 2013 APEGA Early Accomplishment Summit Award.

-Caitlin Crawshaw

TWISTED GIRDERS TEMPORARILY HALT BRIDGE CONSTRUCTION

Construction of Edmonton's new 102nd Avenue bridge came to a sudden halt in March when four of seven steel girders being installed to support the bridge deck buckled. Project contractor Graham Construction brought in cranes to support the weight of the 100 metre-long bridge while crews braced and straightened the girders. Groat Road — a major commuter route below the bridge — was shut down for two weeks while the work was done.

After an inspection, the city and contractors determined the girders could be safely removed, repaired, and reinstalled. That work was done in May. Cold and heat processes were used to straighten three of the damaged girders and restore the horizontal and vertical alignments. The manufacturer also cut off a section of a top flange on a fourth girder. There's still no word what caused the girders to buckle.

The $32-million bridge, originally scheduled to open this fall, will replace a structure built in 1910.

It's not the only new bridge causing the city headaches. In early April, the city announced that its new Walterdale Bridge, now under construction, will open a year late. The reason: steel to build the bridge was delivered months behind schedule. It, too, was originally set to open this fall.

-Caitlin Crawshaw

PETFOOD INNOVATION CENTRE: SERVING UP FRESH EATS FOR FIDO AND FIFI

Alberta's eat local movement is going to the dogs — and cats. Champion Petfoods is set to open its new, $5.9-million BAFRINO Research and Innovation Centre in the town of Morinville, about 30 kilometres north of Edmonton. BAFRINO is an acronym for the company's motto: Biologically appropriate, fresh regional ingredients, never outsourced.

Researchers at the 9,500-square-foot lab, next to the company's existing manufacturing plant, will be cooking

-artist rendering courtesy Diamond Schmitt Architects

-photo courtesy Lethbridge College

CONCRETE AND COLUMNS
The new Trades and Technology Facility at Lethbridge College is LEED-certified and built with concrete, steel, glulam beams and columns, enveloped by brick and glazing and a thermoplastic polyolefin roof. The first phase of the $65 million building is on schedule for a September opening.

up healthier pet food formulas that include more fresh, locally sourced meats. The company will work closely with researchers at the University of Alberta's Agri-Food Discovery Place, which is home to a new, pilot-scale food extruder, partially funded by Champion. The university's extruder is for the test production of food from new recipes.

-Corinne Lutter

GIRLS WITH GEAR: EPIC SNORKEL RELAY STUDIES EFFECTS OF CLIMATE CHANGE IN THE ARCTIC

Last summer, Susan Eaton, P.Geol., P.Geoph., snorkeled the frigid waters off Labrador and Greenland to study climate change in the Arctic. Now, she's preparing for a second expedition to Nunavut in the summer of 2016, followed by a 3,000-kilometre snorkel relay of the Canadian Northwest Passage in 2017.

Ms. Eaton is the co-founder and leader of the Sedna Epic Expedition, an international team of female scientists, explorers, journalists, movie makers, snorkelers, and scuba diving professionals. Their research will help raise awareness of climate change and its impacts on the Arctic ecosystem and the local Inuit people. On the ground, team members will record the climate change observations of elders. In the water, they'll observe Arctic wildlife in its natural habitat. They'll keep warm in the -2 C waters with the help of dry suits and they'll propel themselves alongside icebergs with the help of dive scooters and flippers.

Ms. Eaton spoke about the expedition at the Alberta Women's Science Network (AWSN) inaugural awards gala at the University of Calgary in March.

-Jacqueline Louie

NATURAL GAS PLANT SHEPARDS IN NEW ERA OF CLEANER ENERGY

Alberta's newest and largest gas-fueled power plant became fully operational in mid-March. The Shepard Energy Centre, east of Calgary, adds more than 800 megawatts of electricity to the province's grid. That's enough to power about half of Calgary.

The project was developed by ENMAX and Capital Power. In a news release, the energy giants describe the plant as "an important step in Alberta's transition away from aging coal-fired generation facilities."

The facility is about 30 per cent more efficient than conventional coal plants, with less than half the CO_2 emissions. It's also the first in Alberta to use reclaimed water for power production. Its cooling towers use 14 million litres of reclaimed water a day from Calgary's Bonnybrook Wastewater Treatment Plant.

-Corinne Lutter

WORLD WATCH

BY **GAIL HELGASON**
Freelance Contributor

IT'S A BLIMP! NO, IT'S A BAT!

New technology being developed by Altaeros Energies is taking wind turbines to new heights. The Buoyant Airborne Turbine (BAT) can reach altitudes of 600 metres, the National Science Foundation (Arlington, Virginia) reports. Tethers hold it in place and transmit power to a mobile ground station.

Many wind turbine manufacturers are racing to build higher turbines to tap the faster, more powerful winds above 150 metres. With its airborne ability, BAT can generate more than double the energy of similar ground turbines. An innovative control system automatically adjusts altitude for optimum power output.

A key BAT advantage is its potential to bring affordable wind energy to areas off the grid, where expensive diesel generators are typically used.

Altaeros, founded at the Massachusetts Institute of Technology, recently received US $7 million from the National Science Foundation for continued BAT development.

PROJECT CONVERTS TIDAL POWER INTO ELECTRICITY

An innovative project in the United Kingdom to harness power from incoming tides will require grand-scale engineering, reports the BBC (London). Tidal Lagoon Power's lagoon power plants — the first in the world — will capture incoming and outgoing tides behind large sea walls, using the water's weight to power turbines.

Six new lagoons are planned in Wales and England at a cost of £30 billion, or around CAN $40.5 billion. They could generate about eight per cent of the United Kingdom's electricity. The company hopes to start construction of its first lagoon later this year.

KNOT MACHINE CAN REALLY TIE ONE ON — NECKTIES, THAT IS

Ever think of applying your engineering expertise to neckties? Why Knot? That, in fact, is the name of an unusual contraption Seth Goldstein built after he retired 13 years ago, reports the *New York Times.*

Mr. Goldstein, who has four degrees in mechanical and electrical engineering, built the machine to tie a four-in-hand necktie knot. Ten electric motors drive 10 mechanisms that grasp, pull, align, and wind the lengths of the tie — on the machine, not on a person.

The device is just one of dozens Mr. Goldstein has developed since retiring from the National Institutes of Health in Maryland. His goal: to push engineering envelopes and inspire young engineers to do the same.

FIRST ROUND-THE-WORLD SOLAR FLIGHT NOW IN PROGRESS

The world's first around-the-world flight by a solar-powered plane is now in progress, the *Associated Press* reports. The journey of Solar Impulse 2 started March 8 and is expected to wrap up by the end of July. Abu Dhabi is the departure and landing site. Stops include Asia, the United States, Southern Europe, and North Africa.

The 35,000-km trip is the most ambitious solar flight ever mounted.

LIKE A BAT IN A SHELL
The Buoyant Airborne Turbine (BAT) consists of a lightweight three-blade wind turbine within a helium-filled shell made from industrial fabrics that lift the turbine up and stabilize it in the air.
-artist rendering courtesy Valentin Angerer

The carbon-fibre plane is equipped with 17,000 fuel cells in the wing, supplying four electric motors with energy. Lithium batteries recharge during the day, allowing unlimited night flight.

Solar Impulse founders André Borschberg and Bertrand Piccard, of Switzerland, are trading off pilot duties.

NICARAGUA'S CANAL WILL BE THREE TIMES AS LONG AS PANAMA'S

Work has begun in Nicaragua on a controversial 278-kilometre canal which will be three times longer than the 77-kilometre Panama Canal. *Scientific American* (New York) says that the Nicaraguan Grand Canal, being built at a cost of about US $50 billion, will be between 230 to 520 metres wide and 27 metres deep.

A large portion of the canal will go through Lake Nicaragua, Central America's largest tropical lake. There are concerns about the lack of environmental impact studies for a project that cuts through forests, wetlands, and other ecologically sensitive areas.

The contractor is Hong Kong Nicaragua Canal Development. Construction is expected to take five years, with completion in 2020.

PREDICTABLE POWER

Swansea Bay in the United Kingdom will be home to the world's first energy-generating lagoon, which will produce enough power for more than 155,000 homes and last 120 years. An arts and cultural centre is proposed along the 9.5-kilometre-long seawall, which can also be used for activities like cycling and fishing. An added bonus: the lagoon will be a safe harbour for swimming, rowing, and sailing.

HOPPED A HYPERLOOP LATELY?

Test tracks are in development in California and Texas for supersonic Hyperloop passenger trains that will hurtle travellers along at speeds up to 1,200 kilometres an hour. Fans and magnets would propel elevated passenger pods along the tracks through low-pressure pneumatic tubes, *Canadian Consulting Engineer* reports.

The Hyperloop is the vision of SpaceX and Tesla Motors entrepreneur Elon Musk, who unveiled his idea in 2013. He invited anyone who was interested to develop the concept further. Several entrepreneurs and engineers have taken up that challenge. Two companies have proposed test sites in California, while Mr. Musk himself says he's also planning one in Texas.

MOSCOW-TO-BEIJING RAIL LINK SLASHES TRAVEL TIMES

Speaking of high-speed transport, it will soon take just 48 hours to travel between Moscow and Beijing on a new high-speed railway, says the *Engineering News-Record* (New York).

An agreement has been signed to construct a 7,000-kilometre rail link between the two cities, at an estimated cost of US $230 billion. Four national agencies, two each from both Russia and China, will lead the project. Currently, the Moscow-Beijing rail trip takes seven days.

-artist rendering courtesy Tidal Lagoon Power

Movers&Shakers

COMPILED AND WRITTEN BY
GILLIAN BENNETT
The PEG

SCHULICH STUDENT TEAM TOPS PETROBOWL QUALIFIERS

Name the main stationary and moving parts of a progressive cavity pump. Can you do it? A team from the University of Calgary did (the answer is stator and rotor) and their expertise secured them a first-place win at the Society of Petroleum Engineers North American Regional Petrobowl Qualifiers. APEGA university student members **Jennifer Gee, Julian Nunez**, and **Keith Letendre**, and fellow classmate Jordan Bowie, travelled to Norman, Oklahoma, in February, where they were pitted against 20 of the top petroleum engineering universities from across North America.

The Petroleum and Energy Society (PES) on the U of C campus has been sending teams to the Petrobowl for the past seven years. With limited time to prepare, the team considered itself underdogs going into the competition. But the students' work experience — gained through oil and gas internships — combined with their academic knowledge and technical insight, helped them gain a competitive edge. This is the first year a Schulich team has won, and it's the only Canadian team going to the Petrobowl championship finals in September.

The competition was a one-day event and followed a single-elimination process. Players buzzed in, Jeopardy-style, to answer questions covering technical and historical knowledge of the oil and gas industry.

Ms. Gee is currently interning at **Encana Corporation** in operations, production, and completions engineering. Mr. Bowie worked in exploitation engineering at **ARC Resources Ltd.**, and Mr. Nunez finished a 16-month stint with **Cenovus Energy Inc.** in production and process engineering. Mr. Letendre worked at MAN Diesel in gas turbine engineering and at Turbo in Switzerland. All members of the team are active in extracurricular and volunteer roles. Ms. Gee is President of PES this year, Mr. Letendre has a council position, and Mr. Nunez is Vice-President of Marketing and Growth. Mr. Letendre was also the President of the U of C's Chemical Engineering Student Society (CESS), for which Mr. Bowie also held council positions. It's easy to see how the students crossed paths to form their team.

They will be studying hard this summer to compete at the finals in Houston in September, and they look forward to continuing their success.

A ROLE MODEL AND STAR FOR STEM

You could not out-volunteer **Ingrid Pederson, P.Eng.**, even if you tried. The Women in Scholarship, Engineering, Science & Technology (WISEST) board member and APEGA outreach volunteer gives her time to promote science, technology, engineering and math (STEM) to young women, and is involved in various forms of mentorship. She was recently honoured with two awards for her efforts: the Stars of Alberta Volunteer Award and the Alberta Women's Science Network (AWSN) Minerva Mentoring Award for Women in Science and Innovation.

Movers & Shakers

STUDENTS SWEEP PETROBOWL
Four students from the Schulich School of Engineering beat out teams from across North America at the SPE North American Regional Petrobowl Qualifiers in Oklahoma. From left are Jennifer Gee, Julian Nunez, Jordan Bowie, and Keith Letendre.
-photo courtesy Schulich School of Engineering

Ms. Pederson did not take a regular route to become a Professional Engineer. She began her career in tourism but soon desired a bigger challenge. After graduating from Dalhousie University in Halifax with a chemical engineering degree, she worked as a field engineer for **Schlumberger Canada Ltd.** Working testing, completions, and hydraulic fracturing, she travelled the globe, with stops including Russia, Europe, Africa, the Persian Gulf, and the Gulf of Mexico. After moving to Edmonton she joined **Enbridge Pipelines**, where she works as a senior engineer.

Ms. Pederson is devoted to encouraging young women to pursue STEM careers. In 2014 alone, she contributed over 300 hours of volunteer service. As chair of the WISEST Program Committee and a member of the WISEST Board, she directs many outreach programs and events, as well as a diverse group of volunteers, which includes university students, academics, and industry professionals. Colleagues say that she embodies the word mentor, doing nothing for gratitude and everything for her passion in helping others excel.

CEA SHOWCASES APEGA MEMBERS FOR THEIR SERVICE AND INNOVATION

The Consulting Engineers of Alberta held its 2015 Showcase Awards in February and four outstanding APEGA Members were recognized.

Let's start with **Roman Wozniak** (P.Eng. — 1967-2015) and his long-time colleague **Gary Mack, P.Eng.** Both received the Lieutenant Governor's Award for Distinguished Service.

Mr. Wozniak is a patient man. His work on the transportation utility corridors around Edmonton and Calgary spanned decades — he waited 30 years before seeing the start of construction. *Alberta Innovators* reports Mr. Wozniak grew up near Wanham, Alberta, and attended Mount Royal College in Calgary before moving to Oklahoma to pursue baseball and a civil engineering degree. After graduating he moved back to Canada and settled in Toronto, working in the engineering divisions of several large insurance companies. He saw an ad for highway engineering in Alberta and started working for a company that would eventually become **ISL Engineering.**

Mr. Wozniak contributed to many important projects with ISL, working with clients to design innovative infrastructure that serves the community. Most notable was his work on the transportation and utility corridors — Anthony Henday Drive in Edmonton and Stoney Trail in Calgary. Mr. Wozniak was pivotal in laying the groundwork for these major road networks. In 1998, Mr. Wozniak retired, handing over the reins to his long-time partner, Mr. Mack, whom he hired in 1986.

Mr. Mack grew up in Bonnyville and graduated from the University of Alberta with a civil engineering degree. His career started at the **City of Edmonton**, in the engineering department in roadway design. After three years, he decided to broaden his horizons and began a consulting engineering job with Delcan — which would become part of ISL.

Mr. Mack was President and CEO of ISL for 12 years, and worked on projects such as the 23rd Avenue-Gateway Boulevard interchange and Walterdale Bridge in Edmonton, and the Parsons Creek interchange in Fort McMurray. He was involved with developing design standards for transportation engineering, and he created a manual of design guidelines for transportation infrastructure used across the country to promote safety.

Today, Mr. Mack is senior project manager at ISL, continuing where Mr. Wozniak left off. ISL has gone from a company of less than 50 employees to over 375, specializing in 10 professional disciplines.

The next award recipient is someone with a notable career in consulting engineering — who was just elected to APEGA Council. **Jennifer Enns, P.Eng.**, received the CEA President's Award.

Ms. Enns came to Canada in 1972 from England and completed a civil engineering degree at Carleton University in Ottawa. She began working for Bell Canada before moving into consulting and other endeavors. She eventually moved to Calgary and in 2006 became Leader of Professional Practice in the Transportation Planning Department of the **City of Calgary,** for which she oversaw the growth of the E.I.T. Rotation Program. The program is now one of the largest and best-in-class in the country.

Ms. Enns is currently Manager of the city's Corporate Engineering and Energy Services team, providing engineering support for over $750 million in buildings. Her team implements sustainable energy solutions for the city, including the purchasing of 100 per cent green electricity and maintaining the city's Sustainable Building Policy. She works collaboratively with industry, sharing her expertise on engineering service procurement and the use of Qualifications Based Selection (QBS).

A frequent volunteer, Ms. Enns donates her time as a judge for the CEA Awards and student science fairs. She has served on APEGA's Practice Review Board and as APEGA's representative

CHANGING THE LANDSCAPE
Ingrid Pederson, P.Eng., is passionate about getting more women into the fields of science, technology, engineering and math. A tireless volunteer, she won two awards this year in recognition of her efforts. From left to right are AWSN Co-President (Edmonton) Dr. Shoma Sinha, P.Eng., Ingrid Pederson, P.Eng., Dr. Linda Reha-Krantz and AWSN Co-President (Calgary) Alicia Bjarnason, P.Geol.
-photo courtesy AWSN

on the University of Calgary's Schulich School of Engineering Faculty Council.

The fourth CEA award recipient is **Owen Mierke, P.Eng.**, who received the Harold L. Morrison Rising Young Professional Award. Despite his young age, he's wasted no time in gaining extensive experience in municipal consulting and construction. As a student at the University of Saskatchewan, Mr. Mierke spent summers working for **Associated Engineering** in construction inspection and administration. After graduating with a degree in civil engineering, he started with the company full time and is now Project Manager, Northern Infrastructure Group.

A colleague noted that Mr. Mierke's communication and project management skills are well beyond his years of experience. He has worked on the Highway 69 water supply line, the TaigaNova Eco-Industrial Park for the Wood Buffalo Housing and Development Corporation, and a subdivision expansion for the Fort Mackay First Nations. In

ON WITH THE SHOWCASE AWARDS
Four APEGA Members received honours at the Consulting Engineers of Alberta Showcase Awards. Top left: Gary Mack, P.Eng., left, and Roman Wozniak (P.Eng. — 1967-2015); top right: Jennifer Enns, P.Eng.; bottom: Owen Mierke, P.Eng., were all recognized for their contributions to engineering.
-photo courtesy Consulting Engineers of Alberta

Movers & Shakers

NORM BARTLEY, P.ENG. . .
. . . the right way to teach

2014 he won the Northwest Chapter Trenchless Project of the Year Award from the North American Society for Trenchless Technology.

CONNECTING STUDENTS WITH CONCEPTS

"Teaching keeps me young," says **Norm Bartley, P.Eng.**, in a University of Calgary news story. It may be his youthful attitude that allows him to connect so well with his students, going the extra mile to present complex concepts in a simple way. A senior instructor at the Schulich School of Engineering, he was honoured with a 2015 University of Calgary Teaching Award.

After completing his bachelor's and master's degrees from the U of C, Mr. Bartley stayed on as a research engineer and part-time instructor. In 1998 he became a senior instructor in the Department of Electrical and Computer Engineering, and was appointed Program Director in 2010.

With more than 15 years of full-time teaching under his belt, Mr. Bartley has honed his ability to connect with students through his great sense of humour, engaging lab assignments, and infamous colour-coded notes. He teaches classes of up to 200 students, helping them understand how to build an electrical circuit, or figure out how a computer processes information.

Mr. Bartley's award nomination was supported by Dean **Bill Rosehart, P.Eng.**, as well as **Ron Hugo, P.Eng.**, Associate Dean of Teaching and Learning. Along with his instructor responsibilities, Mr. Bartley is an examiner and member of supervision committees for thesis and candidacy examinations. He supervises over 25 undergraduate project teams and is a mentor for over 100 undergraduate students participating in the Engineering Internship Program.

E.I.T. GOES OUT ON A LIMB

Katherine Evans, E.I.T., is a master's student in mechanical engineering and volunteers as a mentor with groups such as DiscoverE, Let's Talk Science, and Women in Scholarship, Engineering, Science & Technology (WISEST). And in her spare time, she works to improve bionic limbs. In March she received the Graduate Student Service Award from the Graduate Students' Association, as well as the Leonard E. Gads Teaching Assistant Award.

Ms. Evans is part of the Bionic Limbs for Improved Natural Control (BLINC) lab at the University of Alberta. The lab consists of an interdisciplinary team working to improve the control and performance of robotic prostheses. Ms. Evans is studying a novel method to provide the sensation of touch to people with amputations, by way of a small, inexpensive, non-invasive device.

The service award recognized her volunteer contributions both on and off campus. A longtime mentor with groups promoting science and engineering to children, she's also the youngest member of the Women in APEGA group, which focuses on improving the retention of women in engineering

KATHERINE EVANS, E.I.T. . .
. . . volunteer, mentor, bionic limb maker

and geoscience. Her community service doesn't end there. She also volunteers for the First LEGO League, the Edmonton Regional Science Fair, and APEGA science nights. She is a Graduate Students' Association outreach coordinator and helps facilitate various campus outreach initiatives, such as the WP Wagner High School mentorship program.

Ms. Evans' other awards include the 2011 Joseph Beggs Foundation for Kinematics Undergraduate Prize in Mechanical Engineering, and an Alberta Graduate Citizenship Award in 2013.

COST OF ONE USED MICROSCOPE: $50 — INVESTMENT IN A YOUNG MENTEE: PRICELESS

Not many 12-year-olds have industrial-strength microscopes at home to examine their prized rock and fossil specimens. But **Emily Schellenberg** did, thanks to a special Christmas present from her uncle, **Tom Sneddon, P.Geo., FGC.** It's just one way Mr. Sneddon, APEGA's Director of Geoscience, encouraged her love of geology as she was growing up. Today, she's about to enter her fourth year as a geology undergrad at Calgary's Mount Royal University.

She's just one of many young people Mr. Sneddon has inspired over the years to explore careers in geoscience, both through his volunteer work and in his former APEGA position, Director of Geoscience and Outreach.

His commitment was recognized by the Alberta Women's Science Network (AWSN) at its inaugural awards gala in March, where he was presented with a mentoring award for his volunteer support of AWSN and its Power to Choose program. The program connects Aboriginal youth to science mentors and raises their awareness about science careers, through events and summer camps.

Mr. Sneddon has strong ties to several First Nations communities in Alberta. His adopted sister, Theresa Schellenberg — Emily's mom — is from the Swan River First Nation near Slave Lake in northern Alberta. He worked closely with Duncan's First Nation, near Peace River, when he was employed in the area on a mining prospect around 2003, and talked to young people on the reserve about geoscience careers. It's a connection that continues today, as Duncan's and other First Nations look for hints on how to set up their own mentoring programs or benefit from APEGA's Aboriginal initiatives.

Mr. Sneddon also received a CSPG Service Award in May from the Canadian Society of Petroleum Geologists (CSPG) for his continued service to the society's Honorary Address committee. The committee organizes annual speaker events to engage and educate youth, and the general public, about Earth science. He's been an active volunteer with

CSPG on various other committees, and he enjoys helping out at conferences and on field trips.

Mr. Sneddon has more than 30 years' experience in environmental science and geology, oil and gas prospect development, and minerals exploration and development. He joined APEGA in 2008 as the Manager of Geoscience Affairs, and recently took on the role of Director of Geoscience in APEGA's Regulatory Group. He has a bachelor's degree in geography from University of Calgary and a M.Sc. in water resources (Department of Civil Engineering) from the University of Alberta.

RESEARCHER REDUCES WASTE, ONE MINE AT A TIME

Diamond mining has provided a boost to the economies of the Northwest Territories and indigenous communities, but the resulting mine waste can affect fish and aquatic life for hundreds of years after a mine has closed. **David Sego, P.Eng.**, was part of a team that undertook a decade-long research project to protect the environment from diamond mine waste. Its work has earned the team the Synergy Award for Innovation from the Natural Sciences, Engineering and Research Council.

Dr. Sego is a professor in civil and environmental engineering at the University of Alberta, and an internationally recognized expert on mine waste remediation. The Diavik Waste Rock Research Project was a 10-year, multidisciplinary collaboration of three Canadian universities and engineers at the Diavik Diamond Mine.

The research team looked at ways of protecting groundwater from toxic mining waste, reports the U of A. The long-term benefits of diamond mining depend on the minimization and prevention of acid rock drainage. Mine wastes containing sulfide minerals can, when exposed to air and water, form acidic water that is harmful to fish and other aquatic life. Once the research team determined the cause of the waste, they worked to find ways of predicting its effects on the environment. New analytical techniques, such as synchrotron X-rays, helped enhance the biological and geochemical processes used to control the formation of acid rock drainage in waste rock piles.

TOM SNEDDON, P.GEO. . .
. . .connecting Aboriginal students with science

Results from their work convinced regulators to reduce the amount of Diavik's security deposit — something companies must provide so that resources to close a mine will be available in the future.

Dr. Sego has previously been a volunteer on the APEGA Board of Examiners and is currently a member of the U of A's Vice-President's Committee on Northern Research.

WHO'S MOVING WHERE

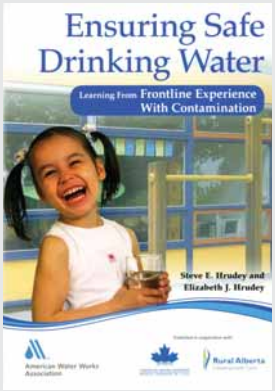
Leah Lawrence, P.Eng., FEC, FGC (Hon.), has been appointed President and CEO of Sustainable Development Technology Canada. Ms. Lawrence, a former APEGA president, has held a range of senior leadership positions in corporate and non-profit sectors.

Vincent Cheung, P.Eng., has been appointed to the Board of Directors of Vital Energy Corporation. Mr. Cheung has 37 years of experience in the oil and gas industry in both technical and management positions.

Syncrude Canada Ltd. has announced the appointment of **Chris Wolfe, P.Eng.**, to Vice-President of Technical Operations Support. With 30 years of experience, Mr. Wolfe was most recently Engineering Manager for Imperial Oil's downstream division in Calgary.

Steven Dew, P.Eng., has been named the University of Alberta's new Provost and Vice-President (Academic), effective July 1. Dr. Dew is an award-winning professor and researcher, and has been Associate Dean in the Faculty of Engineering and a professor in electrical and computer engineering at the U of A.

Ensuring Safe Drinking Water: Learning From Frontline Experience With Contamination



By Dr. Steve E. Hrudey, P.Eng., FCAE, and Elizabeth J. Hrudey

Available through the American Water Works Association (awwa.org)
US $48 (AWWA members),
US $62 (non-members)

Canadians trust that drinking a glass of tap water won't result in a trip to the emergency room — or worse. Fortunately, most municipalities in Canada have first-rate water treatment technology and cases of contaminated drinking water are rare. But as authors Dr. Steve E. Hrudey, P.Eng., FCAE, and his wife, Elizabeth J. Hrudey, note in their new book, *Ensuring Safe Drinking Water: Learning From Frontline Experience With Contamination*, human and technological failures do happen.

In this book, 21 case studies are examined, including 10 waterborne disease outbreaks, seven chemical contaminations, and four close calls. Where possible, the book is written through the eyes of frontline personnel who were involved as events unfolded.

"Basically, what did they know and when did they know it? This is not published in regular literature. This is stuff that you dig out from people's filing cabinets," Dr. Hrudey tells the American Water Works Association in a video interview on its website. "After the fact, everybody gets to be a Monday-morning quarterback and say, You should have known better. But until you see what was happening through the eyes of the people experiencing it, you don't understand it."

Two high-profile cases from Canada are examined in the book: the May 2000 *E. coli* outbreak in Walkerton, Ont., which killed seven people and made another 2,300 ill, and a cryptosporidium parasite outbreak less than a year later in North Battleford, Sask., that left up to 7,000 people ill and many hospitalized.

But Canada certainly isn't the only developed nation to experience tainted water scandals. The book looks at cases from across the world, including the United States, Scotland, Finland, Switzerland, England, Sweden, and Australia. Twelve of these cases occurred after the Walkerton tragedy.

"Humans inevitably make mistakes," write the authors. "The focus of reviewing a failure needs to be on how a system allowed a simple mistake or set of mistakes to have disastrous consequences. If we are to reduce failures and minimize consequences, we must have systems (including effective monitoring checks and balances) that can accommodate human error without allowing catastrophic outcomes."

While the book was written to be an educational tool for frontline waterworks personal, operators and their managers — the people who are directly responsible for delivering safe drinking water to their communities — anyone entrusted with drinking water safety will gain valuable insights and knowledge that could help prevent similar failures in the future. This includes Professional Engineers, regulators, public health officials, utility board members, commissioners, and politicians.

Each case study is presented with a general description of the setting along with:

- an account of events as they unfolded
- a description of what happened, with the benefit of investigation and hindsight
- the consequences
- questions to ponder about how each case applies to the reader
- a list of lessons learned

The authors shine the light on mistakes and examples of human failing, from simple oversights to intentional cover-ups and negligence. In some cases, their analysis also highlights a need for better training and changes to system design or working methods that can prevent incidents from happening.

While each case is unique, similarities do occur. Readers are encouraged to consider what happened in each case and whether it could happen in their own systems.

As the authors explain: "We want to help you avoid the kind of real and practical failures that are documented… The most dangerous reaction you can have is to decide that none of these things could ever happen to you or your system. The specific details of these cases may never occur exactly the same way again, but the common contributing factors pose a risk to any drinking water system."

Microbial pathogens from fecal matter, for example, are a widespread risk. They come from human, pet, livestock, or wildlife waste, and as the authors point out, there's no place on Earth free from them. Chemical contamination, from water treatment chemicals or everyday products like diesel fuel or detergent, are also a common risk to water systems.

Ensuring Safe Drinking Water is a follow-up to the authors' 2004 publication, *Safe Drinking Water: Lessons From Recent Outbreaks in Affluent Nations*, which examined the causes, consequences, and lessons learned from 70 waterborne disease outbreaks in 15 developed nations, including an in-depth analysis of the Walkerton outbreak. The

Readings...continued

first book was targeted at professionals and academics.

Dr. Hrudey, a world-renowned expert on drinking water safety and APEGA's current President-Elect, was a member of the Research Advisory Panel for the resulting Walkerton Inquiry and helped develop recommendations to ensure of the safety of Ontario's water supply. Since then, he's been appointed to several expert panels on safe drinking water, including one looking at safe drinking water for First Nations. He has received several awards for his work, including APEGA's 2013 Research Excellence Summit Award and the 2012 A. P. Black Award of the American Water Works Association. Mrs. Hrudey, who worked as a microbiology technologist at the Alberta Provincial Laboratory of Public Health, has participated in various environmental health risk studies, and co-authored several papers and book chapters on safe drinking water.

-Corinne Lutter

LUNCH MONEY
To the left and right, Lorne White, P.Eng., and Randy Duguay, P.Eng., members of the former CSEM Edmonton chapter, present a cheque for $8,613 to AEF CEO Len Shrimpton, P.Eng., FEC, FGC (Hon.). The money was raised through networking luncheons.
-photo by Corinne Lutter

ON THE HUNT FOR HADROSAURS

Over the past 25 years or so, **Dr. Bert Hunt, P.Eng., FEC, FGC (Hon.)**, has spent countless hours working alongside palaeontologists to unearth the Peace Region's prehistoric secrets. When the new Philip J. Currie Dinosaur Museum opens this fall near Grande Prairie, it will be a thrill for him to see some of the fossils he's helped excavate, restore and find — perhaps a pachyrhinosaurus bone cast or part of a hadrosaur skeleton — put on display.

Even more exciting will be the chance this summer to head back out into the field on more fossil hunting expeditions.

"I can put on my rubber boots, and some mosquito spray, and walk with the crew for hours, up and down the banks of a river or creek, looking for the dinosaur bones of a new species," he says. "We really do have this possibility here because of our unique geological history, which permitted the Peace Region to collect dinosaur and related fossils for a few million years while most of the rest of the province was under salt water."

Dr. Hunt, an engineering instructor at Grande Prairie Regional College (GPRC) and a Member of the APEGA Peace Region Branch Executive, is also on the executive of the Palaeontological Society of the Peace (PSP). Both the college and the society spent more than a decade collaborating with politicians and community members in the hopes of bringing a new dinosaur museum to life. Eventually, the County of Grande Prairie took up the challenge and started fundraising for the project. *Read more about Alberta's badlands and the new museum in Focal Point, starting on page 74.*

PSP and GPRC continue to support local dinosaur research. They are currently doing a major dating research project on the stratigraphy of the area, examining which formations are likely to contain new and unique dinosaur fossils.

APEGA'S MANAGING TRANSITIONS PICKS UP AWSN PARTNERSHIP AWARD

Retention and advancement of women in science and engineering is one of the pillars of the Alberta Women's Science Network (AWSN). It's also one of the end goals of an APEGA resource guide, *Managing Transitions: Before, During and After Leave*, developed two years ago by the Women in APEGA group. The guide helps APEGA Members and their employers plan for smooth leaves of absence — such as maternity leaves — and trouble-free transitions back into the workforce.

At AWSN's inaugural awards gala, held in March at the University of Calgary,

This and That

the committee was honoured with an AWSN Partnership Award for developing the guide, and for its efforts to support the retention of women in science, technology, engineering and math (STEM) professions.

AWSN also presented mentoring awards to **Ingrid Pederson, P.Eng.**, as well as to APEGA's Director of Geoscience **Tom Sneddon, P.Geo, FGC**, and to the APEGA Education Foundation (AEF). *Read more about the awards in Movers & Shakers starting on page 24.*

SPEAKING OF AWARDS

APEGA was also honoured to receive an inaugural Partner Tracks Award from the Canadian Society of Petroleum Geologists (CSPG), at its awards reception in May. The event took place during the annual GeoConvention in Calgary. The award recognizes organizations that have contributed to CSPG's "pre-eminence, welfare and reputation."

APEGA and CSPG have a unique partnership, which dates back to the 1920s. Both organizations have a shared responsibility to ensure that petroleum geoscientists in Alberta are knowledgeable and ethical in their practice. While CSPG focuses on improving the knowledge of its members, APEGA provides the regulatory framework to ensure geoscientists apply and maintain that knowledge.

Also receiving a Partner Tracks Award was Calgary-based software developer geoLOGIC systems ltd., which supplies solutions to the oil and gas industry. For more than a decade, CSPG and geoLOGIC have partnered on dozens of events including technical luncheons, webcasts, holiday socials and golf tournaments.

Tom Sneddon, mentioned in the story above, also received a CSPG Service Award — more on that in Movers & Shakers.

FOR A GOOD CAUSE

For many years, volunteers with the Edmonton chapter of the Canadian Society for Engineering Management (CSEM) held monthly luncheons to recognize local achievements and give members an opportunity to network. When the chapter shut down recently, members decided to donate the funds left in its bank account to a good cause.

In February, members of its executive presented a cheque to the APEGA Education Foundation (AEF) for $8,613. The money will help the foundation fund engineering and geoscience scholarships and outreach programs across Alberta. AEF is a registered charity, operating separately from APEGA.

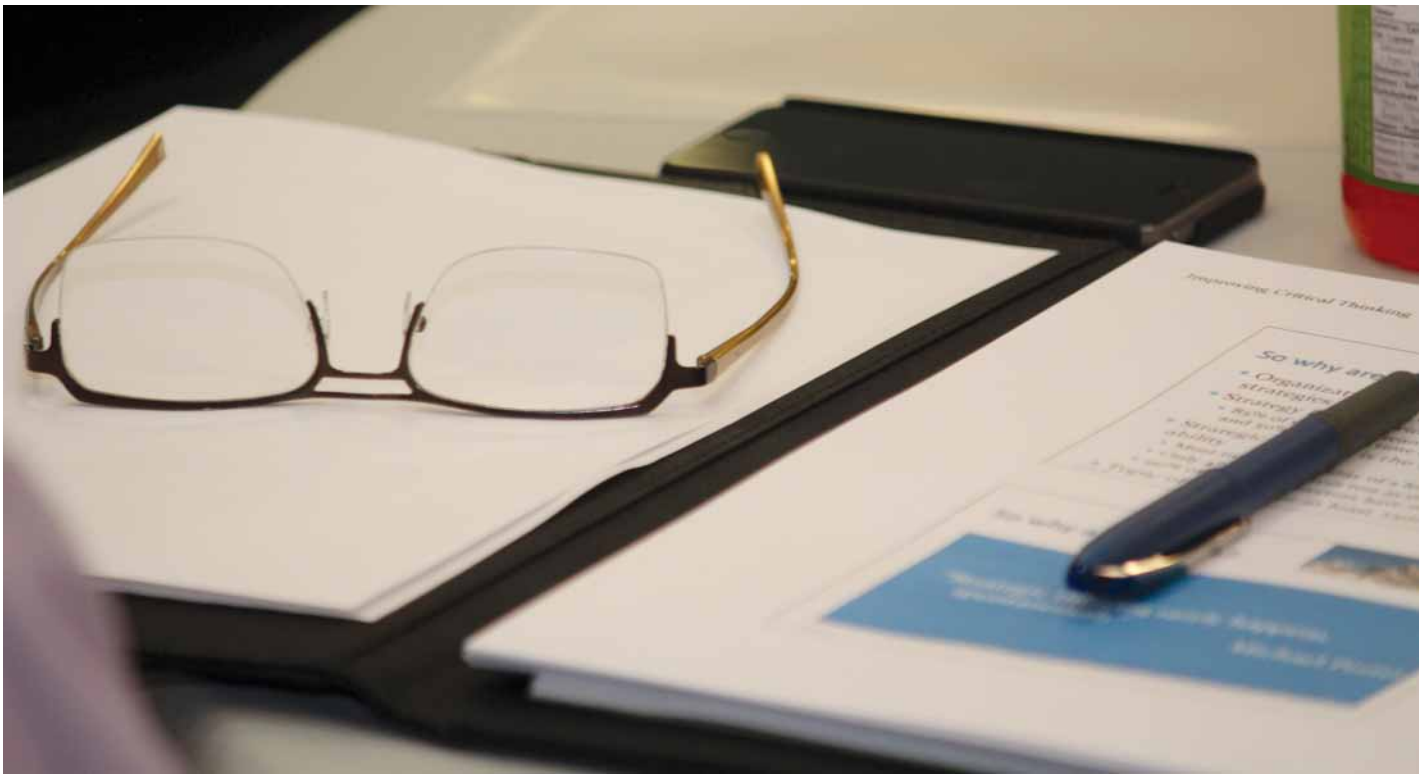
FORE A GOOD CAUSE

AEF was also pleased to accept recent donations from APEGA's Calgary and Edmonton Branches. The money was raised at golf tournaments last summer. Calgary presented a cheque to AEF for $12,056. Edmonton raised $27,414.

There's still time to register for this year's fundraising tournaments. In Edmonton, the tournament is set for August 25 at the Quarry Golf Club, while the Calgary tournament will be September 3 at Lynx Ridge Golf Club. Register online at apega.ca.

Lessons Learned

Eight Takeaways from the Summit 2015 Professional Development Program



Members had a chance to learn new soft and technical skills, refresh their existing knowledge, and network with colleagues new and old, during the APEGA Summit 2015 Annual General Meeting and Conference, April 23 to 24.

Included in this year's conference at the TELUS Convention Centre in Calgary were five streams of professional development over a day and a half. We asked eight participants to share some of their learning highlights.

Here's what they had to say.

1

Michael Boire, P.Eng.
Consultant
IndConEng Consulting
Stream 2: Responsibilities of Self-Regulation

"I'm starting a master's degree in history at the University of Alberta, studying the professionalization of engineering in Alberta, and there's a strong tie in my research to APEGA self-regulation. With APEGA reviewing the *Engineering and Geoscience Professions Act*, this stream is a great fit for me professionally and for my research. My takeaway is a clearer understanding of what self-regulation was in the past, what it is right now, and what we can make it look like in the years to come."

2

Trevor Sawatzky, P.Eng.
Manager, Electrical Engineering
Husky Oil Operations Ltd.
Stream 3: Highlighting Developments in Electrical Engineering

"There are details in design that can burn you if you don't take the time to do them properly. If you look at switching transients in medium voltage applications, for example, a lot of detail goes into that. You have to take the time to look closely at your systems design. The session was more detailed than I get into in my job. But it's very much been worth going to as a reminder."

CONTINUED ON PAGE **38** ››

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Faculty of Applied Science

SAUDER School of Business

CONTINUED FROM PAGE **35** ››

3

Teja Arika, E.I.T.
Pipeline Integrity Engineer
Husky Energy Ltd.
Vermillion River Branch Executive
Stream 1: Strategic Planning

"This session lays out the basics you need to know about analyzing critical situations while integrating business models. This is really important for engineers like myself, handling multiple projects at the same time. The course helps you think like a project manager, with an emphasis on budgets and forecasting. It's an amazing course, actually."

4

Dr. Joanne Phillips, P.Eng.
Vice-President, Engineering
Jay Gee Projects Ltd.
Stream 3: Highlighting Developments in Electrical Engineering

"My takeaway is that it's great to go to these sorts of things. You learn and relearn things, and you run into people you haven't seen in a while, particularly in this stream. This stream is very broad, and it's very good to have a broad perspective. Sometimes when you are into the specifics, you don't see the big picture. Some of it is fun to hear about, even though it's more about what other engineers are doing than it was about my work. But other things were really solid reminders, and I was glad to hear them."

5

Muhammad Ashiq, P.Eng.
Construction Engineer
Alberta Transportation
Peace Region Branch Executive
Stream 2: Responsibilities of Self-Regulation

"I came to learn about how and why APEGA's regulations are implemented. I'm learning things from the very beginning of self-regulation. I only knew a little when I became a P.Eng., from ethics courses. This stream is great on detail, and information is very clear and so are the answers to questions. It's really good background that I didn't have before. A lot of it isn't directly relevant to my job, because I don't, for example, stamp documents. But as a Professional Member of the Association, it's good to know how self-regulation works. I'm also on the executive of the Peace Branch, so it helps me know how we fit into the organization. I'm very comfortable with self-regulation. There's always room for improvement, and I think it's really important that we make things as clear as possible, particularly for the public and employers, when it comes to our professional designations. So it's great that APEGA is reviewing the *Engineering and Geoscience Professions Act*."

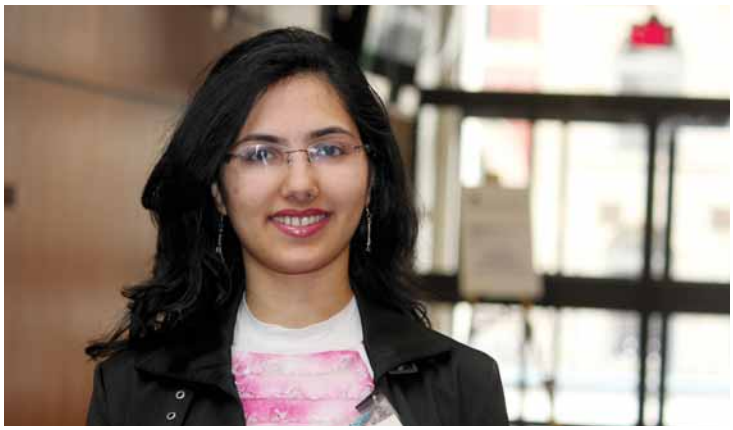
6

Deon H.J. Wilner, P.Eng.
Discipline Lead, Water and Wastewater
ISL Engineering and Land Services Ltd.
President, Consulting Engineers of Alberta
Stream 1: Strategic Planning

"My takeaway is that our industry needs to approach things differently. Our market has changed, and our industries as a whole have changed. The current situation is no longer just a blip. Things are not going to go back to the way they were, the way we have become accustomed to — the recurring five-to-seven-year cycle of challenging times. Strategic plans on the shelf, or SOS, will not serve our firms. A lot of companies have gone through the motions in preparing strategic plans to satisfy internal, regulatory or finance authorities, but these plans were never really adopted or internalized. We need to start thinking five to 10 years out, so we can spend our resources wisely today. North America especially seems to chase the short-term return and has trouble connecting to long-term, sustainable investment in our firms. It takes a long-term plan with long-term goals to be truly sustainable as an industry."

7

Nidhi Pandya, E.I.T.
Wastewater Engineer-in-Training
City of Calgary
Stream 1: Strategic Planning



"This information will help me coordinate tasks between operations, maintenance, and different people on the site, like contractors and consultants. Sometimes you do not know what the border is, between your task and the tasks of other departments. My concern is addressed — we need to communicate and engage. That's my prime takeaway: That you bring everyone in during project planning so that everyone is involved and can give opinions. Some will agree and disagree, but once everyone is on the same page, you can build consensus. You need to address every single risk and issue that you might see, plan, have a backup plan, and be flexible. No plan is set in stone and stays the same throughout the length of a project. And that is the essence of strategic planning. I also learned that we need to be creative thinkers. As engineers, this can be hard, because we are trained to be analytical."

8

Harpiar Gandhi, P.Eng.
Manager of Transportation
Municipal District of Bonnyville
Stream 1: Strategic Planning

"Strategic planning needs to reflect what we actually need to accomplish to reach our organizational goals. If we have a strategic plan that's sitting in my drawer and we're never using it, there's no point having it. It has to be used and maintained and improved. Without that, it's of no use. It should be so relevant that it helps you focus your work. You should want to consult it — not look at it as an afterthought, or try to keep out of mind."

SPONSORSHIP DRIVE

2015 APEGA Calgary Branch Annual Golf Tournament

In order to increase member participation and networking opportunities we are looking at ways to reduce the cost of the golf tournament for APEGA members and their guests. The APEGA Calgary Branch Executive Committee is looking for sponsorship to help achieve this goal. There are many categories available for sponsorship.

Please call the Calgary office at 403-262-7714 for complete sponsorship package details!

The Sponsorship Deadline is July 15, 2015.

APEGA CALGARY BRANCH ANNUAL GOLF TOURNAMENT

Registration is now open!

Lynx Ridge Golf Club › **Thursday, September 3, 2015**
Registration & Driving Range › 1:00 p.m.
Play › 1:30 p.m.
Steak Dinner to follow

Call the Calgary APEGA Office at 403-262-7714 for more information.

APEGA Calgary Branch

COME JOIN US!

The **PEGG Women's Club of Calgary** began in 1944 and is the longest surviving club of its kind in Alberta. Today the Club boasts a membership of close to 200 and at least a third of the membership is actively involved in organizing events and activities.

The Club welcomes women of all ages who are associated with APEGA: practitioners and wives, partners, widows and divorcees of active or retired APEGA members. The purpose of the Club is to promote friendship amongst the members through participation in the Club's many fun and educational events and activities. Each year the Club holds 6 major events. Underpinning the main events are the weekly and monthly activities of the various sub-groups. In addition, one-of-a-kind activities and excursions are offered throughout the year.

The Club also supports the engineering and geosciences professions by donating, annually, two $1,000 bursaries to the University of Calgary benefitting students in the Schulich School of Engineering and Faculty of Science. Over the last 25 years our Club has provided bursaries to the University of Calgary totalling over $47,000.

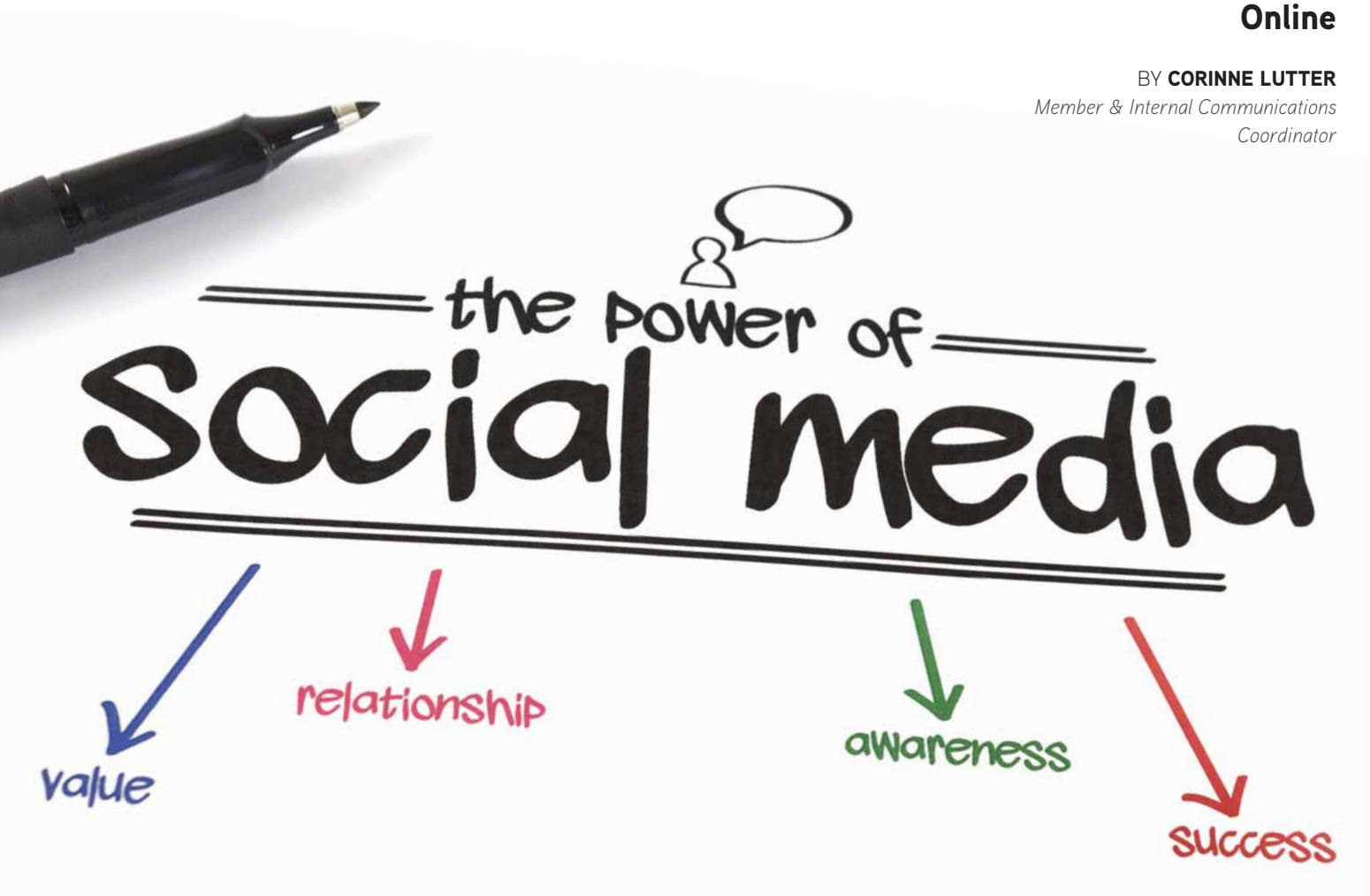
The Club's year starts in September when we hold a membership registration coffee party and welcome new members. The membership fee is $25 annually and this year's coffee party is being held at the Earl Grey Golf Club on Friday September 11th.

www.peggwomen.org Contact us at: **info@peggwomen.org**

Expand Your Network, PART 2

Build Relationships
Build Awareness
Build Success — Online

BY **CORINNE LUTTER**
Member & Internal Communications Coordinator



Editor's note: In the last issue of The PEG*, we looked at the value of face-to-face networking for your career. In this follow-up article, we'll examine strategies for successful social media networking*

Thanks to the growth of social media, it's never been easier to network. While there are many online networking sites to choose from, LinkedIn leads the way. With 364 million users and counting, it's the world's largest professional networking website. If you're one of the 11 million Canadians who have signed up, are you using the site effectively? If you haven't signed up, what are you waiting for?

"Create a profile, even if you're not actively searching for work, because you never know what opportunity might arise," says Julie Barron, an Edmonton-based recruiter with Davies Park, an executive search firm.

Having a strong online presence can lead recruiters and potential contacts straight to you, opening the door to career and business opportunities. A bad online presence can scare them away.

"If you have a well-developed LinkedIn profile and have taken the time to network — both online and offline — recruiters will find you," notes Jennifer Miller, with Calgary-based Professional Edge Resumes, an APEGA group benefit provider. She enhances resumes for clients and also helps them optimize their LinkedIn profiles. "Having a well-written LinkedIn profile is one of the best things you can do to improve your job search. Look at other

profiles for people in your line of work for some inspiration, and make sure your key messages come across clearly."

Think of LinkedIn as a marketing tool for your personal brand. To be successful, you'll need to do more than simply open an account and paste in your resume. Having a strategy will help you stand out from the competition. Following are tips for setting up or improving your LinkedIn profile, although the information could be applied to any professional networking site.

1. PICTURE PERFECT

Your photo is one of the first things people see on your profile. If you don't upload one, you're losing out. LinkedIn statistics show that your profile is 14 times more likely to be viewed if you have a profile picture. Plus, people like to put a face to your name. So make a great first impression and upload a professional image. That means leaving the party, beach, pet, and baby photos for Facebook.

"You have to think about how you want to be perceived at work. I've seen photos be the end of the conversation about a potential candidate," says Ms. Barron.

That doesn't mean you can't show your personality or need to be wearing a suit. Just dress appropriately for your industry. "Showcase who you are as a professional," says Ms. Barron, who has used LinkedIn as part of her recruitment toolkit for several years now.

To stand out, experts also recommend cropping the photo and filling the frame with your face, keeping the background simple and making sure your photo is up-to-date.

2. HEADLINE HELP

The area under your name is called the headline. LinkedIn automatically puts in your current employer and job title, but you can customize it for more impact, says Ms. Miller. "Most people simply list their current job title, but there's room for 120 characters. So expand your headline by including relevant keywords and skills, in addition to your current or desired job title," she says.

Following are a couple of examples from Ms. Miller, adapted from real clients to maintain confidentiality.

- Senior Structural Engineer | Construction Project Management | Design Engineering | Client Engagement
- Mechanical Engineering Professional | Design, Research, and Analysis | Technical Aptitude | Team Leadership

3. SUM IT UP

Following your name and headline is the summary. This is where you tell your story. Make it memorable. Although you can use up to 2,000 characters, many experts recommend keeping it

‘LinkedIn is a stepping stone. It’s a way to make a first connection with someone, a first impression, but then you have to follow through’

JULIE BARRON
recruiter, Davies Park

short enough that it takes less than 30 seconds to read. Speak in the first person, and don’t just list your work history, says Ms. Barron. Explain who you are as a professional, and what you have to offer.

“Your opening statement probably takes the most time to write,” she says. “Share what you’ve accomplished in a way that’s easy to read. It’s an opportunity to connect on a human level.”

You may even want to write it last, after filling out your work history.

Adds Ms. Miller: “The first 100 characters of your summary section are the most important. When a recruiter views a snapshot of your profile, this is what they initially see.”

4. WORK EXPERIENCE AND EDUCATION

Next up, add in your work experience, skills, and education. Include details from your resume or CV, but keep it short and to the point, says Ms. Barron. “You can list all your jobs, and the top things you accomplished in those jobs. If possible, give reasons for your progression and any gaps or short employment,” she says.

You can also add in pictures, videos, documents, or presentations to create an online portfolio showcasing your achievements. “Design the content of your profile to highlight exactly what you feel is most important — special projects, challenging situations, or operational advancements,” adds Ms. Miller.

You can also share more details about your accomplishments, such as volunteer experience, honours and awards, courses or certifications, patents, projects and publications, and languages you speak. To fill out these special sections, click on View More right above the experience section.

5. START CONNECTING

Now that your profile is looking good, it’s time to start building your network. Start connecting with people you know, such as friends, family, colleagues (current and former) and alumni. LinkedIn will also make suggestions on who to connect with, based on your profile information and the connections you make. You can also ask your existing connections for a virtual introduction to people in their networks.

Make sure you take the time to personalize your invitations beyond the generic Please Join My Professional Network. This is especially important if you don’t already have a relationship with the person you’re trying to connect with.

“Why not say, ‘Hi, I’m really interested in such-and-such an opportunity, and would love for you to keep me in mind,’” says Ms. Barron. Keep it brief, and mention if you have any mutual connections, she says.

Be targeted about who you connect with. You should never randomly send out job applications, says Ms. Barron, and you shouldn’t randomly make LinkedIn connections either. It’s about quality, not quantity.

5 TIPS FOR REACHING RECRUITERS

Here are five tips to help job recruiters find you on LinkedIn, courtesy Jennifer Miller of Professional Edge Resumes.

1. Repeat your top keywords throughout the content of your summary and work experience. The more often you list keywords and skills, the higher your rank in a recruiter’s search results.
2. List your email address in your summary to make it as easy for recruiters to contact you.
3. When filling in the company name in your work experience, use the most common and recognizable division name, or the largest part of a conglomerate.
4. When filling in the job title in your work experience, use the most common name for your job function. Don’t use acronyms.
5. Ask current and former coworkers and supervisors for recommendations, not just endorsements. Written recommendations hold much more value than skill endorsements.

Other tips to keep in mind: Don't be aggressive, send multiple messages, or try to sell anything.

6. GET ENGAGED

Another way to build your network is to join LinkedIn groups that are relevant to your industry or profession. APEGA's LinkedIn group, for example, has 16,000 members. Many groups, like APEGA's, have active discussion forums. Get a conversation started by asking advice from experts in your industry, or add value to a conversation by sharing your own experience and knowledge. "You can post interesting articles or participate in discussions, but you want to make sure to keep it professional," says Ms. Barron.

7. THE CLOSER

Once you've built an online relationship with someone, it's OK to request a face-to-face meeting. Keep in mind that contacts may be getting requests for meetings from other people, so let them know how you can help them or how a meeting could be mutually beneficial.

"LinkedIn is a stepping stone. It's a way to make a first connection with someone, a first impression, but then you have to follow through," says Ms. Barron. "It's not enough to make just a really great profile."

TWITTER AND FACEBOOK: OTHER ONLINE OPTIONS

You may want to consider other social media platforms to round out your online networking experience. Sites like Twitter or Facebook have their advantages and disadvantages.

- On Twitter, you can follow companies, clients or experts in your field, share their content and engage them in conversation. If you post your own content, make sure it adds value — random comments about what you had for lunch aren't the best way to establish your expertise. You can direct message people on Twitter: the same rules apply as when connecting on LinkedIn. You can also repurpose your LinkedIn photo and summary for your Twitter bio for consistent messaging.
- Most people use Facebook for staying in touch with friends and family. If you want to use it for networking, make sure there are no photos or posts that you don't want potential employers or business contacts to see. You can adjust your privacy settings to control who sees what by creating a separate list for your professional contacts. Start networking by following the Facebook pages of companies you're interested in, or join Facebook groups related to your profession.

As with LinkedIn, you want to mind your manners on Twitter and Facebook, and control your brand. Always keep your conversations professional and remember that anything you say can be shared across the Internet. If you wouldn't say something at a business lunch, don't say it online.

Nominating Process Begins Now

If you plan to run for next year's APEGA Council, your commitment starts now — about six months earlier than it did in past election cycles. A process endorsed at the last Annual General Meeting means that Members who want to seek election must submit their nominations in time to be considered by the Nominating Committee.

The approved bylaw amendments dramatically change timelines and shift APEGA from a two-step to a one-step process. For the first time, write-in candidates have a chance of being recommended by the Nominating Committee. The committee will also do its own search for potential candidates to endorse, as it has in the past.

The Nominating Committee's job is to recommend the most suitable Members available for Council governance and succession. The changes better equip it to come up with a strategically strong list of candidates. Because write-ins are now part of that up-front process, the Nominating Committee has more candidates to choose from.

The term write-in candidate has become a misnomer. APEGA will no longer publish hardcopy nomination forms for write-ins, because nominations will be accepted electronically through the Member Self-Service Centre at apega.ca.

Names of all qualified and properly nominated candidates will appear on the ballot, regardless of whether they receive Nominating Committee endorsement.

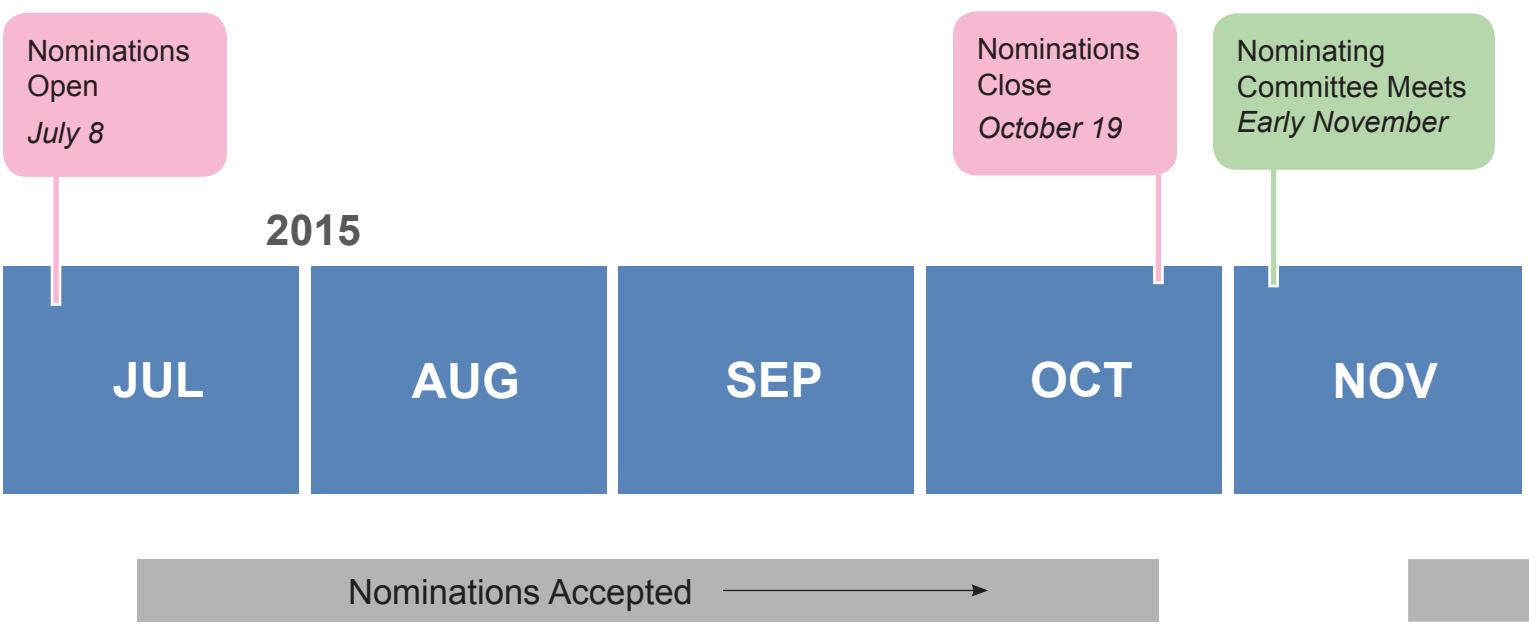
APEGA must receive nominations by October 19, 2015, at 11:59 p.m. That allows time for nominations to reach the Nominating Committee 180 days before the 2016 APEGA Annual General Meeting, a requirement included in the bylaw amendments approved at the AGM.

Members interested in becoming a Councillor should start the process right away. The Member Self-Service Centre will begin accepting nominations on July 8. Nominees will be able to go in and out of the site to develop their nomination in draft, before finalizing it and clicking submit. But once that happens, there's no turning back — the nomination is final and locked from any changes.

Nominees now require the signatures of 25 Professional Members endorsing their candidacy, up from the 10 signatures required in past elections. The collection of signatures takes place digitally, which makes it easier for potential nominees in areas without a large pool of Members.

APEGA plans to run background checks on nominees. That's a term all nominees will need to accept, before clicking submit.

TIMELINE: Nominations and Election 2016



Important Job, Major Commitment

A Guide to What it Takes to be a Good APEGA Councillor

Preparing your nomination takes a lot of work. And if you're elected, that's just the beginning of your three-year commitment.

Before you start, it's a good idea to be certain the job is for you. Following are two lists to help you decide.

TOP SEVEN COUNCILLOR ATTRIBUTES

APEGA surveyed Councillors in May to find out which attributes make a successful and effective Councillor. The more of these that apply to you, the better suited you are for the job.

1. You believe in and support the APEGA Mission
2. You are collegial, with strong interpersonal and teamwork skills
3. You're available. APEGA estimates the time commitment for a Councillor at 20 work days a year.
4. You have passion for the job and you're committed to do it well.
5. You're motived.
6. You have vision.
7. You use discretion.

TOP COUNCIL NEEDS

The main reason the Nominating Committee recommended the new process is to help it identify candidates that fill strategic gaps. In the May survey, APEGA asked Councillors what Council's top needs are.

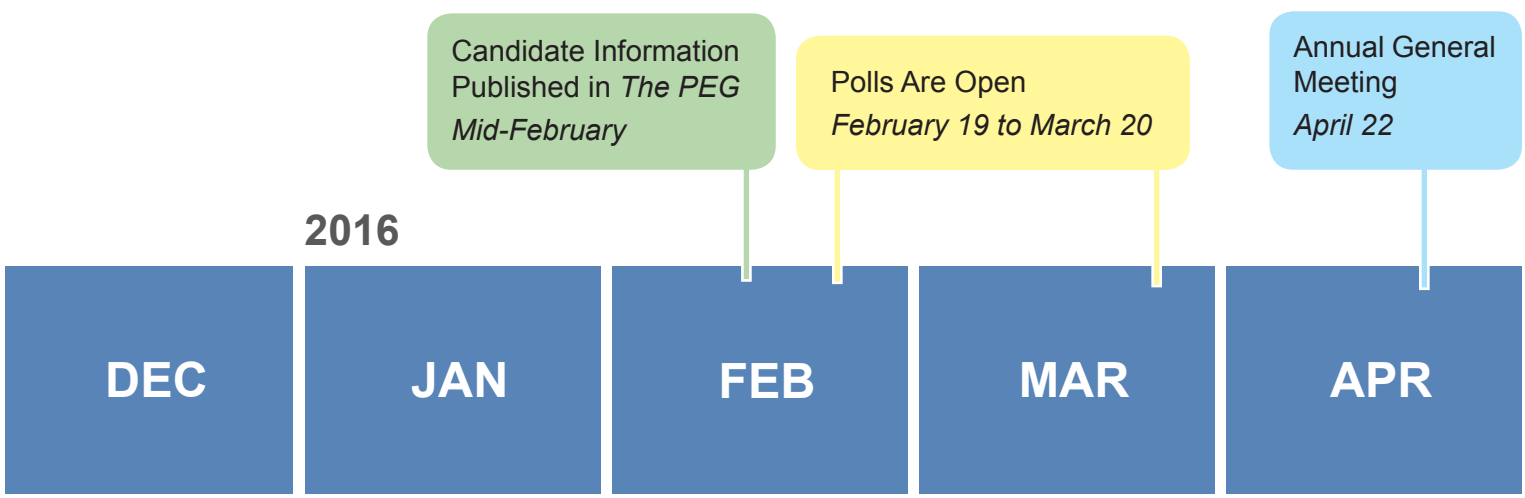
Do any of the following apply to you?

1. You have business and organizational experience.
2. You have governance experience
3. You are knowledgeable on current APEGA issues.
4. You have solid financial literacy.
5. You have strategic planning experience.
6. You have a good understanding of risk management.
7. You have APEGA experience, ASET experience, or both.
8. You are from an under-represented group.

SURFABLE

More about the Duties, Responsibilities and Expectations of Council

apega.ca



Candidate Information Available →

e-PEGs, e-PEG Extras, social media, apega.ca

You're Sure You Want to Run — Now What?

You're a Professional Member in good standing. You've read the other two nomination stories in this section of *The PEG* and looked at the timelines. You've gone online to find out even more about the duties of a Councillor. You're certain that you've got the time, dedication, and personal attributes to be an effective participant in the governance of your professions.

To top it off, you've got a skillset you know will be strategically useful to APEGA Council.

You easily qualify as a candidate. And you also have a good chance of being endorsed by the Nominating Committee. So, what now?

On July 8, you can start the actual process of uploading your nomination materials to the Member Self-Service Centre of apega.ca. Don't expect to finish the job in a few minutes and click submit — this is a step-by-step process with a save draft function, and it requires thought and preparation. You'll need to:

- read the materials on the site
- fulfill the mandatory requirements
- consider the non-mandatory requirements and fulfill those you decide are important
- work offline to get everything ready

You can start right away, before the site goes live.

MANDATORY REQUIREMENTS

- Reach out to 25 Professional Members in good standing to support your nomination. Let them know that they'll be contacted electronically to confirm their support.
- Find or have taken a print-quality, headshot photograph of yourself.
- Write a 750-word personal statement. Make sure it includes the information you think is important that voters know about you.
- To help the Nominating Committee in its review, write an explanation of why you want to run for Council. You can type or copy-and-paste this in, once the nomination site is open.
- Also for the Nominating Committee's review, you will be asked to rate 20-plus skills and attributes from 1 to 7 (1 being lowest, 7 being highest).

NON-MANDATORY REQUIREMENTS

- Polish up your curriculum vitae for submission. *Note: Your CV will be available online for voters to read, but it will not be published in* The PEG.
- Gather any other supporting documents you would like to submit. *Note: This information will be available online for voters to read, but it will not be published in* The PEG.
- Have a video shot of you promoting yourself as a candidate. We recommend keeping it short and to-the-point — up to two minutes long. *Note: We will post the video online.*

Before your materials are accepted for publication and advancement to the Nominating Committee, APEGA will review them for professionalism and appropriateness.

And now — get busy!

Legislative Renewal Gains Momentum

Consultation is underway, and APEGA is seeking feedback on proposed changes to membership categories, delegation of authority, and Alberta Building Code exemptions. Are you taking part in this reimagining of the *Engineering and Geoscience Professions Act*?

FEEDBACK AS IT HAPPENS
Ken Nnamoko, P.Eng., (centre) and Angelina Bakshi, P.Eng., share their thoughts on the legislative review with APEGA's CEO Mark Flint, P.Eng., at a spring consultation session in Edmonton.
-photo by Corinne Lutter

In 1981, Prince Charles and Lady Di were married, MTV was launched, and IBM introduced its first personal computer. It's also the last time the *Engineering and Geoscience Professions Act (EGP Act)* had a major update.

A lot has changed in 30-plus years.

To ensure that the *EGP Act* reflects today's business practices and continues to protect the public interest, APEGA is undertaking a comprehensive, four-year review of the legislation. Developing a simpler, more robust, and more modern Act to regulate the Engineering and Geoscience Professions is a key priority in our strategic plan.

Feedback from stakeholders is an essential part of the process. Consultations began in April, with professional development sessions at APEGA's annual conference. Throughout May and June, APEGA and the Branches have held sessions in a number of communities around Alberta.

"This is a critical moment in APEGA's history, as we move into the 21st century," says Victor Benz, P.Eng. He's one of about 40 Professional Engineers and Geoscientists who make up the champions collaborative.

"We're faced with some rather serious questions that weren't in play the last time the Act was amended — the growth of multi-national companies, for example, and the outsourcing of engineering and geoscience projects overseas. There's also been a rather dramatic change in public expectations," notes Mr. Benz, an engineering consultant from Stony Plain, just west of Edmonton. "We have to recognize the world is changing and we need to change with it."

The collaborative is made up of volunteers from across the province. Champions are engaging APEGA Members and Permit Holders in the legislative renewal process, gathering their input on key issues. Input is also being gathered from other stakeholders, including the Association of Science and Engineering Technology Professionals of Alberta (ASET), the provincial government, regulators in Canada that license Professional Engineers and Geoscientists in other provinces, and other Alberta, self-governing professions.

CONSULTATIONS: ROUND ONE

Stakeholders are being asked to provide insight and support on proposed changes relating to the Member categories of:

- Member-in-Training (M.I.T.)
- Licensee
- Professional Licensee (P.L.)
- Student

APEGA's review team is also looking at:

- Authority to delegate
- Alberta Building Code exemptions

CONTINUED ON NEXT PAGE ››

STAY INFORMED, PROVIDE INPUT

- Review discussion papers on the website.
- Attend APEGA Branch or Permit Holder events and webinars, or meet with the champions collaborative Members face-to-face. Watch for more information about these events through your electronic Branch News, the e-PEG, and the e-PEG Extra.
- Send comments or questions to legislative-review@apega.ca.

Detailed discussion papers on all six topics have been developed, explaining the reasons for the proposed changes. They can be reviewed online at apegalegislativereview.ca.

"These are important building blocks. If we can get agreement on these six topics, then we can move to more difficult questions," says Mr. Benz.

Over the past two years, APEGA's legislative review team has consulted stakeholders and identified about 200 opportunities for renewal. An extensive analysis is in progress to align these opportunities with respective sections of the Act, Regulations, and Bylaws.

APEGA will continue to consult with Members and Permit Holders this fall and throughout 2016, and present more discussion papers on many of these topics.

SHAPING THE PROFESSIONS

The legislative review process will take place in three phases, starting with the *EGP Act*. This will be followed by a review of the Regulations and finally the Bylaws. Proposed revisions of the Act will be presented to Members at APEGA's 2016 Annual General Meeting. Changes to the regulations will be brought to the 2017 AGM, followed by revisions to the bylaws at the 2019 AGM.

The EGP Act is provincial legislation. The changes APEGA proposes to the Government of Alberta will be based on the consultation process, which is why stakeholder input is so vital.

VICTOR BENZ, P.ENG.

ANA MAYUMI TANAKA, E.I.T

Consultations are a way for APEGA Members and Permit Holders to shape the day-to-day practice of the professions for years to come. Decisions made during the review process — if the government accepts them — will define the work professionals can and can't do, and the ethical and professional standards they must meet.

As a longtime APEGA volunteer and a Professional Engineer with almost 40 years of experience, Mr. Benz encourages all Members to participate.

"This affects all Professional Engineers and Geoscientists in Alberta," he says. "The government needs to be clearly shown that we have consulted with our membership, have received feedback, and have responded to that feedback. As a self-governing profession, we need Members to take part and provide us with their feedback."

For Ana Mayumi Tanaka, E.I.T., a mechanical engineer from Brazil, being involved in the review is an opportunity to serve her profession. A Member of the Peace Region Branch, she lives in Grande Prairie and is a volunteer with the champions collaborative.

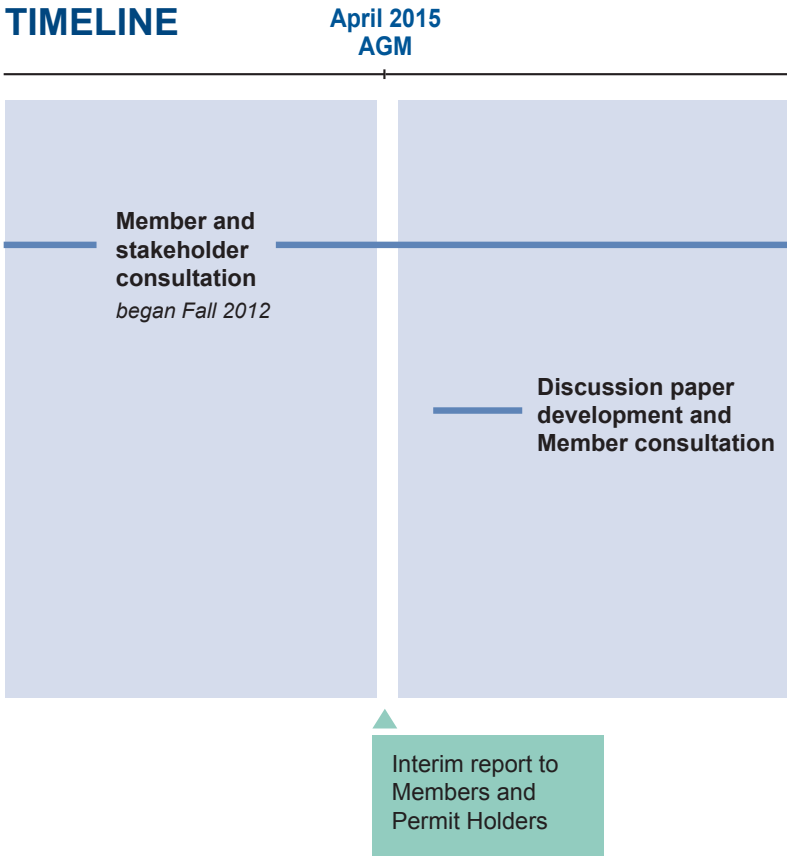
"As an internationally educated engineering graduate, I have a strong desire not just to understand the culture of my new home, Canada, but also the Act, Regulations, and Bylaws that govern my profession," she says. "As an E.I.T., I think it is very important to get involved. One of the proposed changes is to provide M.I.T.s the same governance privileges as Professional Members."

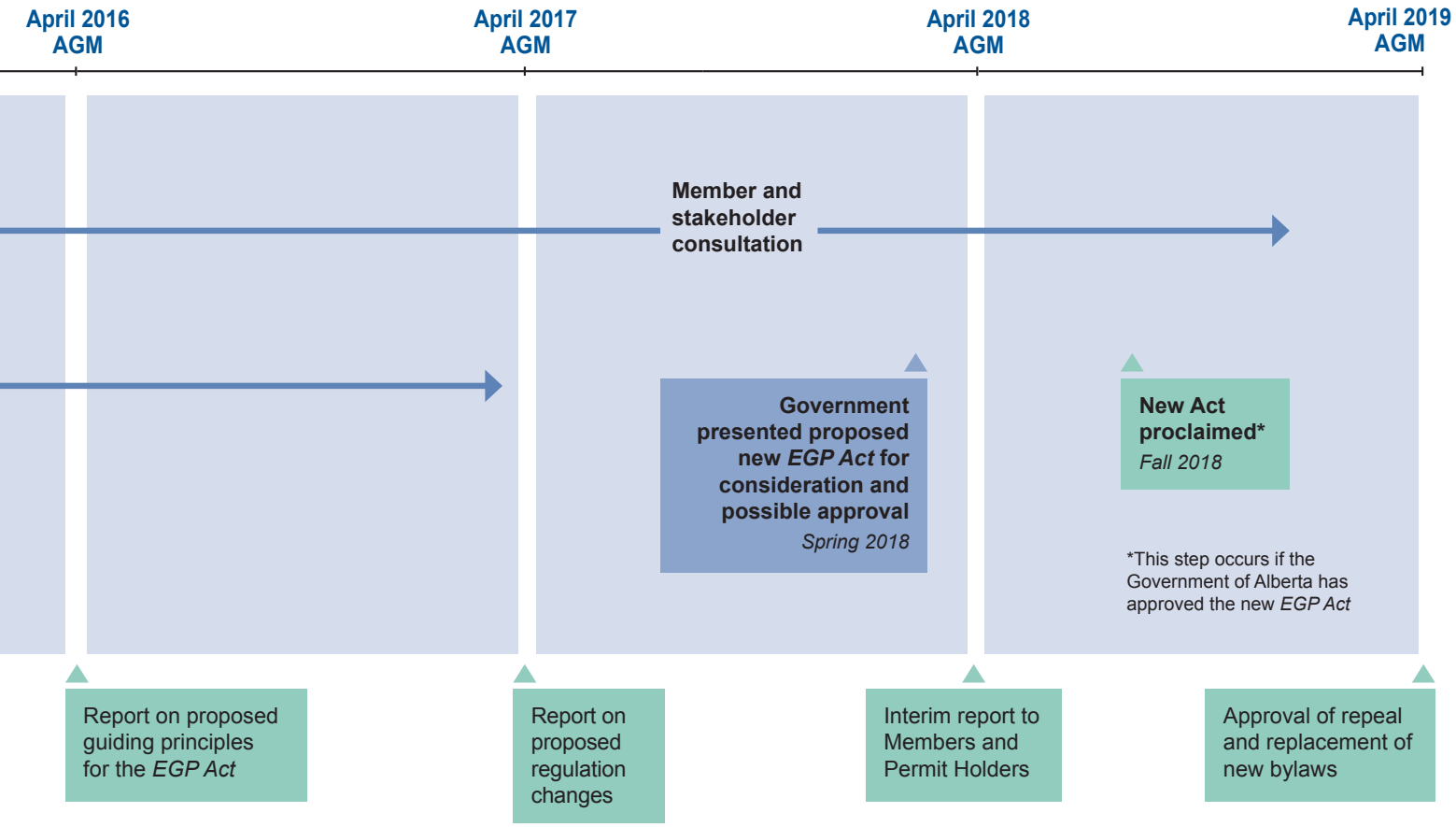
It's been exciting for her to see the process of self-regulation in action, as Members dig into the various issues at hand. In Brazil, engineers are regulated by a national council and don't have the privilege of self-governance.

"I have learned and experienced what being a self-regulating profession means," says Ms. Tanaka. "This is our opportunity to provide relevant feedback on what we would like to see changed in the Act to reflect our current needs."

Updates to the legislation will better serve the public, she says — and ensure that Professional Engineers and Geoscientists "can work more synergistically among themselves."

TIMELINE





SIDEBAR

RECOMMENDED REVISIONS

Changes proposed so far to the *Engineering and Geoscience Professions Act* are outlined below. Detailed discussion papers on all six topics are available at apegalegislativereview.ca.

1. Member-in-Training

- Give M.I.T.s the same privileges as Professional Members regarding voting and running for Council.
- Extend the length of time an individual can remain an M.I.T., in appropriate circumstances, to provide flexibility and recognize unique circumstances.

2. Licensee

- Eliminate the Licensee designation (commonly called Foreign Licensee) so that qualified individuals may be registered as Professional Engineers or Professional Geoscientists, irrespective of Canadian citizenship or permanent resident status.

3. Professional Licensee

- Create a Limited License designation for individuals with engineering or geoscience degrees who do not immediately qualify for P.Eng. or P.Geo. designations — but might otherwise be qualified to practise engineering or geoscience within a limited scope of practice. Existing Professional Licensees would be grandfathered into the new Limited Licence.
- Eliminate the existing Professional Licensee category. All individuals without engineering or geoscience degrees would apply for the Professional Technologist (P.Tech.) designation, administered by ASET and regulated by joint APEGA/ASET statutory boards.

4. Student

Under the current Act, there are two categories of student. One is for individuals enrolled in a full-time program at a university in Alberta leading to an undergraduate degree in engineering or geoscience. The second is for individuals who do not have an undergraduate degree in engineering or geoscience, but do have at least two years of post-secondary education relating to engineering and geoscience.

- Eliminate the second category, which is currently a pathway to licensure.

5. Authority to Delegate

- Expressly authorize APEGA's Council, the Registrar, statutory bodies (the Board of Examiners, the Practice Review Board, the Appeal Board, the Discipline Committee, and the Investigative Committee), and the CEO to delegate their authority and duties within the internal governance structure, as appropriate

6. Building Code Exemptions

- Repeal Alberta Building Code exemptions contained in Section 2(6) and (7) of the *EGP Act* and reference the original source for relevant exemptions. This would not eliminate the exemptions; rather, it would make the Alberta Building Code the sole source of reference for them.

APEGA Tackles Backlog of 10 Appeals

APEGA developed and launched a management process in 2014 to close a backlog of outstanding appeals and improve the timeliness of future appeals. We put key performance indicators (KPIs) in place to monitor this new management system, and now we'd like to let you know how we're doing.

The year 2014 began with an inventory of 10 outstanding appeals, the oldest dating back to December 2009. APEGA usually receives three or four new appeals a year, and 2014 was no exception — three new appeals were requested.

Ten appeals were heard by the APEGA Appeal Board in 2014. The hearing for one outstanding appeal was cancelled, because the request for an appeal was withdrawn.

Where do these appeals come from? Appeals arise from the decisions of four different statutory boards or committees. These are the Board of Examiners, the Discipline Committee, the Practice Review Board, and the Investigative Committee, all of which conduct work that's critical to APEGA's regulatory role.

The Board of Examiners examines and approves licences. The Investigative Committee investigates complaints against Members and Permit Holders. And the Discipline Committee hears cases arising from complaints against Members and Permit Holders, deciding whether they've done anything wrong and, if so, what the consequences are.

The Practice Review Board conducts practice reviews of Permit Holders and individuals.

The Investigative Committee can dismiss a complaint if its investigation finds there's a lack of sufficient evidence to proceed to a full disciplinary hearing in front of the Discipline Committee. In all 10 appeals heard in 2014, complainants were appealing Investigative Committee decisions to dismiss a complaint following an investigation.

The Appeal Board has just two options when an Investigative Committee dismissal is appealed. It can uphold the committee's decision, or it can send the case to the Discipline Committee for a full hearing.

Of the appeals heard in 2014, eight of the Investigative Committee decisions to dismiss were upheld. Two were sent to the Discipline Committee for a full hearing.

The appeals covered a wide range of issues, including disagreements over:

- proper foundation design
- the inspection of housing components
- municipal projects

Here's a takeaway for you. In almost all the cases heard by the Appeal Board, clear and respectful communications were needed at the time issues arose. If the Professional Members and complainants practised this basic business necessity, disagreements would have been minimized, an investigation probably wouldn't have been necessary, and the image of our professions would actually have been enhanced.

The year ended with just three outstanding appeals to be heard in 2015 — compared with 10 at the beginning of 2014.

Your Document Authentication Primer

A stream in the APEGA Summit 2015 professional development program gave APEGA a chance to inform Members about their self-regulatory roles and those of their Association. Under the banner of Responsibilities of Self-Regulation, we defined and explained self-regulation, and briefed participants on our legislative review.

Three topics in the program — which was part of the APEGA Annual General Meeting and Conference, April 23 and 24 in Calgary — related directly to the authentication of documents. We looked at the purpose and requirements of authentication, what authentication means to practising professionals and the public, and what its role is in offshore work and products.

Unsurprisingly, authentication generated a lot of interest. APEGA regularly fields questions on the authentication of documents, which is exactly why we offered the topic at the conference and publish information on it regularly in *The PEG*.

The *Engineering and Geoscience Professions Act (the EGP Act)* establishes APEGA as the authority requiring that documents of a professional nature be authenticated by a practising Professional Engineer, Professional Geoscientist, or Professional Licensee.

This is one of the ways Members and APEGA uphold public safety.

WHEN TO AUTHENTICATE

As a Professional Member, you are allowed to authenticate a professional document if:

- it is prepared by you
- it is prepared by someone under your direct supervision, or
- someone else prepared it but you have performed a thorough review

Your authentication tells anyone else who sees that document that you are completely satisfied with the content and assume full responsibility for it. You are liable for deficiencies that might have gone unchecked or unnoticed.

When a Permit Holder issues a document, it must show the Permit Holder Number and the authentication of a Professional Member in its employ (full time, part time, or contract).

HOW TO AUTHENTICATE

Authentication is made up of three steps:

- applying your stamp or seal to the document
- signing beside or across the stamp without obscuring the Member's name
- applying the date just below the stamp in a format that is not ambiguous

The stamp must be clear and legible.

More than one stamp is sometimes required. In this case, each authenticating professional should clearly indicate in the document the work he or she is taking responsibility for.

Permit Holders take an extra step. They must include their Permit Number, near the stamp or seal and accompanied by words like APEGA Permit to Practice, or APEGA Permit.

Our regulations do not address the issue of who actually prepared final documents (consultant, employee, client). Neither do they address whether documents are intended for internal or external use. They all must be authenticated.

WHAT TO AUTHENTICATE

The Act requires that final professional documents that a Professional Member has prepared or reviewed require authentication. Reproductions or copies also need authentication.

Not all professional documents require authentication. If the documents are not final, or do not contain work of a professional nature, they should not be authenticated. You must never authenticate any document, professional or otherwise, that you have not reviewed and verified.

Occasionally, acts and regulations other than the *EGP Act* require that APEGA Professional Members authenticate documents. This is called demand-side legislation, and it may include work done by qualified persons from other occupations. For our Members, the same principles explained in this article apply.

ELECTRONIC AUTHENTICATION

A growing concern for APEGA and Members is the possibility of losing control of an electronic image. This can result in the unintentional or improper application of stamps and signatures. APEGA recommends that you use encrypted digital signatures and that, for authentication, you do not use electronic image files that you have scanned.

Visit apega.ca for more information on how to obtain your encrypted digital signature.

This article does not address every possible situation you may face, when it comes to authenticating documents. But it does provide a basic understanding.

APEGA guidelines are available on our website, and the Professional Practice Department will help you address your unique needs. Call Ray Choudhury, P.Eng., Director of Professional Practice, or Gavin Chan, P.Eng., Assistant Director, Professional Practice, at 780-426-3990 or, toll free, at 800-661-7020.

Proper Title Use Builds the Value of Your Licence

APEGA's mandate and expertise lie in regulation. We focus on protecting the public by regulating the practices of Professional Engineering and Geoscience within Alberta. This regulatory effort includes ensuring that only those who are competent to practise are issued a licence, and that companies offering engineering or geoscience services are issued a permit.

Much of the value APEGA delivers to Members and the public is through these licences and permits. They allow the public to easily identify individuals and companies who are competent. Members of the public can then engage properly licensed and permitted companies for the work they need done. This is all about trust in the APEGA professions — our reputation as a regulator, and your reputation as a Member.

For our licences and permits to have meaning, there have to be consequences for those who practise without them or imply that they have them when they aren't qualified to practice. That's at the core of APEGA's compliance efforts — to investigate these cases and make sure that individuals and companies that don't comply either change their ways or face the consequences.

It's also part of your obligation as a Member. You need to educate yourself about what titles and company names can and cannot be used and by whom. In this, the Progress and Renewal edition of *The PEG*, we encourage you to renew your understanding of the scope-of-practice and right-to-title provisions in the *Engineering and Geoscience Professions Act (EGP Act)*. You can find the Act online at apega.ca. Section 1, Scope of Practice, gives us our compliance authority.

Many compliance cases deal with misrepresentation or misuse of reserved titles. The purpose of a job title is to give an average person an indication of what type of work you do and are capable of. For example, the title Operations Engineer implies that the employee using it does engineering in the operations area of a company. The average person would expect that this person is qualified to do this work.

If the person holding this title is not licensed, however, using it is a violation the Act. Violations like this are referred to APEGA's Compliance Department. Staff members discover them in their searches of publications and listings, or going about their usual duties.

The next step is working with the person, company or both to make them compliant. If the contravention isn't removed, we take legal action.

Job titles and job descriptions are typically the responsibility of a company's human resources department, in cooperation with management. The title is often not the choice of an individual. Members should take responsibility for their own titles, and also let their companies know the rules. You shouldn't misrepresent your competency, and you should try to get HR practices that aren't compliant changed.

Let's say you are on the way to obtaining a licence and have qualified for APEGA Member-in-Training (M.I.T.) status. You do not yet have the right to practise independently — and your title must reflect this. Although APEGA M.I.T.s have special leave to use titles like Operations Engineer, the title must be qualified.

Following are two examples of title words that are *not* in contravention and therefore *do* comply.

Jane Smith, E.I.T.
Operations Engineer

Jane Smith
Operations Engineer-in-Training

If you are an undergraduate university student, you are not licensed with APEGA as a Member-in-Training or as a Professional Member. That means you are not yet fully competent to practise independently, and you do not have the right to use a title like Operations Engineer.

You have yet to prove your ability and demonstrate your understanding of the ethics associated with professional practice. A suitable job title for your co-op work term would be Operations Co-op Student, clearly indicating to an average person that you are a student and in no way implying that you are a Professional Member.

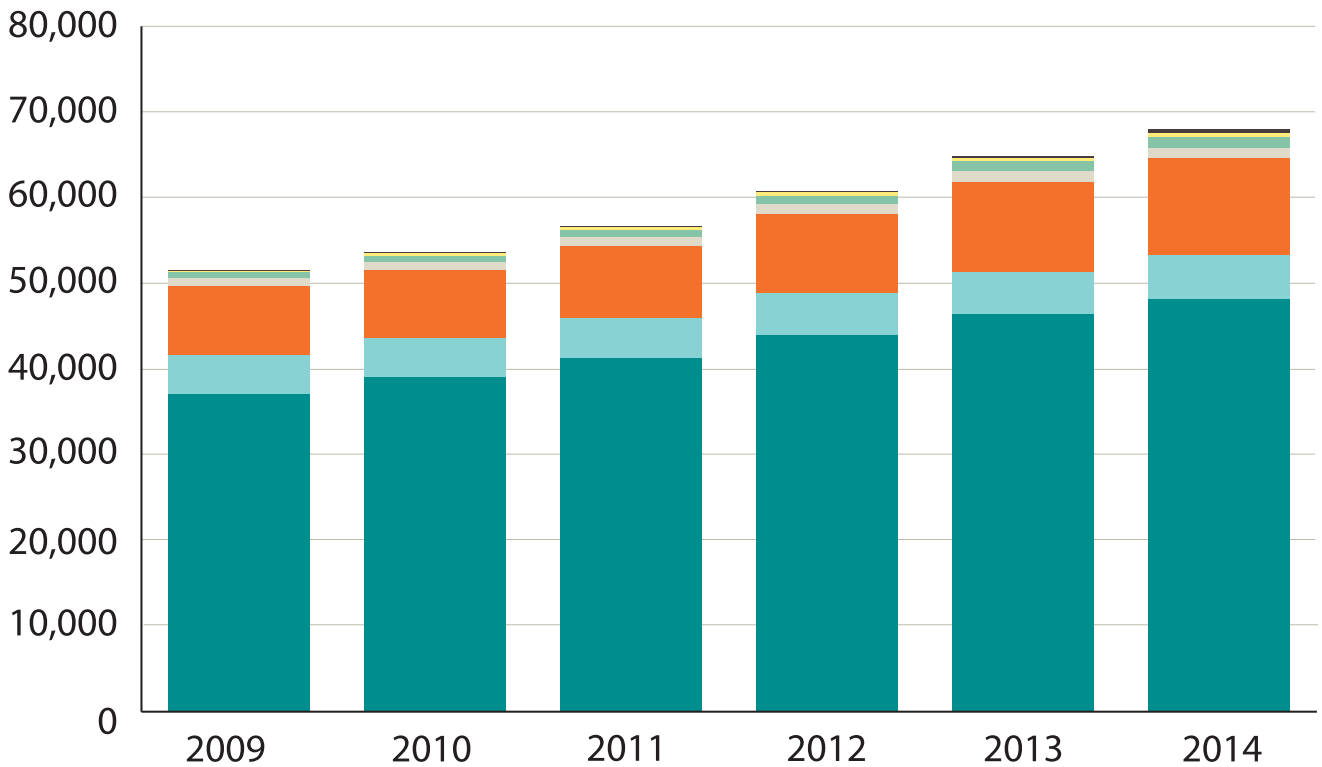
Our approach to compliance is one of education. We want you to fully understand your regulatory obligations and ours.

If you have questions about reserved titles and how they affect your ability to practise, please contact the APEGA Compliance Department. If you would like us to work directly with your company, particularly the departments that influence job titles, we are available. We would rather see fewer compliance cases than more, and we prefer not to take legal action if we can easily resolve issues through cooperation.

If you need to find out if someone is licensed or a company has a permit, use APEGA's searchable directories on our website, apega.ca. These directories contain the names of licensed Members and permit-holding companies in good standing.

Questions or concerns? Contact the APEGA Compliance Department at 780-426-3990 or compliance@apega.ca.

APEGA Membership Breakdown By Designation



*Provisional Licensees have completed all requirements for becoming a Professional Member except one year of equivalent Canadian experience

**Professional Licensees are qualified to take responsibility for their work within restricted scopes of practice

***Foreign Licensees have met all the requirements for Professional Engineering or Geoscience but do not have permanent resident or citizenship status in Canada

NOTE: The above graph does not represent membership in three categories — Exam Candidates, Students, and APEGA Student Advantage Program (ASAP) members

APEGA Refocuses Service Delivery

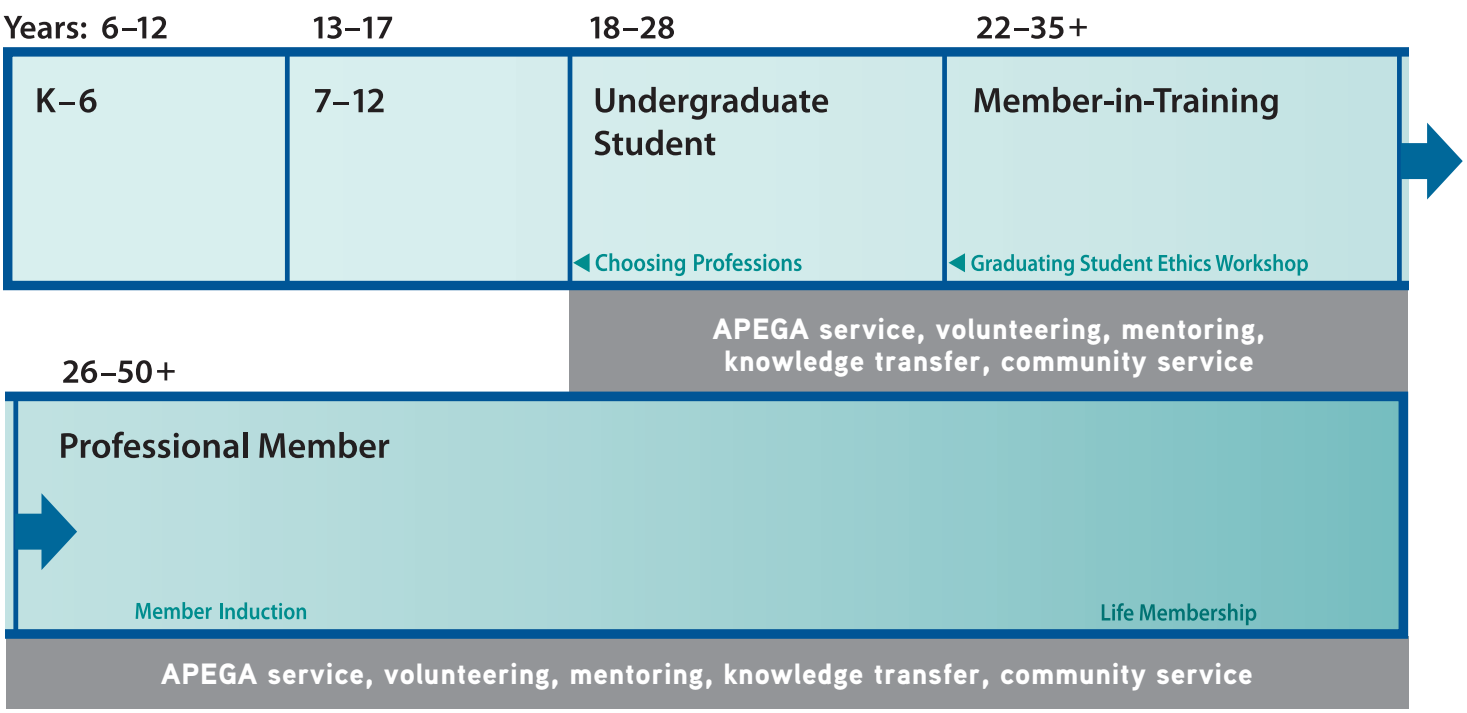
APEGA's Member Services motto is Enriching the Member Experience. From those words plans are underway to ensure all our services are relevant to Members' needs, wherever they are in their Member lifecycle.

To make sure we're accomplishing this to the best of our abilities, APEGA began refocusing its delivery of services to Members in 2014. The process continues in 2015.

HIGHLIGHTS

- Rejuvenated engagement with Branches across Alberta
- Improved programming in:
  - ✓ **professional development** — align offering with Members' needs, and APEGA's expectations and needs; complement APEGA's mandatory Continuing Professional Development requirements
  - ✓ **product services** — emphasize quality not quantity to ensure relevant products are available to Members
  - ✓ **mentoring** — expand into rural Branch locations and improve categories of mentorship to meet Member needs beyond soft skills
  - ✓ **outreach** — focus activities on allowing youth to experience the exciting possibilities in careers in engineering and geoscience
  - ✓ **university outreach** — focus events and programs on leadership skill development, networking opportunities and ethics
  - ✓ **Member recognition** — make recognition more meaningful to more Members

CAREER LIFECYCLE



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Summit 2015

1. SWORN IN AND ON THE JOB: President Connie Parenteau, P.Eng., FEC, FGC (Hon.), speaks at the 93rd APEGA annual General Meeting in Calgary, shortly after reading her oath of office.

2. TOP AWARD: Douglas LaValley, P.Eng., speaks at the 2015 Summit Awards Gala, after receiving the APEGA's highest distinction — the Centennial Leadership Award.

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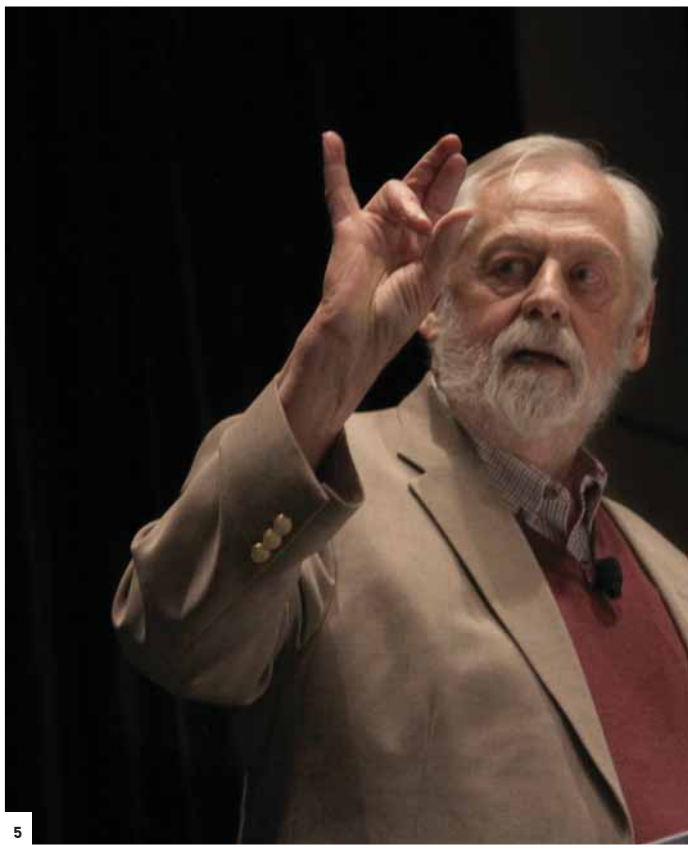

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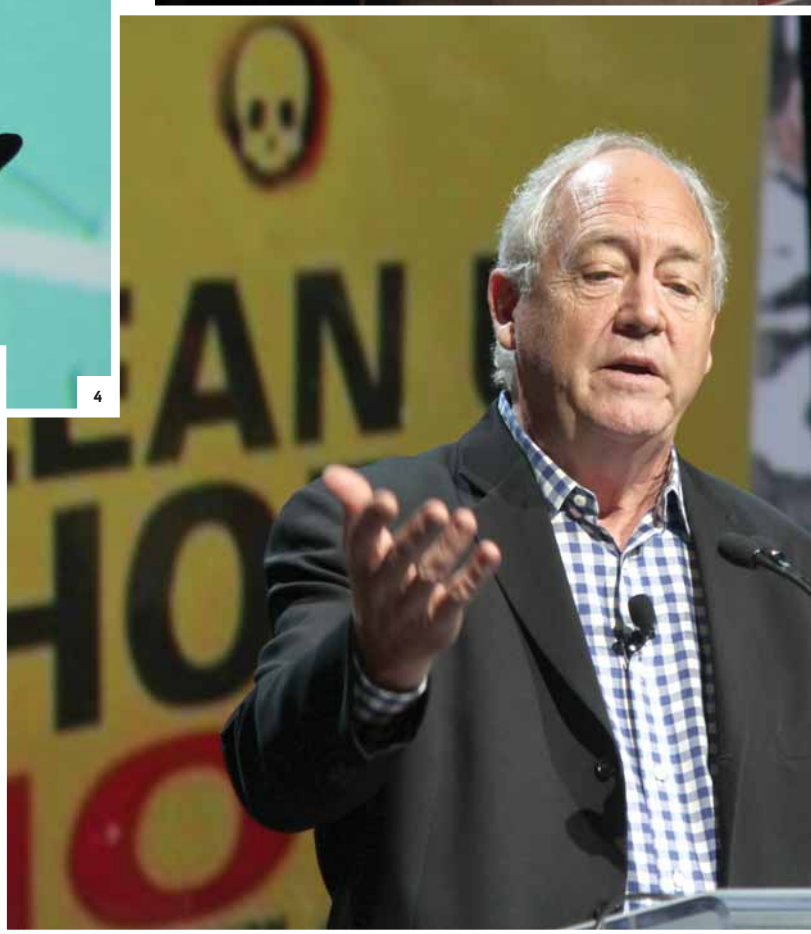

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3. NOTEWORTHY: Shannon Peddlesden, E.I.T., takes advantage of the strategic planning stream of APEGA's professional development program at Summit 2015. Professional development sessions attracted about 250 registrants in six streams.

4. SUMMIT IN SILHOUETTE: Award in hand, Ms. Parenteau awaits the next Summit Award recipient. Nine awards were presented during the gala.

5. ON BONES, FINGERS, REPTILES: Wayne Haglund, PhD, professor emeritus at Mount Royal University, compares the bones of critters to those of his own fingers. At a conference luncheon, Dr. Haglund spoke about Calgary's largest exhibit celebrating extinct marine reptiles. APEGA sponsorship made the university display of casts possible — a project Dr. Haglund championed.

6. A FAREWELL TO GREENPEACE: Patrick Moore, PhD, speaks about why he left Greenpeace, an environmental organization he once led as president. His decision is also the subject of his book *Confessions of a Greenpeace Dropout*. Dr. Moore was the speaker at this year's AGM luncheon.

7. ART, ARTIST, APEGA APPLICANT: Tamar Bourne, who is applying for APEGA professional membership, poses beside one of two of her works displayed in the annual Summit Awards Art Show. About 30 artists took part.

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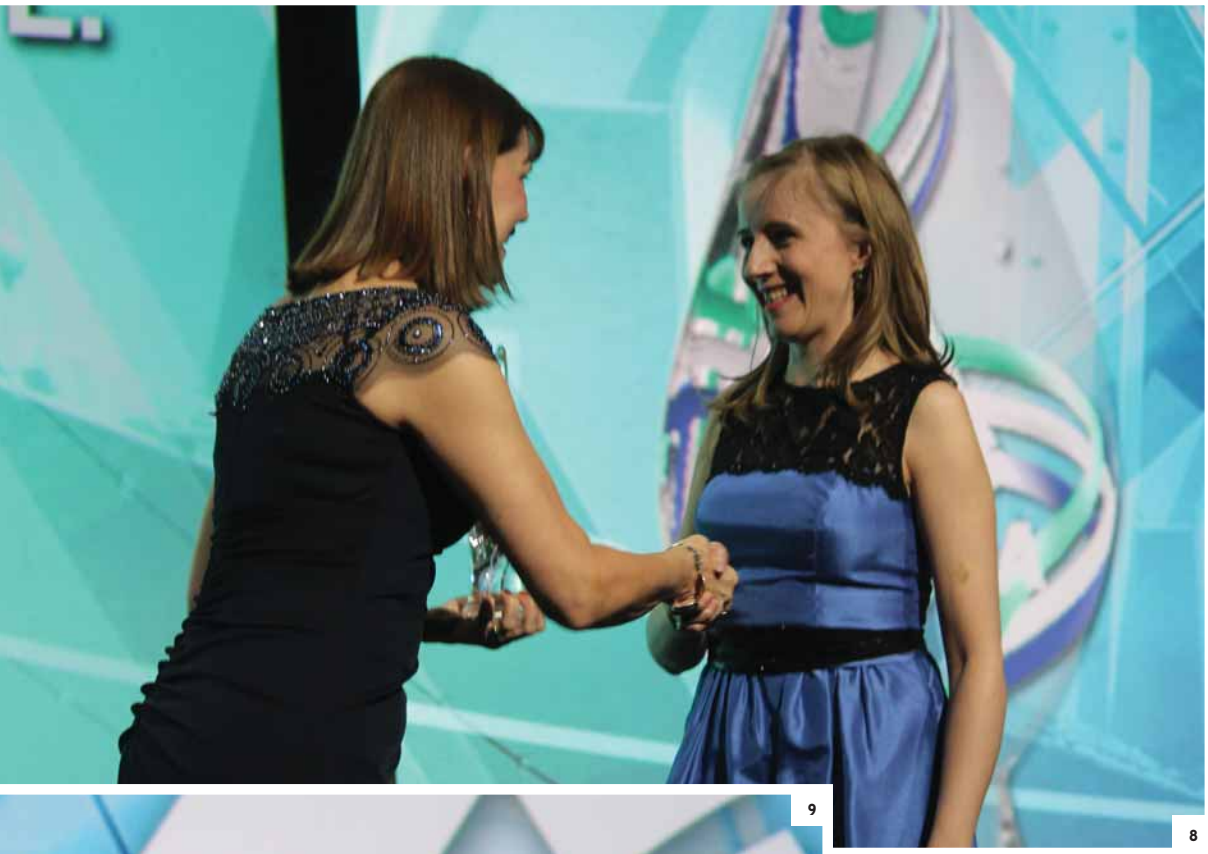

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8. SUCCEEDING EARLY: Dr. Anastasia Elias, P.Eng., accepts her Early Accomplishment Summit Award from President Parenteau — herself the recipient of the award in 1993.

9. PAYING IT FORWARD: Sauma Barua, P.Eng., expresses his passion for mentoring. He received the Outstanding Mentor Award.

10. ON HOCKEY AND APEGA: Calgary Mayor Naheed Nenshi — dressed to show his support for the Calgary Flames during the National Hockey League playoffs — brings his city's greetings to the APEGA Summit 2015.

9

10

Building the Future, One Rubber Band and Alka-Seltzer at a Time

National Engineering & Geoscience Month Inspires Student Innovation and Highlights Member Achievements

-photo by Ella Yao

WAIT FOR IT!
Red Deer Science Olympics volunteer judge Daniel Shang, E.I.T., puts a 10-lb. weight atop a tower made from index cards and rubber bands, while anxious students wait to see if their creation holds up. The skinny tower surprised judges when it didn't collapse under the weight. Students were given extra points for using fewer building materials — a lesson in construction cost savings. The event, held at Westpark Middle School, tested the ingenuity of junior and senior high students.

If you only had 30 minutes, could you design and construct a tower out of index cards and rubber bands, at least 12 inches tall, and strong enough to hold a 10-lb. weight? If you had 40 minutes, could you build a timer from a box of supplies that includes cups, sugar, eyedroppers, a candle, and an Alka-Seltzer tablet?

Those are two of the challenges students were tasked with at the APEGA Science Olympics during the annual National Engineering & Geoscience Month (NEGM) celebrations in March. Their solutions were at times surprising, creative and ingenious, proving that the future is indeed in good hands.

APEGA hosted eight science olympics events and another eight elementary science nights in communities across the province. Almost 2,800 students took part, thanks to the volunteer efforts of 400 APEGA Members who helped organize and run the activities. The goal: to ignite students' interest in science and math and perhaps inspire a new generation of engineers and geoscientists.

APEGA wasn't the only organization celebrating NEGM. Different engineering and geoscience organizations across Alberta held a variety of activities, from design competitions, engineering art shows, and Earth science exhibitions to workshops, lectures, and panel discussions. Similar events were held across Canada, showcasing engineering and geoscience careers while raising the profile of Professional Engineers and Geoscientists.

TWEET TWEET

Here's some of what people were saying on Twitter during NEGM celebrations.

Eric M @ericmacneill — Great to see the kids getting their geek on!! #SciOlympics Some wonderful works! @EdmontonSCC

Dr. Pineda @therocsci — At science Olympics checking out the engineers and scientists of tomorrow #SciOlympics #yeg

Beakerhead @Beakerhead — Do you have what it takes to become an #engineer? First trait: be #creative! Take the quiz http://www.nem-mng.ca/nem/doyouhave.html … #NEM2015 #yyc #STEAM

Cheryl Lynn @MsLementary — Cheering on all of the talented, innovative, and enthusiastic students at the 2015 APEGA Science Olympics! #SciOlympics @APEGA_AB @EPSBNews

CombustionScientific @cabercrooner — #sciolympics at #shaw convention center #yeg. 500 of Edmontons brightest students competing in science and eng

Mrs. Watson @BusyBeakers — Thanks @APEGA_AB for giving our kids the opportunity to engage in authentic science tasks! #SciOlympics

GeoKs @GeoKs — Lots of great problem solving by the @RundleJrSr #SciOlympics teams today. @APEGA_AB

sarahjane @sjnjc — Sir John A MacDonald team won Bronze overall! Proud of my team #SciOlympics Thanks #apega_AB for great day!

Beakerhead @Beakerhead — #Engineers are definitely not boring! Stoked to be chatting with @FluorCorp staff on all non-boring matters. #NEM2015

Photos, clockwise from top left

FUTURE'S SO BRIGHT
Grade 5 students from Twelve Mile Coulee School show off their electric car at the Calgary Science Olympics at Stampede Park.
-photo by Darren Makowichuk/QMI Agency

CAN YOU DIG IT?
Participants use tools to dig for fossils in sedimentary rocks at the Earth Science for Society Exhibition at Calgary's Stampede Park. The fossils came from the Burgess Shale in the Rocky Mountains and contained marine fossils such as trilobites. More than 2,000 students and other visitors enjoyed a variety of hands-on exhibits and presentations. APEGA was a sponsor of the event, which aims to educate people about Earth science and how it impacts our lives.
-photo courtesy Earth Science for Society

GOING FOR GOLD
Students — and a proud supervisor — celebrate an Edmonton Science Olympics gold medal performance at the Shaw Conference Centre.
-photo by Scott Parker

CRAFT WORK TOWERS
Students construct craft stick transmission towers at the Edmonton Science Olympics.
-photo by Scott Parker


SCIENCE
OLYMPICS

Beakerhead is a sandbox for human ingenuity – everyone welcome!

SEPTEMBER 16 - 20, 2015
CALGARY, ALBERTA

beakerhead.com

Gather your colleagues, friends and family to create your own spectacle of ingenious proportion. From art cars to larger-than-life arcade games, anything goes at Beakerhead!

This is also a call for APEGA volunteers to support five amazing days of art and engineering!

Contact maryanne@beakerhead.com for more information.

SPECTACULAR THANKS TO BEAKERHEAD SPONSORS

Canada · Suncor Energy · Suncor Energy Foundation · Alberta Government · In partnership with Travel Alberta Canada · Talisman Energy · APEGA

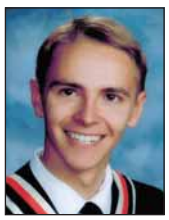
Beakerhead

El Pulpo Mecanico. Photo by: Denise Kitagawa

A NEW, BLAZINGLY COOL LIFE FOR MUFFIN TINS

CONGRATULATIONS to the 2014 APEGA Education Foundation Scholarships, Medals and Bursaries Recipients

Millennium Scholarships



Cameron Bardwell
Queen's University

Katelyn Dimmell
University of British Columbia

Bryce Hosking
Queen's University

Minghao (Min) Li
University of Alberta

Vanessa Lim
Queen's University

Nicola Paviglianiti
Western University

Samuel Pollock
University of Calgary

Vidhi Purohit
University of Alberta

Yilin (Linda) Zhao
University of Calgary

Dr. Norman Wagner, OC, Memorial Scholarship

Adriana Holcek
University of Calgary

APEGA Past Presidents' Medals

Graduating from the University of Alberta

Alex Antoniuk
Mariah Bailer
Stephanie Bohaichuk
Kane Boomhower
Michael Breitkreutz
Michael George
Alix Krahn
Autumn Linklater
Celine Mah
Emily Moffat
Douglas Vis

Graduating from the University of Calgary

Gerald Andres
Kathleen Ang
Ryan Hassen
Wing-Young Hau
Soroosh Hemmati
William Lancaster
Kelsea Pedersen
Simon Schmitt
Sinead Tracey

Alex Hemstock Bursary

Chaoshi Hu
University of Alberta

Ivan Finlay Awards for Student Society Presidents

University of Alberta

Sarah Elder
Engineering Students' Society (ESS)

Derek Hayes
P.S. Warren Geological Society

Karl Mome
University of Alberta Geophysics Society

University of Calgary

Austin Bauer
Rundle Group

Maha Hassanin
Petroleum & Energy Society

Victor Hoang
Geophysics Undergraduate Students' Society

Mount Royal University

Anthony Santos
Joli Fou

Graduate Scholarships

Attending the University of Calgary

APEGA Education Foundation Graduate Scholarship
Rachael L'Orsa
Billy Wu

Undergraduate Scholarships and Bursaries

Attending the University of Alberta

Academic Excellence Award in Engineering
Jesse Acorn
Dylan Bruck
Kendra Carlson
Bryce Chambers
Grant Jones
Wesley Stolte
Sarah Vestrum
Robert Xu

Academic Excellence Scholarship in Engineering
Katarina Bohaichuk
Denver Braun
Kirtan Dhunnoo
Benjamin Flanders
Akashdeep Kalia
Brennan Waters

Acuren Scholarship
Joshua Vani

HR Webb Memorial Scholarship
Nathan Olson

John A. Allan Memorial Scholarship in Geology
Travis Brown

Rising Star Scholarship in Geology or Geophysics
Liam Belisle
Daniel Hennessey

Scholarship in Geophysics
Alexandra Thompson

Undergraduate Scholarship in Geology and Geophysics
Sean Bettac
Chelsey Hay
Ebberly MacLagan
Jordan Phillips

Attending the University of Calgary

Undergraduate Bursary in Engineering
Thomas Kaminski
Jaclyn Kinley
James Pihooja
Jason Wolfe

Undergraduate Bursary in Science
Ryan Derish
Graham Wong

Undergraduate Entrance Merit Scholarship in Engineering
Nicole Belanger
Jennifer Busser
Ryan Butlin
Nicole Do
Dionne Mendonca
Kimberley Owen
Sarah Thorson

APEGA education FOUNDATION

Investing in Diversity

The APEGA Education Foundation is increasing its support of women and Aboriginals in the professions through targeted outreach, scholarships and bursaries

BY **CORINNE LUTTER**
Member & Internal Communications Coordinator

Recipients of APEGA Education Foundation (AEF) scholarships and bursaries have a lot in common: a shared love of math and science, a penchant for out-of-the-box thinking, and an affinity for problem solving.

They also come from a variety of diverse backgrounds and bring many different perspectives, experiences, and ideas to the mix. That's a good thing for the future of the engineering and geoscience professions in Alberta. Not surprisingly, research continues to confirm that a diverse workforce helps drive creativity and innovation, which helps fuel business growth, productivity, and success.

To that end, one of the AEF's key strategies over the next five years is to support increased diversity in the professions by reaching more young women, Aboriginals, and other underrepresented groups. This will be done through increased funding for outreach programs, scholarships, and bursaries focused in these areas. There will also be a stronger focus on supporting students in financial need, to ensure that education remains accessible to all.

WHO YOU HELP

On the next few pages, we'll introduce you to two outstanding young students — and future APEGA professionals — who were recently on the receiving end of AEF scholarships and bursaries.

FOCUSED ON THE FUTURE

The APEGA Education Foundation's 2015-2019 business plan aims to:

- double the number of bursaries available to groups that are underrepresented in the professions, including women and Aboriginals, from $55,000 to $110,000 annually
- increase outreach funding from $95,000 to $145,000 annually, to attract more Alberta youth — girls and Aboriginals in particular — into Professional Engineering and Geoscience careers
- increase the number of APEGA donors from 4,000 to 5,000 and increase their average donation from $75 to $100, for an impact of $200,000 annually

Apply now

$200,000 in Awards Available from APEGA Education Foundation

University tuition continues to climb, and many engineering and geoscience students graduate with hefty debt. One of the goals of the APEGA Education Foundation (AEF) is to help ease this financial burden so that students can focus on their education. This year, AEF will award $50,000 in bursaries, while another $150,000 in AEF scholarships and bursaries will be distributed by Mount Royal University, the University of Alberta, and the University of Calgary.

WHAT'S AVAILABLE DIRECTLY FROM AEF?

- **Undergraduate Bursaries:** Seven $5,000 bursaries will be awarded to undergraduate students studying engineering or geoscience at Mount Royal University, the University of Alberta, or the University of Calgary. Awards are based primarily on financial need, along with non-academic accomplishments.
- **APEGA Education Foundation/Enbridge Aboriginal Bursary:** Two $5,000 bursaries will be awarded to First Nations students from Treaties 6, 7, or 8, studying engineering or geoscience at the University of Alberta or the University of Calgary. Awards are based primarily on financial need, along with non-academic accomplishments.
- **Alex Hemstock Bursary:** One $5,000 bursary will be awarded to an engineering graduate student, in any discipline, at the University of Alberta or University of Calgary. The award is based primarily on financial need.

The deadline to apply for AEF awards is July 31. Apply at apega.ca/educationfoundation or contact scholarships@apega.ca. Other AEF-funded scholarships and bursaries are also available, by applying directly through Mount Royal University, the University of Alberta, or the University of Calgary.

Michael Hnatiuk, 21

University of Calgary (B.Sc. Electrical Engineering, Minor in Computer Engineering)
AEF/Enbridge Aboriginal Bursary Recipient
Class of 2017

'With this support, I'm able to focus more on school and maintaining the best GPA possible, without having to worry about the stress of finances'

When working in commission sales, it helps to be a people-person, to better connect with customers — especially when you're trying to boost your savings for university tuition. Just ask Michael Hnatiuk. Starting in high school and during a gap year after graduation, he worked for a major electronics retailer, quickly becoming one of the company's top salesmen in Calgary and Western Canada.

He continued working there during his first semester studying engineering at the University of Calgary, but it made achieving the grades he wanted a challenge. "I was doing well, but I knew I could do better," says Mr. Hnatiuk. "I'm investing so much money into school, I want to get the best grades possible."

Deciding to put school first, he quit his job and survived on student loans, plus the income he makes tutoring other U of C students. It's been a tough go financially, but the $1,500 AEF/ Enbridge Aboriginal Bursary he received last fall has helped ease the burden. (Mr. Hnatiuk is adopted and his birth mother is from the Blood Tribe First Nation in southern Alberta.)

"The scholarship is helping pay for my school and living expenses, making it all doable," he says. "With this support, I'm able to focus more on school and maintaining the best GPA possible, without having to worry about the stress of finances."

A strong GPA will come in handy when he graduates in a couple of years and embarks on his engineering career. "I'm leaning towards the computer electronics industry. My dream is to go to Silicon Valley," says Mr. Hnatiuk.

Another option he's considering is teaching. He'd like to inspire students, like his own mentors have inspired him. "There are always those really good professors who you love and they make learning fun and easy," he explains. "That would be pretty cool, helping students and seeing them learn."

TUTOR TIME
Michael Hnatiuk, at right, tutors first-year engineering student Lucas Duque on the physics of electricity and magnetism.

Mr. Hnatiuk first started tutoring while attending Centennial High School in Calgary. He shared his love of numbers with junior high students who needed a bit of extra help. Today, he continues to tutor first-year engineering students in classes like electrical engineering, physics, programming, and calculus. Many of them have suggested he'd make a good professor.

"I've always been good at talking to people and understanding what they need in order to grasp concepts. Seeing them do well is quite rewarding," he says.

-photo courtesy Michael Hnatiuk

KEEPING IT REAL

For now, he's excited to keep learning.

He especially enjoys hands-on learning, putting concepts into action, like a recent project he worked on in a second-year electronic devices and materials lab. "We took LEDs and made a circuit that received Morse code wirelessly. The message was a repeated SOS," he says. "Seeing how all the theory comes together and is applicable to real-life situations is really interesting."

And since he's already perfected his sales pitch, he's hoping to gain some new job skills this summer, working in electrical or computer engineering.

University Highlight: *The biggest thing is the learning. I have some great teachers that make learning really fun. Everyone around you wants to learn and the teachers want you to succeed as well. There's no class that I dread. I look forward to the years to come and all the learning to go along with it.*

Hobby Highlight: *I really enjoy the outdoors, heading out to Banff for a day trip or to the mountains for some hiking and fishing. One thing I'm looking forward to this summer is camping. There's nothing like getting a few friends together, going out into the wilderness, and roughing it for a weekend.*

Chelsey Hay, 24

University of Alberta (B.Sc. Geology, Honors)
APEGA Fund in Geology and Geophysics
Class of 2015

'Geology is a pretty intensive program. Employment is often not an option if you want to do well in school, so any kind of financial support is amazing'

Some university students head home on the weekend to do their laundry or enjoy a home-cooked meal. For Chelsey Hay, heading home to her family's acreage near Stony Plain, just west of Edmonton, is an opportunity to reconnect with an old friend — her horse, Abby.

With her busy schedule as a geology student at the University of Alberta, Ms. Hay had to give up competing with Abby in horse trials, or three-day eventing as it's also known. Abby is a former thoroughbred racer that Ms. Hay retrained as an event horse. The sport, which includes a mix of dressage, cross-country, and show jumping trials, is often described as an equestrian triathlon. It tests both the rider's skill and the horse's physical endurance. Ms. Hay had competed in eventing for more than 10 years before heading off to university.

"Eventing is a little bit of an adrenaline sport," she says. It's also creates a close bond between rider and horse. "What I love about eventing is the connection with the horse. There's that aspect to it as well — not only competing, but having a partnership and caring for the horse is addicting."

Growing up on a hobby farm, Ms. Hay learned an appreciation for the outdoors. That's one reason geology initially appealed

ROCK ON (left)
Ms. Hay holds a piece of coral framestone — a limestone rock containing coral fossils — while hiking on Mount Rae in Kananaskis Country last summer.

-photo by Zac Colbran

-photo courtesy Chelsey Hay

HORSE POWER (above)
Geology student Chelsey Hay trained her horse, Abby, to compete in eventing, a type of horse trials often described as equestrian triathlon.

to her when she was a high school student researching possible career paths. Another was her love of science.

"It was kind of a gut feeling, so I went for it and enrolled," she recalls. "I didn't know any geoscientists or have any knowledge of the profession, but I knew there were a lot of areas you can branch out into."

What she's discovered over the past four years at university, through two summer internships working in oil and gas exploration, and by volunteering with the P.S. Warren Geological Society student group, is that her instincts were correct.

"I've learned that geology requires creative, out-of-the-box thinking. There's no real right or wrong answers. You're always interpreting. That's something I hadn't experienced in any other subject or area of science," says Ms. Hay. "I've really enjoyed the freedom to think creatively, and also the people I've worked with are fantastic."

Studying away from home, though, can be expensive. Several scholarships, including a $750 APEGA Fund in Geology and Geophysics award from the APEGA Education Foundation, have helped Ms. Hay concentrate on school rather than bills.

"All the scholarships I received are a huge help. Being in fourth year, I'm watching the student loans pile up, so any kind of support is very much appreciated," she says. "Geology is a pretty intensive program. Employment is often not an option if you want to do well in school, so any kind of financial support is amazing."

University Highlight: *Field school is the highlight of most geology students' university career. You're only out in the field for two weeks, but you learn a ton and it's a lot of fun. After second year, my class went to Jasper for field school and after third year, we did a road trip through the Canmore, Revelstoke, the Kootenays, and Cranbrook. It's your chance to get out there, get your hands on rocks, and learn the basic principles of mapping and formulating interpretations through observations out in the field. It just solidifies everything you do throughout the year.*

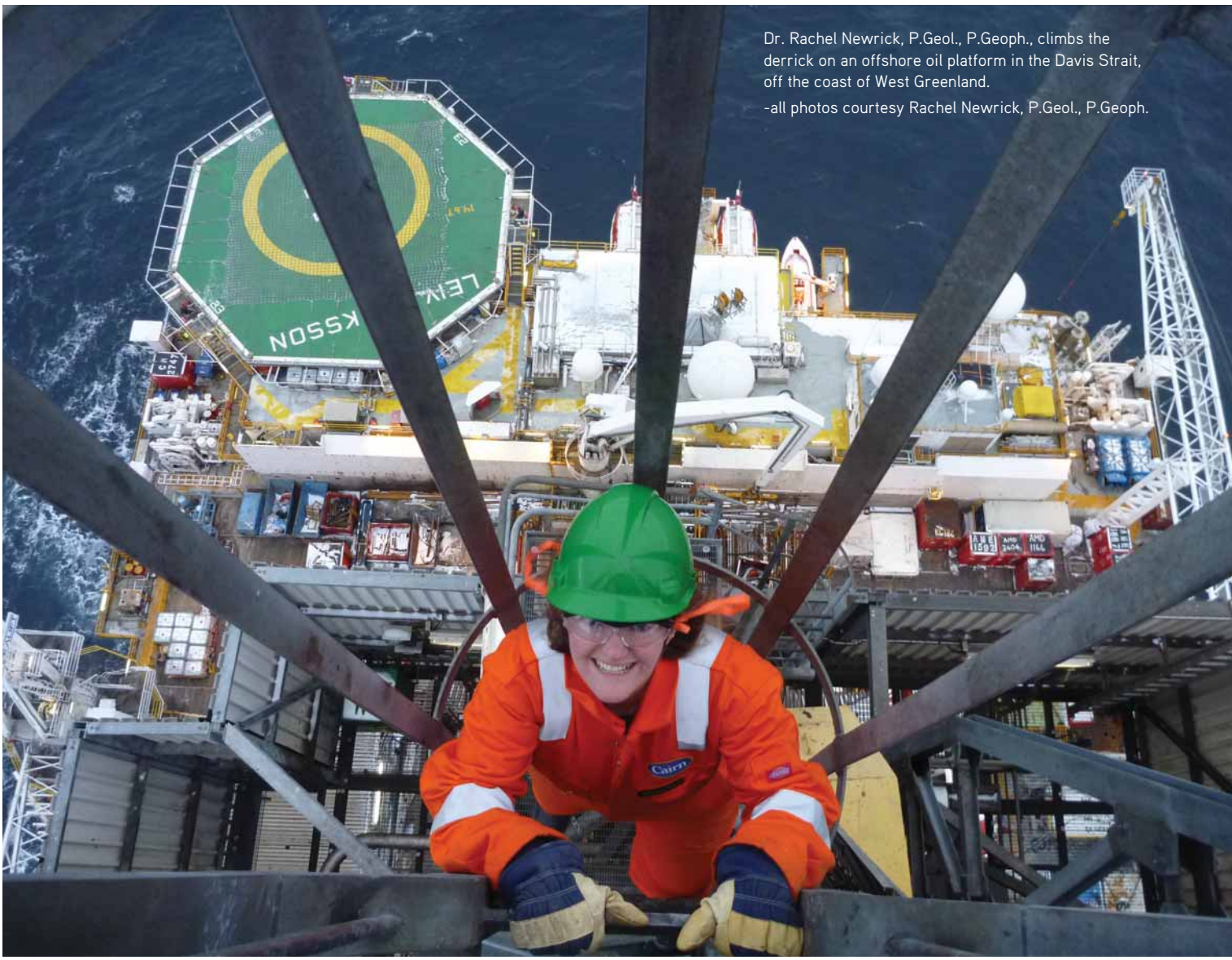
Hobby Highlight: *I like hiking and travelling whenever I can. Working in Calgary in the summer was fantastic, with the mountains so close. My family likes to travel as well, so we usually go on a yearly family trip. I'm also hoping to start competing in eventing again.*

INVEST IN THE DIVERSITY OF YOUR PROFESSION

The APEGA Education Foundation (AEF) promotes diversity in the engineering and geoscience communities by providing scholarships and bursaries to underrepresented student groups such as young women and Aboriginal people. When you donate, you are not only investing in the future of your profession, you are helping to improve the quality of our professions.

To learn more about this registered charity or to donate, visit www.apega.ca/educationfoundation.

APEGA | education FOUNDATION



Dr. Rachel Newrick, P.Geol., P.Geoph., climbs the derrick on an offshore oil platform in the Davis Strait, off the coast of West Greenland.

-all photos courtesy Rachel Newrick, P.Geol., P.Geoph.

And You ARE?

Dr. Rachel Newrick, P.Geol., P.Geoph.

Adventurer
Artist
Champions Collaborative Volunteer

BY **CORINNE LUTTER**
Member & Internal Communications Coordinator

Exploring the world — both above and below the ground — is Rachel Newrick's life passion. As a geophysical interpretation consultant, she explores the Earth's subsurface in the hunt for petroleum. As an adventurer, she explores new cultures while travelling the globe. The two are not mutually exclusive, though. In fact, one often leads to the other.

"In the last year I've travelled to Ghana, South Africa, Congo, Romania, London and Houston for different consulting clients. No matter what project I'm on, I always love getting out in the field," says Dr. Newrick, P.Geol., P.Geoph. "I truly have a dream job. It's really exciting."

A native of New Zealand, Dr. Newrick developed an affinity for travel after graduating with a B.Sc. in geology and an honours B.Sc. in geophysics, from Victoria University of Wellington. She spent the next few years backpacking around Central America, Europe, and Africa, eventually making her way to Calgary in 1998 to complete a PhD in exploration seismology (geophysics) and start her career.

While employed as an exploration geophysicist in 2008, she jumped at the chance to go overseas on a London-based job assignment, to work on oil and gas projects in the North Sea. After a couple years, she moved to Edinburgh and worked on projects in

Greenland, Greece, Cyprus, and Morocco. Not surprisingly, she and her partner, Ian Crawford, took every available opportunity to travel Europe, checking destinations off their bucket list along the way.

It was an amazing experience, but after five years it was time to come home. "By that time Ian and I just missed Canada. We wanted to get back to the great outdoors," she says.

Another big reason for returning was the local geoscience community. "I truly believe that Calgary has the best geoscience community in the world," she explains. "I've lived in London, Houston, Melbourne, New Zealand — nothing is like the concentration of geoscientists in the Calgary downtown core. It is absolutely incredible how geoscientists come together in Calgary, how they share information. People from different companies will sit down on a technical level and discuss how we can improve technology, the way we look at the Earth and study it. You don't get that openness in other places."

So after a four-month backpacking sojourn to Asia, Australia ,and New Zealand, she returned home two years ago and started up a geophysical consulting firm, Racian Ventures Ltd. "I wanted to be able to control my own time," she says.

She also returned to her volunteer work in the geoscience community, including her long-time involvement with the Canadian Society of Exploration Geophysicists (CSEG). She's currently the society's President, which is how she came to be a volunteer with APEGA's champions collaborative, a group of Professional Geoscientists and Engineers who are consulting APEGA Members about proposed changes to the *Engineering and Geoscience Professions Act.* Champions like Dr. Newrick are sharing information about the legislative review and collecting feedback from Members.

"It's been about 35 years since we've had a look at the Act. Really, a lot has a happened in that time and a lot needs to be updated," she notes. "From a geoscience perspective, it's important to make sure everyone's voices are heard, including the geologists and geophysicists who make up the smaller part of APEGA's membership."

Consultations began this spring and will continue over the next few years. *For more details, see page 47.*

While travelling in Burma, monks asked Dr. Newrick to be part of their group photo in front of Alo-daw Pyi Pagoda, an ancient temple. She was happy to oblige.

ON KAWASAKIS AND CREATIVITY

If you happen to spot Dr. Newrick at a legislative review consultation and are looking for a conversation starter, ask her about her sporty new MV Agusta Brutale 1090, or perhaps her Honda XR400 dirt bike or Harley Davidson SX125 scrambler. Another one of her passions is motorcycles. On Twitter, people know her as motorcyclerachel. She started riding in her mid-20s, putting on 36,000 kilometres in her first year.

"As soon as I got on a bike, I felt like I was in the right place," she says. "For me, the best part about riding is the feeling that you get in the corners."

She was a motorcycle instructor for several years (that's how she met Mr. Crawford, who was an instructor with the Calgary Safety Council) and she also founded the Wild West Vixens female motorcycle club. Her favourite bike (so far) was her 2003 Kawasaki Z1000, which she rode more than 93,000 kilometres. That includes a road trip from Calgary to Mexico — one-way in four four days — plus other rides across Vancouver Island, England, Scotland and Europe. "I only sold her in 2013 when we moved back to Canada — and that's when I purchased my new Brutale," she says.

Having recently relocated from Calgary to Bellevue in the Crowsnest Pass, she's looking forward to another two-wheeler hobby: dirt biking. "I have a lot of fun when I'm in the air," she laughs. "And there are hundreds of kilometres of off-road trails in the Crowsnest."

She and Mr. Crawford bought a holiday home there about 10 years ago so they could ski at nearby Castle Mountain on the weekends. "We love it down here. We bought two more houses and started running a vacation rental business," she says. "At night, we get to sit by the fire pit with friends and enjoy watching the Northern Lights come over every once in a while."

One of those homes is a tiny old miner's house built on railroad ties. It's where they're staying until their permanent home is renovated. "If I look out my kitchen window, I'm staring straight at Turtle Mountain and the Frank Slide," says Dr. Newrick.

She draws on the natural beauty of the Crowsnest Pass for inspiration when exploring her creative side as a mixed

'...my mum always used to tell me, You make your own luck. When people ask if I want to do something, I say yes. By saying yes, you open up opportunity. By saying no, you shut everything down'

DR. RACHEL NEWRICK, P.GEOL., P.GEOPH.

Dr. Newrick and her partner, Ian Crawford, on a road trip near Scotland's Isle of Skye, with Eilean Donan Castle as the backdrop.

GETTING TO KNOW YOU

One word to describe you would be? Spontaneous.

What's one thing you can't live without? Adventures with Ian.

What's the last concert you went to? Blues musician Tim Williams.

What are you reading right now? CSEG Recorder.

What's the best career advice you've received? Be open to all opportunities. People used to tell me how lucky I am because I get great jobs. But my mum always used to tell me, You make your own luck. When people ask if I want to do something, I say yes. By saying yes, you open up opportunity. By saying no, you shut everything down.

What are the top three travel destinations still on your bucket list? Antarctica, South America, and Madagascar.

Do you have a favourite travel memory? Riding my motorcycle over the Stelvio Pass in Italy. (It's the highest paved mountain pass in the Eastern Alps and has about 50 hairpin turns.)

How about a work highlight from your recent overseas experience? One of my jobs was with Cairn Energy, a small Scottish company that was doing offshore exploration in West Greenland from North Baffin Bay to the Davis Strait. We were drilling around 100 kilometres from the nearest offset well in mini subbasins that no one had ever drilled into. That was real frontier exploration — wild catting and drilling wells to get genuinely new information.

What's the background on your cellphone? ? Myself and Ian in the catacombs in Rome.

What's your motto in life? I've got two: Well behaved women don't make history; Never ride faster than your guardian angel can fly.

media glass artist. One of her recent pieces, displayed at the APEGA Summit Awards Gala Art Show in April, is of the iconic Burmis pine tree on Highway 3. Rusty nails, arranged in the shape of the centuries-old tree, were embedded in epoxy resin and framed in an old farm window. Dr. Newrick sees art as an extension of her work.

"Geoscience is a creative science. When we're doing petroleum exploration, we have to imagine the Earth in 3D. We have to take the 2-D data that we have and, within our minds, manipulate it into a 3-D image and try to predict where oil may be. By their very nature, most geoscientists are very creative."

This summer, Dr. Newrick and her partner are starting another big adventure. Her young siblings — 10-year-old Harry and 12-year-old Ola — are moving to Canada to live with them for a couple of years. "They live in Brighton in the U.K. We want them to experience the fabulous Canadian outdoors — a new experience from the city lifestyle. We're looking forward to exploring with them closer to home."

Are We There Yet?

Road Tripping Through Alberta's Badlands

BY **CORINNE LUTTER**
Member & Internal Communications Coordinator

DINOSAUR PROVINCIAL PARK
–photo courtesy Travel Alberta

Nothing says summer like a road trip, and Albertans don't have to venture far from home to start exploring. With 31,000 kilometres of provincial highways, picking a destination is sometimes the hardest part. If you're looking for nature, scenery, culture, history, and world-class attractions, a good place to start is Alberta's Badlands.

Some 15,000 years ago, melting glaciers carved dramatic canyons, coulees, and other striking geological formations into the landscape. Erosion has revealed colourful layers of ancient sandstone, mudstone, shale, coal, and other treasures — like fossilized dinosaur bones. Early French explorers described the area's rugged cliffs and valleys as *les mauvaises terres à traverser*: bad lands to cross. Today, it's a whole lot easier to get around.

If you've only got a day or two, head to the Drumheller Valley in the province's southeast. This is the heart of the Badlands, famous for its fossil finds and unique topography. Here, you'll find a large concentration of attractions in a small area by travelling along the well-marked Dinosaur and Hoodoo Trails. If you've got more time, the Badlands cut a path hundreds of kilometres across Central Alberta, starting southeast of Red Deer, through to Drumheller and Dinosaur Provincial Park, and extending as far east as Saskatchewan, and south to the United States. You could easily spend a week or more and not run of sights to see.

Also emerging as a Badlands hot spot is the area around Grande Prairie. Badlands in northern Alberta, you say? Yes, it's true. You might not know it, but the area is home to the province's most northern badlands, including a renowned mass dinosaur grave and, opening this fall, a stunning new dinosaur museum.

Over the next few pages, we've highlighted some of the top attractions found in Alberta's Badlands. All you have to do is pack the car, gas the tank, and hit the highway.

Drumheller Area

FOCAL POINT

1 Royal Tyrrell Museum >>
See next page for more on the world famous museum.

2 World's Largest Dinosaur
worldslargestdinosaur.com
For a badlands bird's-eye view, climb 106 stairs to the top of the World's Largest Dinosaur in Drumheller. Made of steel and fiberglass moulding, she's 25 metres tall and weighs in at 65 tonnes — about 4.5 times bigger than a real T-rex. And yes, she's female.

3 Hoodoos
traveldrumheller.com
Carved from soft sandstone by the wind and rain, hoodoos dot the badlands landscape. Some of Alberta's most iconic and accessible hoodoos are found at the Hoodoos Provincial Recreation Area along Highway 10, a.k.a. the Hoodoo Trail.

QUICK FACT: Hoodoos take millions of years to form and are constantly changing shape. They erode by up to one centimetre each year.

History
atlascoalmine.ab.ca
Popular stops along the Hoodoo trail include the 127-metre-long **4 Star Mine Suspension Bridge**, which swings over the Red Deer River, and the **5 Atlas Coal Mine National Historic Site**, where visitors can go on an underground tour and learn about ghosts that reportedly haunt the site.

6 Bridges and BBQ Take a short drive on Highway 10X from Rosedale to the ghost town of Wayne, once a booming coal mining town. Along the way, you'll pass over 11 one-lane bridges. Visit the family-friendly Last Chance Saloon for a snack and check out the coal mining memorabilia while you're there.

7 Horseshoe and 8 Horsethief Canyons
traveldrumheller.com
For dramatic views, don't miss Horseshoe and Horsethief canyons. Flat Prairie farmland falls away to reveal massive gorges filled with breathtaking formations. Take in the scenery from the canyon rims, or hike into the canyons to explore the many trails. Horseshoe Canyon is the bigger and busier of the two, but Horsethief is stunning in its own right.

QUICK FACT: Geological layers in the canyons — a mix of sandstone, mudstone, coal, and shale — formed during the Cretaceous period about 70 million years ago.

9 Bleriot Ferry
Take Highway 838 over the Red Deer River on the Bleriot Ferry. It's free!

Southern Badlands

1 Royal Tyrrell Museum
tyrrellmuseum.com
No trip to the badlands is complete without a stop at the Royal Tyrrell Museum, home to one of the world's biggest collection of dinosaur fossils. Don't miss Hellboy, a new species of horned dinosaur just unveiled in the new Fossils in Focus exhibit. Indoors, take a stroll through time in galleries that showcase 3.9 billion years of life on Earth. Outside, go fossil hunting with a guide or learn about mysterious popcorn rocks and other geological wonders.

QUICK FACT: The museum celebrates its 30th birthday in 2015.

2 Dinosaur Provincial Park
dinosaurpark.ca
Canyons, coulees, and centrosaurus bonebeds await discovery at this UNESCO World Heritage Site. Public areas offer camping, a visitor centre, and trails. For backcountry access, sign up for a bus tour, guided hike, or a real dinosaur dig.

QUICK FACT: More than 40 species of dinosaurs have been found in the park's world-famous fossil fields.

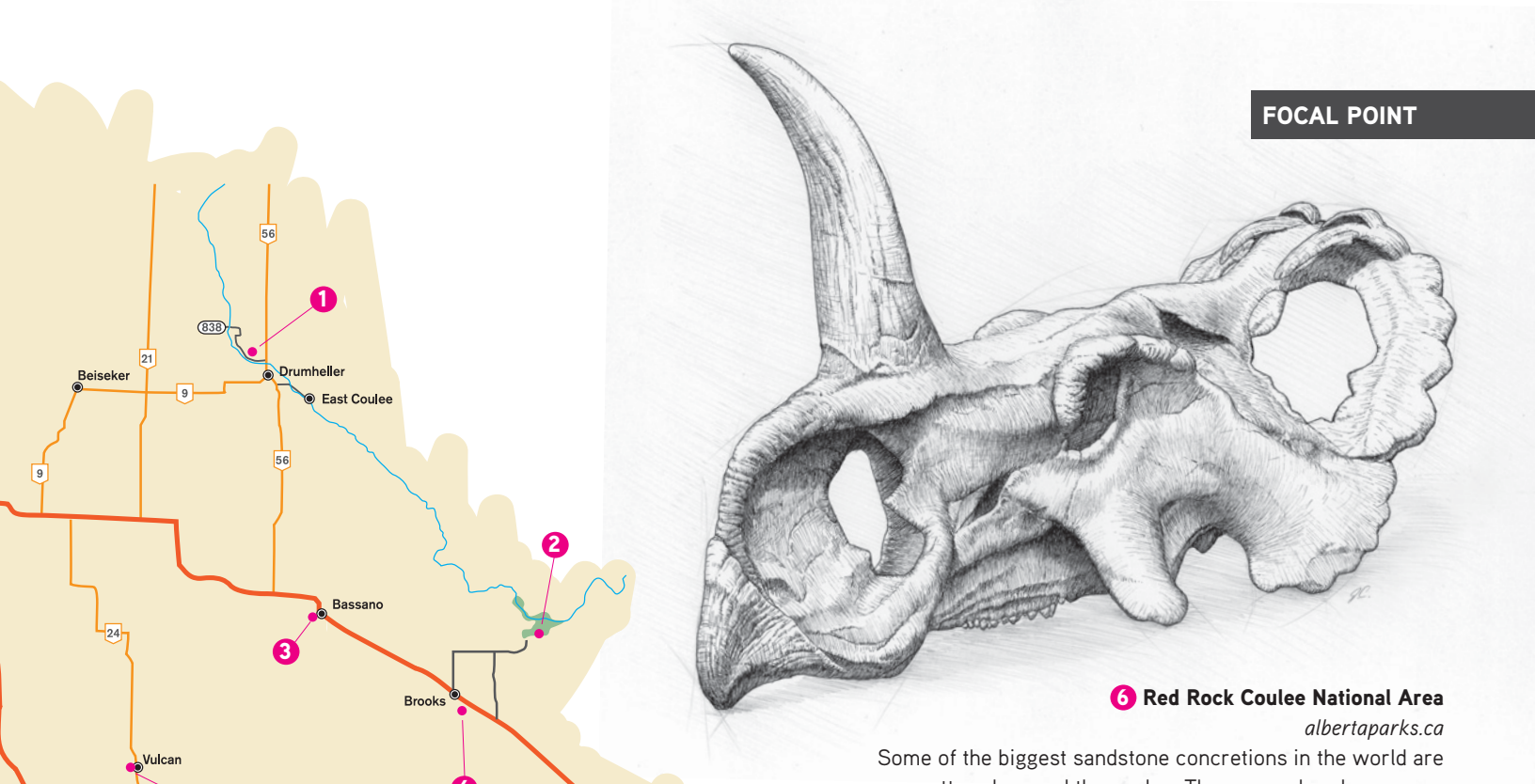
3 Bassano Dam
bassano.ca
Built in 1910, the concrete dam is 220 metres long and diverts water from the Bow River into Alberta's Eastern Irrigation District, where it's used by farmers, industry, and 18,000 residents. Visitors can enjoy views of the river valley, take a tour, or try their luck fishing below the dam.

QUICK FACT: The dam can handle a water flow of up to 3,000 cubic metres per second.

4 Brooks Aqueduct National and Provincial Historic Site
history.alberta.ca
Enjoy a quiet picnic or interpretive tour at the Brooks Aqueduct. Spanning more than three kilometres across 1,030 columns, this concrete irrigation canal was once the longest structure of its kind in the world. Water first flowed through in the spring of 1915, transforming semi-arid rangeland into rich farmland. In 1979, the aqueduct was replaced with a larger canal system.

QUICK FACT: An innovative inverted siphon carried water under the CPR track and back up to grade.

5 Medalta Potteries National Historic Site *medalta.org*
In the early 1900s, Medicine Hat was home to a thriving clay products industry, thanks in part to the rich clay deposits found along the banks of the South Saskatchewan River. Today, the historic Medalta Potteries factory has been turned into a living museum. Visitors can step inside a beehive kiln, chat with costumed interpreters, or check out the museum's 30,000-piece pottery collection.



6 Red Rock Coulee National Area

albertaparks.ca

Some of the biggest sandstone concretions in the world are scattered around the coulee. These round rocks — some up to 2.5 metres in diameter — were formed when the area was covered by ocean. Sand particles stuck to objects — like bones or shells — then continued growing, layer by layer.

QUICK FACT: Take a close look and you might spot fossilized leaves, shells, or bones in the layers.

8 Vulcan Tourism and Trek Station

vulcantourism.com

If you're in this corner of the universe at the edge of the Badlands, stop by the town's visitor information centre. It's built like a giant space ship. Check out the Star Trek memorabilia collection or pose in a costume on the main bridge.

7 Writing-on-Stone Provincial Park

albertaparks.ca

North America's largest concentration of First Nations rock art is found at this national historic site in the scenic Milk River valley. A self-guided trail will lead you to some accessible rock paintings. To view the best paintings and rock carvings, which are protected, you'll need to arrange a guided tour. Other ways to pass the time here include hoodoo hikes, swimming in the river, and camping.

QUICK FACT: Rock carvings, or petroglyphs, were etched into the soft sandstone in the shape of humans, animals, and objects like bows and shields. Paintings, or pictographs, were created using the ironstone mineral hematite, also called red ochre.

Photo Credits, page 75:

Big Dinosaur -photo courtesy Antony Stanley/Wikimedia Commons

Star Mine Bridge -photo courtesy mascdman/Wikimedia Commons

Horseshoe Canyon -photo by istockphoto.com/GeoffHardy

Horsethief Canyon -photo by istockphoto.com/knapjames

page 76:

Fossil Dig Kids and Seven Wonders Hike -photos courtesy Royal Tyrrell Museum

Brooks Aqueduct -photo courtesy Alberta Culture and Tourism

page 77:

Petroglyphs -photo by istockphoto.com/Photawa

Centro Skull -image courtesy Julius T. Csotonyi/Royal Tyrrell Museum

Red Rock Coulee -photo courtesy Jim Knelson Photography

Badlands of the North

KLESKUN HILL AND NORTHERN LIGHTS – photo courtesy Lloyd Dykstra/County of Grande Prairie

In the far northwest corner of the province, the 65-hectare Kleskun Hill Natural Area is like a miniature Drumheller. Rolling hills rise above the plains, displaying their shale, coal, and sandstone layers.

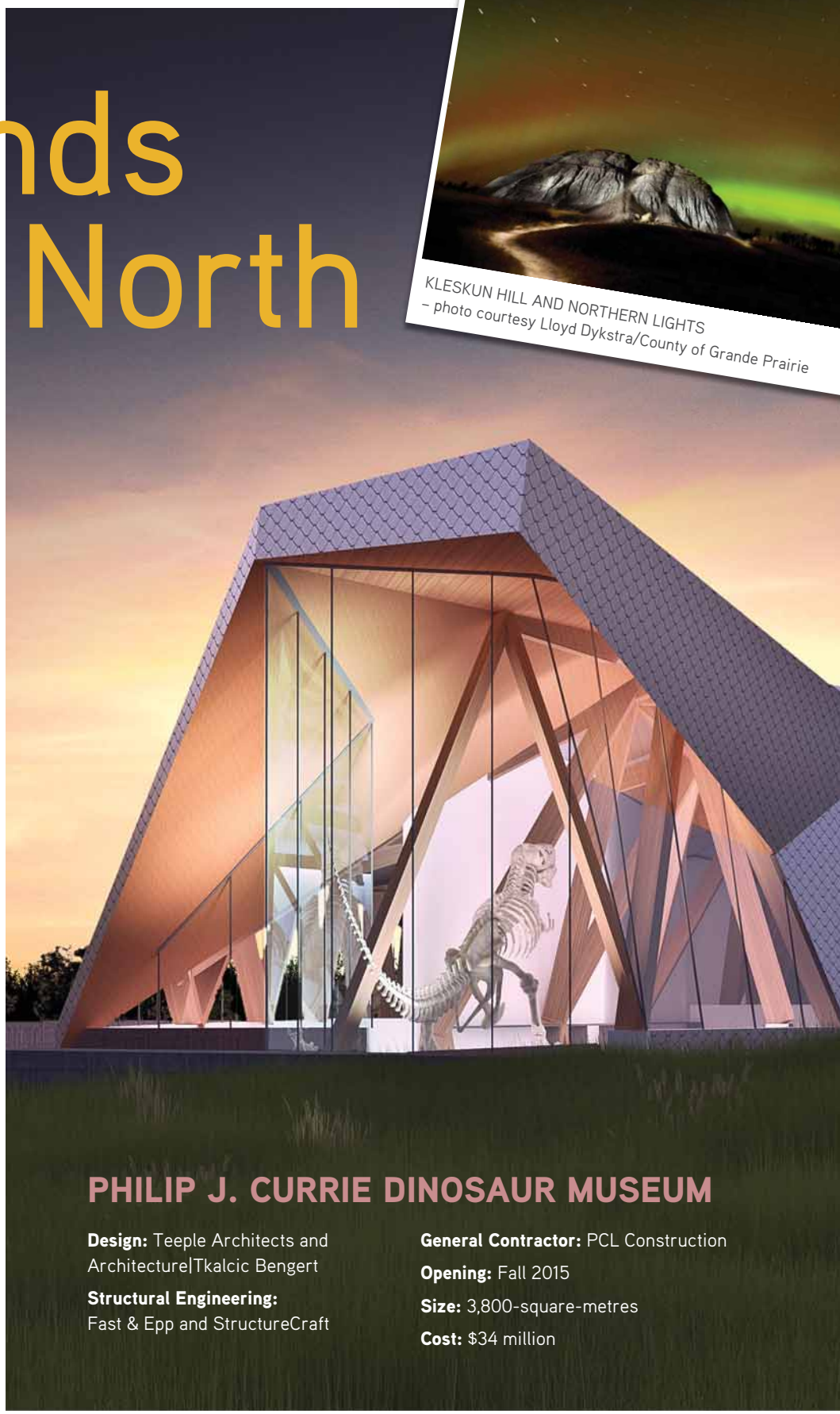
This protected outcrop, about 20 kilometers east of Grande Prairie, is home to the last remaining native grasslands in the region. Dinosaur fossils have also been found there. Visitors can explore the area on walking trails and hike to the top of Dinosaur Hill for a view of the heritage village next door. This living museum has several pioneer buildings to discover, including a barn, a general store, a church, and a school.

Kleskun Hill isn't the only spot in the region where dinosaur remains have been found. About 25 kilometres west of Grande Prairie, paleontologists continue to unearth fossils at Pipestone Creek Park. This mass grave — aptly named the River of Death and Discovery Bonebed — contains one of the highest concentrations of dinosaur bones in the world. Most are from a plant-eating dinosaur called *Pachyrhinosaurus lakustai,* named for Al Lakusta, the teacher who discovered the site back in 1974.

Visitors will soon be able to learn much more about the region's geological and paleontological history at the new Philip J. Currie Museum, which is set to open this fall in the Town of Wembley, about 20 kilometres west of Grande Prairie.

SURFABLE

dinomuseum.ca



PHILIP J. CURRIE DINOSAUR MUSEUM

Design: Teeple Architects and Architecture|Tkalcic Bengert

Structural Engineering: Fast & Epp and StructureCraft

General Contractor: PCL Construction

Opening: Fall 2015

Size: 3,800-square-metres

Cost: $34 million

- Named after Canada's leading paleontologist Dr. Philip Currie.
- Built to LEED Gold standard. A triple-glazed zinc roof creates an energy-efficient and sustainable building envelope to handle the area's temperature extremes. The entire building can be heated and cooled by a displacement ventilation system, located under the museum's concrete floor.
- The building's design "draws on an abstraction of the paleontological excavation experience with two massive retaining walls of poured concrete and gabions pushing back the earth to reveal the main gallery wall," says the museum website.
- Gallery spaces are angled onto seven support beams made from pine beetle timber. The exposed beams and connection nodes put the building's skeleton on display, just like the dinosaur skeletons that will be on display inside.
- Innovative 3-D modelling was used to design the complex geometry and angles of the nodes. This involved laminating plywood sheets together and connecting the pieces with 80 screws at different angles and lengths. The screws — up to 19 mm in diameter and 1,200 mm long — act similar to rebar in concrete. A total of 1,250 pieces were fabricated from 250 sheets of plywood. For a detailed explanation of this groundbreaking process, visit structurecraft.com.
- Interactive displays will take visitors on a 360-million-year journey. In addition to dinosaur and special exhibit galleries, the museum includes a 70-seat theatre, two classrooms, an education centre, and an oil and gas wing.
- Visitors can watch paleontologists preparing specimens in the museum's lab and research centre.
- PCL Construction was awarded a 2014 Alberta Construction Award in the under $50-million category for its work on the project. Teeple Architects was also recognized by *Azure*, an architecture and design magazine, which named the building one of the world's top 10 projects of 2014.

-museum images courtesy Philip J. Currie Museum

APEGA Member Benefits Offer Summer Savings

Whether you're flying, taking a road trip or planning a staycation, summer is time for relaxing and enjoying the warm weather. APEGA has many Member benefits to help make your holiday plans a success — and save you money, too. From discounts on hotels and airfare to savings on gas, APEGA has partnerships with vendors across the country to provide benefits to our Members.

We've partnered with WestJet to offer a five per cent discount from regular airfares. And if you're travelling by land, we've partnered with car rental companies National and Enterprise, as well as Red Arrow Motor Coach, to make your travel plans easier and more affordable.

We also offer below-market travel discounts at hotels around North America. APEGA Members routinely save money at hotels from Vancouver to Florida.

Whatever your plans are this summer, being an APEGA Member has myriad benefits, including discount pricing from different vendors across the province and beyond.

ELIGIBILITY

You are eligible for Member benefits if you are:

- an APEGA Professional Member
- a Member-in-Training
- a university engineering or geoscience student registered as part of ASAP (APEGA Student Advantage Program)
- a Life Member

So before you book your next trip, be sure to check out the Member Benefits section at apega.ca for complete details.

You can also check out the list of benefit providers on the following page.

Several of APEGA's group benefits are negotiated by Engineers Canada. Please visit engineerscanada.ca for more information.

CONTACT US

How are you using your Member benefits? Are there more benefits you would like to see? If you have any questions or comments, contact us at memberbenefits@apega.ca.

SIDEBAR

OTHER MEMBER BENEFITS

Regardless of where you go, safety is always a top priority. For this reason, all eligible APEGA Members can receive discounts on their home and auto insurance through TD Insurance. Additionally, reduced rates on health and life insurance are available through Manulife. Whether you're traveling abroad or staying local, you can be confident that your family and home are protected.

If you're hoping to budget not only for this year's vacation, but future vacations, too, APEGA has teamed up with CIBC Wood Gundy in Edmonton to offer Members a 20 per cent discount on financial planning services. Members also receive discounted rates from The Mortgage Centre.

MEMBER BENEFITS

Eligible APEGA Members can take advantage of the following discounts. Complete details of these group benefits can be found at apega.ca under Member Benefits and Member Insurance. Due to seasonal or other limited-time promotions, the Member discount may not be the lowest price — you are advised to compare. APEGA does not hold any Member insurance profile or policy information.

To be eligible you must be of active status and good standing in at least one of the following APEGA classifications: Professional Member, Permit Holder, Member-in-Training, ASAP Student, Life Member, APEGA employees. Proof of eligibility may be required, such as your APEGA Member card, staff identification, or letter of eligibility from APEGA.

To inquire about these benefits, check your eligibility, or provide service feedback, please email memberbenefits@apega.ca.

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APEGA

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IN MEMORIAM

The Association received notice of the deaths of the following Members between January 1 and April 30, 2015.

Life Members

CAMERON, Bruce, P.Geol.

CHAN, Wai Kwong, P.Eng.

DAHLSTROM, Clinton D A, P.Eng.

GRAY, Ronald, P.Eng.

HUFFMAN, Bertram McClure, P.Eng.

JEFFERY, Frederick Roy, P.Eng.

KEMP, Edward Millard, P.Eng.

KORCHINSKI, Larry, P.Eng.

KULLY, Gerald Joseph, P.Eng.

LEE, David John, P.Eng.

LEINAN, Arvid Brent, P.Eng.

MACGREGOR, James Grierson, P.Eng.

MACQUARRIE, Arnold Ellsworth, P.Eng.

PATTON, William John, P.Geol.

PROUDFOOT, Robert George, P.Eng.

ROSS, Robert, P.Eng.

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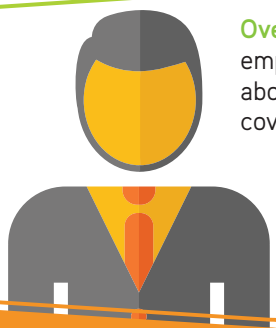
what's ailing the self-employed?

How health and disability insurance can help

The Self-Employment Challenge

Being your own boss has its perks. But without an employer's group benefits, self-employment also means fending for yourself in case of illness or disability.



Over two-thirds of surveyed self-employed individuals are concerned about their lack of access to medical coverage and insurance.[1]

8 in 10 Canadians are concerned about the government's ability to fund health care, the cost of longterm care, and having enough money if they become disabled or seriously ill.[2]

The Role of Insurance

Supplementary health and disability income insurance plans help protect against financial loss due to illnesses or accidents.

Why health insurance?

Canadian families are spending an **increasing share of their household income** on health care.[3]

Households in the 3 top income quintiles had an average:[4]

- **39% increase** in dental spending
- **24% increase** in prescription drug spending

Why disability insurance?

- **1 in 3** people will be disabled for 90 days or more at least once before they reach age 65.[5]
- **49%** of bankruptcies and mortgage foreclosures are due to disability.[6]
- **A disability of over 90 days** is likely to last three years or more for a 35-year-old man or woman, and four years or more for a 45-year-old man or woman.[7]

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Health & Dental Insurance covers both routine and unexpected medical expenses, such as:

- Prescription drugs
- Dental care
- Eye exams and eyeglasses

Disability Income Replacement Insurance covers 6 types of disabilities and includes the following at no extra cost:

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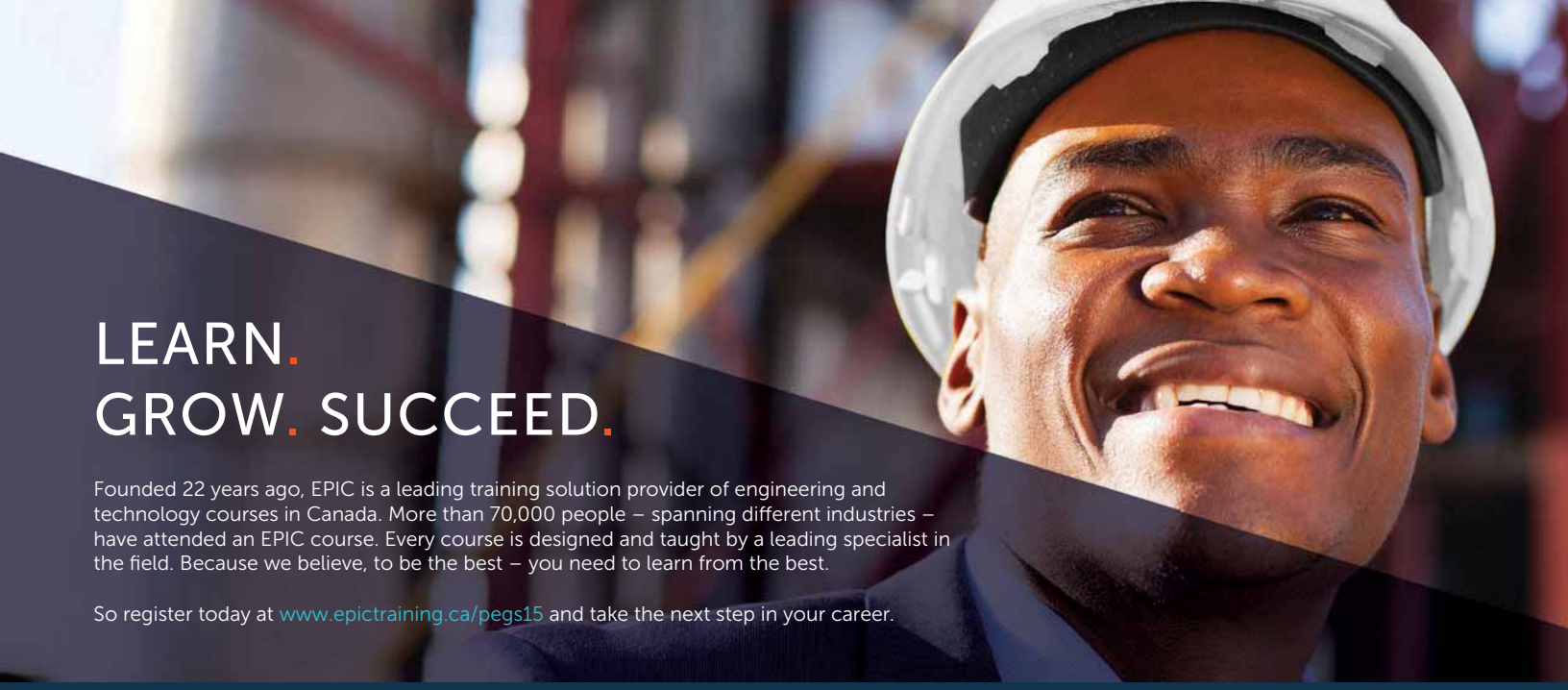
1 Human Resources and Skills Development Canada: 2006 Survey of Self-Employed Individuals: Perceptions of Benefit Coverage, May 2006.
2 Canadians at Financial Risk: 2013 Canadian Life Insurance Ownership Study Highlights, LIMRA, 2013.
3 Chaplin R, Earl L. Household spending on health care. Health Reports 2000; 12(1): 57-65.
4 Statistics Canada: Trends in out-of-pocket health care expenditures in Canada, by household income, 1997 to 2009 (April 2014).
5 Canada Life and Health Insurance Association, A guide to disability insurance, November 2012.
6 Get Sick, Get Out: The Medical Causes of Home Mortgage Foreclosures. Health Matrix: Journal of Law-Medicine, Vol. 18, No. 65, 2008.
7 Disability Insurance: Where Will the Money Come From If You're Disabled? Canadian Life and Health Insurance Association, January 2004.

The Manufacturers Life Insurance Company



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- Canadian Highway Bridge Design Code S6-14
- Structural Design of Industrial Buildings
- Comprehensive Review of Drainage Design Methods
- Structural Engineering for Non-Structural Engineers

Environmental

- Site Assessment According to Alberta Tier I and II Soil and Groundwater Guidelines
- Introduction to River Ice Engineering
- Understanding Environmental Regulations

Electrical

- Testing, Commissioning and Preventive and Predictive Maintenance of Electrical Equipment
- Fundamentals of Modern Substation Equipment, Protection and Controls
- Electrical Overhead and Underground Distribution Systems

Construction

- Cost Engineering - Effective Estimating and Cost Control of Engineering and Construction Projects

Mechanical

- Understanding the Manufactured Specifications of Pressure Piping for Inspectors, Designers and Engineers
- Layout and Design of Process Plant Equipment and Piping Systems
- Process Equipment and Piping Systems: Application, Design and Operation

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EPIC has expanded its technical online course library. These short courses are informative, convenient and you can also earn CEUs. Here are some that are coming up soon:

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- Design and Construction of Interlocking Concrete Block Pavements

Electrical

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- Power Quality Audit: Industrial and Commercial Applications

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- Mechanical Engineering Fundamentals for Non-Mechanical Engineers

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API 510 *Pressure Vessel Inspector Exam Preparation for September 2015* **Exam application deadline is July 10, 2015**	August 10-15 Edmonton
Welding Fundamentals *For Engineers, Inspectors, and Experienced Tradesman* **Covers Alberta Welding Examiner Paper 1 & 3**	September 8-11 Edmonton
CSA Z662 Sour Service *Introduction to Oilfield Steam Distribution in Pipelines*	September 17-18 Calgary
API 570 *Piping Inspector Exam Preparation for June 2015* **Exam application deadline is April 10, 2015**	September 21-26 Edmonton
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