APEGS
Association of Professional Engineers & Geoscientists of Saskatchewan

THE PROFESSIONAL EDGE

ISSUE 177 • NOVEMBER/DECEMBER 2018

Mentoring

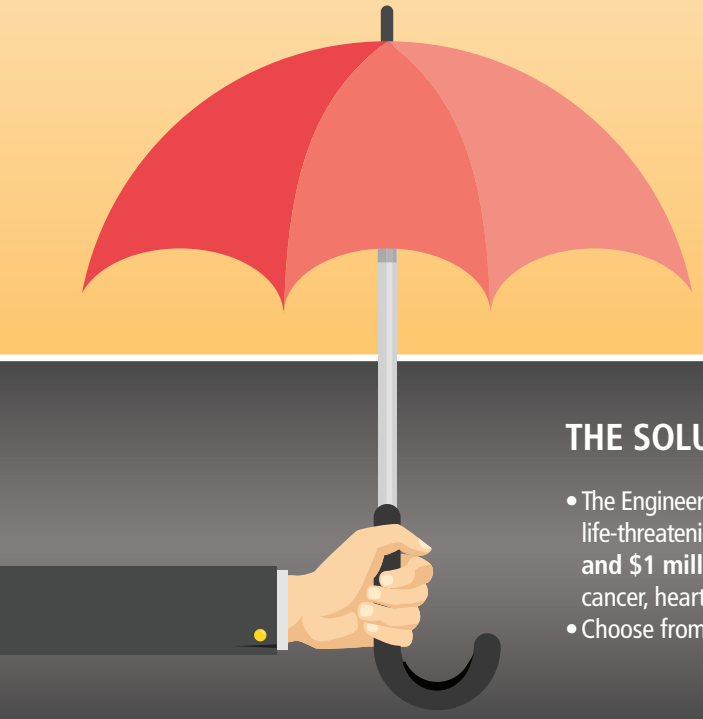
FACTS CANADIANS NEED TO KNOW ABOUT CRITICAL ILLNESS.

Thanks to medical advances, Canadians are more and more confident about surviving a critical illness. However, many still remain unprepared for the financial impact of such a diagnosis. The Engineers Canada-sponsored Critical Illness Plan can help if the unexpected occurs to you or a family member. Consider the facts below, and ask yourself: Are you financially prepared?

pg 2 - Manulife ad

1 THE RISK OF CRITICAL ILLNESS.

- **1 in 2 Canadians** will develop cancer in their lifetime.[1]
- **206,200 Canadians** were diagnosed with cancer in 2017.[1]
- About **9 in 10 Canadians** already have at least one risk factor for heart disease and stroke. In Canada:
  - there is 1 heart attack every 7 minutes.[2]
  - there are 62,000 strokes every year.[3]



2 SURVIVING A CRITICAL ILLNESS.

- **About 60%** is the 5-year net survival rate for people diagnosed with cancer, but it varies widely by the type of cancer.[1]
- **2.4 million Canadians** are currently living with the effects of heart disease.[4]
- **400,000 Canadians** are currently living with the effects of stroke.[5]

3 UNDERSTANDING THE FINANCIAL IMPACT OF HAVING A CRITICAL ILLNESS.

- Cancer accounts for **$586 million** in indirect costs from loss of productivity or premature death.[1]
- More than **400,000 Canadians** live with long-term disability from stroke. Recovery can take months or years, even for milder strokes, and many people never fully recover.[5]

THE SOLUTION: HOW CRITICAL ILLNESS INSURANCE CAN HELP.

- The Engineers Canada-sponsored Critical Illness Plan **pays a lump sum** upon diagnosis of a covered life-threatening condition. You and your spouse may apply for benefit amounts **between $25,000 and $1 million** to help meet the costs associated with surviving a serious illness, such as cancer, heart attack or stroke.
- Choose from **two types of coverage:*** **Essential – covers 6 conditions**
  Enhanced – covers 18 conditions

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[1] Canadian Cancer Society, 2017. http://www.cancer.ca/~/media/cancer.ca/CW/publications/Canadian%20Cancer%20Statistics/Canadian-Cancer-Statistics-2017-EN.pdf
[2] Heart and Stroke Foundation of Canada, 2017. http://www.heartandstroke.ca/what-we-do/media-centre/news-releases/media-opportunity-the-canadian-cardiovascular-congress
[3] Heart and Stroke Foundation of Canada, 2017. http://www.heartandstroke.ca/what-we-do/media-centre/news-releases/help-wanted-needs-not-being-met-for-canadians-living-with-stroke
[4] Public Health Agency of Canada, 2016. https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/heart-disease-maladies-coeur-eng.pdf
[5] Heart and Stroke Foundation of Canada, 2017. http://www.strokebestpractices.ca/wp-content/uploads/2017/06/HS_StrokeReport2017_EN.pdf

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Editorial provided by:

Martin Charlton Communications
#300 - 1914 Hamilton Street, Regina, Saskatchewan S4P 3N6
T: (306) 584-1000, **E:** marylynn@martincharlton.ca

Editor:

Lyle Hewitt, Managing Director, Martin Charlton Communications
E: lyle@martincharlton.ca

Design and Layout:

Jo Anne Lauder Publishing & Design, **T:** (306) 522-8461, **E:** joanne.lauder@sasktel.net

Submissions to:

The Professional Edge Editorial Committee
300 - 4581 Parliament Avenue, Regina SK S4W 0G3
T: (306) 306.525.9547, **F:** (306) 306.525.0851 **Toll Free:** (800) 500-9547
E: apegs@apegs.ca

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BY MARTIN CHARLTON COMMUNICATIONS

President's Message

Stormy Holmes, P.Eng., FEC

My career in engineering, including university and high school, has covered over 30 years. I include high school, because without the required training there I may have had difficulty getting into the Faculty of Engineering at the University of Regina. Without my university education, I would have been ineligible to become a member of APEGS and obtain a P.Eng.

Multiple years of preparation were a pre-requisite to becoming a member at APEGS. During each of these phases of my career, I've had mentors guiding me along the way.

Who is a mentor and what is mentorship? In my experience, a mentor is someone with whom you have a trusted relationship. A mentor is an active listener, who provides sage advice or sometimes just listens.

There are various forms of mentorship, from formal programs through to friendships. I have not engaged in formal mentorship during my career but have been very lucky to have met numerous people along my path that have provided guidance. I cannot express my thanks enough to those people who have helped guide me and listened when I needed to work through things.

During high school, my parents were a strong influence in choosing my electives to make sure that I had all the required pre-requisites for university and that I was positioned to enter any faculty. Both of my parents are technologists and strongly encouraged me toward engineering.

Aside from my parents, I also had a lot of support during high school from my teachers. One who had a huge influence was Mrs. Antrobus, my high school physics teacher. I told her quite early in my grade 12 semester of physics that I was leaning towards engineering after high school. She was very supportive and encouraging. Outside of my family, I consider her one my first mentors in engineering.

After I entered the Faculty of Engineering, there were many professors that had a positive influence on my experiences. But there were two that I hold as particularly influential. Professor Art Opseth, P.Eng., FEC was always there for students. He not only provided guidance on academics but was also influential regarding home life.

At one point I received some devastating news just as I was walking into a mid-term. I did not do well on that exam. Speaking to Professor Opseth about what was happening helped me act to right-side what was happening and provide some perspective on what I was experiencing.

APEGS President Stormy Holmes, P.Eng. with her father William L. Holmes, Engineering Licensee

Another influential professor was Dr. Marie Iwaniw, P.Eng. From my very first class with her, she started to provide guidance. She was the female role model of succeeding in engineering and not letting yourself get distracted by negative influences. These two mentors have been with me since my first days in university and continue with me now. Though I don't see them often, their lessons often come to mind.

My working career has had many mentors, my first supervisor, Dwayne Gelowitz, P.Eng., FEC, provided me lessons on work ethic and relationships. My first office manager, Ken Linnen, P.Eng., FEC guided me in professional writing and demonstrated the patience it takes to lead an office of people. Bob Crawford, P.Eng. from the City of Regina was one of my first clients. He was so patient working with me and provided guidance beyond being my client.

Mentorship at APEGS has taken place over the twenty years that I have been involved with the organization, starting in university. My relationships with people here have grown and changed over the years as I took on different roles.

The mentorship I have been provided by various people has changed as I have moved from student volunteer to president, but many of the people have been with me for most of my journey. Bob McDonald, P.Eng., MBA, LL.B., FEC, FGC (Hon.); Shawna Argue, P.Eng., FEC; Peter Van Vliet, P.Eng.; Margaret Kuzyk, P.Eng., FEC, FGC (Hon.); Wayne Clifton, P.Eng., FEC and Ernie Barber, P.Eng., P.Ag., FEC to name a few, have each guided me in different ways and have created a lasting impression on how I conduct myself.

You can see from the various roles that each of these people had, that mentorship can come from anywhere. My greatest lesson from each of these mentors is to make time for people. Though I was never formally mentored by these people, each of them has made time for me over the years.

It seems strange because I don't feel like I have enough experience but I now see myself mentoring others and it is one of my favourite things to do. Give back and you will always be happy to reap the returns.

Role Models, Mentors and Sponsors

SUBMITTED BY MARGARET-ANNE HODGES ,P.ENG., FEC, FGC (HON.)

This issue of *The Professional Edge* looks at the role of mentoring in the professions, a topic that is near to my heart.

Providing guidance to a young professional can take many forms. Role models, mentors and sponsors are all people that professionals need in their lives and careers but there are distinct differences among these roles.

Role model: Someone you may not know personally but with whom you identify and whose positive behaviours you seek to emulate.

Mentor: Anyone in a position with experience who can offer advice and support. Mentors support their mentees through formal or informal discussions about how to build skills, qualities and confidence for career advancement.

Sponsor: Someone in a senior position invested in the protégé's career success. Sponsors promote directly, using their influence and networks to connect the young professional to high-profile assignments, people and promotions.

In my case, as with many other people, my number-one sponsor was my father, William Hodges, P.Eng., who was also an engineer. He believed in me and told me I could do anything. The value of this type of support from a father to a daughter cannot be overestimated. It was my Dad who gave me a design project to lay out interlocking paving bricks that led me to decide to pursue engineering. It was my Dad who brought me along to his business meetings and luncheons to introduce me to people in the profession and business world as a young twenty-something.

My mother, Dr. Alice Goodfellow, MD., also played a key role as a mentor for me. One evening after I finished a phone call with a male engineer colleague, I needed advice because it was the first time I truly felt patronized by another person. I remember my mother's advice was to stay true to my convictions and stand for what I believed.

Most importantly, (and this is where the mentorship came in to play) she shared examples she experienced of being taken for granted and downplayed by other doctors she had worked with. She told me that I was not alone in what I felt and that there would be another day to fight and arrive at a positive outcome.

There are innumerable ways that someone can serve as a mentor or sponsor – encouraging a young student, sharing advice over a glass of wine, taking a chance on someone through a promotion, drawing a young professional into a discussion and many other ways. For all those men and women who filled those roles in my life, I thank you.

2018 Aboriginal Mentorship Program students.

Changing Lives, One at a Time: SRC's Aboriginal Mentorship Program

BY SASKATCHEWAN RESEARCH COUNCIL COMMUNICATIONS AND MARTIN CHARLTON COMMUNICATIONS

In many cases, mentoring is the ultimate example of "Me to We".

Mentoring relationships have long-lasting, powerful positive effects on a person's personal, academic and professional life. But they can also lead to profound social change.

The University of Saskatchewan states that "Indigenous students are strongly under-represented among the University's undergraduate STEM (science, technology, engineering and math) degree programs – four per cent and three per cent in the Colleges of Arts and Science and Engineering, respectively, compared to 14 per cent in social sciences, and 24 per cent in education."

The Saskatchewan Research Council (SRC) is aiming to correct this. SRC is proactively recruiting students for its Aboriginal (First Nations, Inuit and Métis) Mentorship Program (AMP) that connects Indigenous post-secondary students in the STEM disciplines with SRC mentors in the same or similar disciplines to help them take their education and experience to the next level.

"Over the past four summers, I've had the opportunity to watch some incredible mentoring relationships form and grow," says SRC Communications and Media Advisor Rebecca Gotto, who manages the AMP.

Photo courtesy of SRC.

Tomika Pinay and Mark Calette

Two years ago, AMP matched first-year Environmental Engineering student Tomika with mentor Mark Calette, Senior Advisor of Community Engagement on SRC's Environmental Remediation team.

The Mentor's View

For Calette, the best part of the AMP is the opportunity to learn about a variety of Indigenous cultures and perspectives.

"I enjoy having people come on board with us who are students and are trying to reach their goals in their career. They come from different Indigenous backgrounds and bring a different vitality to our office and to our teams."

The highlight of being a mentor for Calette comes down to fellowship.

> "I just really enjoy the fellowship, comradery, but most importantly, I really appreciate the sharing of knowledge."

"There's so much knowledge Tomika brings to our team and to me personally. Hopefully, I have been doing that for her as well. I've truly experienced so much personal growth by being a mentor, so it's really a two-way thing. I think we are equally benefitting from this relationship, both at work and even somewhat on a personal level."

Calette feels humbled to think of the long-term benefits of the mentoring experience.

"I'm hoping that some of the knowledge I'm able to share can be used in the next generation of our team leaders, our community leaders. If that information can help my mentees and others to grow to become the leaders of the future, then that's wonderful. I'm excited about what I see."

The Mentee's Perspective

It is ironic that among the things Calette helped Tomika learn was how to carry out community engagement with northern Indigenous communities.

"I'm from southern Saskatchewan so I've worked with southern Indigenous communities. It's similar to working with northern Indigenous communities, but it's also different. Without Mark's mentoring, I wouldn't know how to do community engagement – how to work with various organizations, how to contact them, how to write official documents and review them."

She says Calette also helped her bring focus to her career.

"Through this program, I figured out where I want to go with my career. When I started university, I knew I wanted to be an environmental engineer, but I didn't really know where in environmental engineering I wanted to work. I know now that I really want to focus on remediation. I've also grown as a person and know who I want to be and how to make that happen. Mark has been such a large part of that."

Photo courtesy of SRC.

AMP student Tyler Posch

Perhaps the ultimate benefit of the AMP for Tomika has been the sense of community with peers.

"I have really enjoyed getting to know all the other Indigenous students within the AMP program. It makes you feel like you're not alone as an Indigenous student pursuing STEM because there's not a lot of role models. Having a good role model who is Indigenous pushes the path for everybody else."

Other Voices

Over the last three years, the AMP has matched 18 Indigenous students with STEM mentors at SRC which has produced numerous success stories.

Chennoa Tracey, an assistant engineer with the SRC Industrial Engineering team is a former AMP student. Tracey started as a fourth-year mechanical engineering student in the Aboriginal Mentorship Program. After graduating from the University of Saskatchewan this spring, she jumped on the opportunity to join SRC permanently on its Industrial Engineering Team.

As a Métis woman going into STEM wasn't a stretch for Tracey since she had role models in her life to look up to who encouraged that career path.

"I have a father who is very tech-savvy and a couple of relatives who were engineers before me. I feel like they were my role models and helped me decide what I wanted for myself. I could see exactly what they did and I could see how what they did affected the world around them."

Tracey says the AMP program provided her with a great network, particularly with other Indigenous students studying STEM.

Photo courtesy of SRC.

AMP alumni Chennoa Tracey

Tyler Posch, a chemical engineering summer student, has been with the AMP program for two years with SRC's Minerals Team. In that time, he's been able to work on uranium processing projects from start to finish and sees the advancement of technology as a big driver around why Indigenous students might choose a career in STEM.

"Technology is advancing and it is making people's lives easier. It is important not only for Indigenous students but for everyone to focus on the environmental impacts that different processes have."

Posch is the first member of his immediate family to attend university and went to great lengths to get to where he is today.

"I went back to high school when I was 23 and upgraded all my grade 12 classes. I decided I was going to start the journey (to be an engineer) and now I am a year away from graduating and being a chemical engineer."

Inspiring Others

As Gotto sees it, AMP is not aimed only at creating change for particular Indigenous students but for generations of Indigenous students to come.

"There are a variety of reasons why Indigenous students are choosing careers other than ones in STEM. But what I have learned through managing AMP is that those who have chosen a career in STEM have done so with purpose," says Gotto.

> "Being able to identify and see other Indigenous people can motivate other Indigenous students, especially since we are not very high numbers in the workforce, especially in STEM."

"I see a passion in our students that often comes from their upbringing or cultural background."

"I see students who want to inspire others and make the world a better place. They even inspire me, someone who would never have considered a career in STEM, to think outside the box and learn more about how STEM can truly change the world."

This article was adapted with consent and cooperation from original SRC articles including Three Indigenous Students Share Why They Chose Careers in STEM by Rebecca Gotto, "We are equally benefiting from this": Inside a mentorship program for Indigenous students by Rebecca Gotto and other articles.

Mentor Stories

Mentoring is, very often, a very personal experience.

The Professional Edge asked some prominent APEGS volunteers to share their stories about how mentors made a difference in their lives.

Kevin Hudson, P.Eng. – Past Chair of the Environment and Sustainability committee

My main career mentor was Edward Boulay, B.Ed., who was the programs supervisor of NOVA Corporation of Alberta in Brooks, AB. Ed was my field supervisor for my engineer-in-training program, when I rotated through various field positions for a one-year period, learning the ins and outs of the natural gas pipeline business.

Ed was a very encouraging, organized and supportive supervisor, with a great sense of humour. Ed's background was as a technical trainer for the utility. With his background as an educator, he was adept at giving just enough direction to get you started, yet encouraged independent thinking, without compromising safety or standards.

Of all my supervisors I have had through my career, I still look back at my year with Ed as one of the best experiences working as an engineer. I liked it so much, I even married a teacher a few years later!

> "Ed taught me to eagerly accept challenges as opportunities and to say yes to new experiences. You'll never know what is waiting for you if you don't take the first step and find out."

During one of my field rotations I was working as part of the commissioning team on a controls upgrade for a large gas turbine and centrifugal compressor, at the biggest natural gas compressor station in Alberta. While ringing out some control wiring, I inadvertently shorted-out a critical power supply, which caused the station to go into blowdown (i.e. all gas within the station was vented to atmosphere). This was a costly mistake.

Instead of making me feel worse after the incident, Ed helped me learn from my mistake, improve the commissioning process and be more careful – these are lessons I have never forgotten over the past 27 years working in the energy industry in Saskatchewan and Alberta.

H. Colin Pitman, P.Eng. – Chair of the Student Development committee

I had three people who had strong influences on my career. The first was my father, H. Ross Pitman, P. Geol. The second was Nathalie Gagnon, P.Eng. The last person was Jared Orynik, P.Eng. Nathalie was a colleague I worked with on one of my very first projects after finishing school. Jared is a project manager I worked with on a couple of projects before and after getting my P.Eng.

H. Ross Pitman, P.Geo.

> "My dad was the person who first got me interested in engineering. He taught me problem-solving at an early age and also taught me about breaking down larger problems into more manageable chunks."

Nowadays my dad tends to give me more advice about dealing with professional life as well as having a family. Recently I was struggling at work with poor communication with some managers. My dad gave me some suggestions on how to best approach these managers in order to resolve the problem.

My dad has mentored several young geologists and engineers throughout his career. He often travels to the University of Toronto where he got his degree to give lectures to students on resume writing and on what to expect when they enter the profession.

Nathalie taught me how to handle myself in a professional manner. One of the first projects I worked involved meeting a client two hours out of town. By the end of the day, I was getting impatient and eager to hit the road and that started to affect my manners with the client. Nathalie took me aside and explained to me the type of behaviour that was expected of an engineer in the consulting business. She is currently working for SNC Lavalin in Montreal.

Jared is a person who likes to lead by example. Quite often he will go out of his way to ensure the people working on his projects are supported and have the equipment they need to get the job done. I enjoyed working on Jared's projects because I knew I wasn't the only one putting in extra effort to finish the job. While working on site over the weekend to commission one of Jared's projects, we realized that the supplier had given us the wrong relay for an electrical panel. Jared stopped what he was doing, picked up the correct relay and drove it out to the site so we could continue working.

Jared also has a young family and, while he is dedicated to his work, he also knows when to take a break to give his family the attention it needs.

Margaret-Anne Hodges, P.Eng., FEC, FGC (Hon.) – Past President

I had so many mentors in my early career that I'm reluctant to name one or even a few for fear of leaving someone out. But one mentor who left a major impression on me came rather later in my career - former APEGS Executive Directive and Registrar Dennis Paddock, P.Eng., FEC, FGC (Hon.) as well as his wife Wendy.

Dennis created an environment of trust and respect. Working with him on council and travelling with him and Wendy was a huge development opportunity.

> "I learned a great deal about leadership from Dennis. He always advised me to bring my council along with me in terms of leadership vision and goals. He helped me listen, pay attention and get feedback."

You have to engage them. Don't get upset if people disagree with your goals. You end up with a better solution if you listen to the areas of weaknesses and risk. The reason for having a council is to be counselled.

Dennis Paddock, P.Eng., FEC, Margaret-Anne Hodges, P.Eng., FEC and Wendy Paddock

Both Dennis and Wendy were also great supports for me on the national level when dealing with Engineers Canada. At that level, we were dealing with engineers and geoscientists associations from across the country, each with its own unique perspective, goals and way of doing things.

The launch of the 30 by 30 initiative, which is very dear to my heart, was under Dennis's watch and he helped me look at the initiative from a broader perspective that would not just involve APEGS but also universities, government and Engineers Canada. On that score, Wendy, who travelled with Dennis for so many years, was invaluable to me in making introductions for me in social settings, bringing me into conversations and helping me build relationships.

In addition to what I gained from Dennis and Wendy during my presidency, my position also helped me to be a better mentor to others.

In one memorable case, a young female engineer-in-training came to me for advice about asking for a salary increase and proving her value to the organization. Although it was a chance meeting, she felt comfortable talking to me as a friend and experienced female engineer in a prominent position in APEGS. I was pleased to give her advice and I was nearly in tears when I heard later that it had worked out for her. Those are the moments that make mentoring and volunteering in general worthwhile.

Student Development Committee

MARTIN CHARLTON COMMUNICATIONS

U of S Engineers Without Borders Gala, 2016

Colin Pitman, chair of the APEGS Student Development Committee (SDC) took the job of committee chair in the same way as many other volunteer leaders. Unwillingly.

"I was sort of 'volun-told'. My boss at a previous job was the previous SDC chair. She was looking for a vice-chair and 'suggested' it might be something I'd be interested in doing," Pitman says.

As it turns out, his former boss was right.

"It's very gratifying to be part of getting events off the ground, events that might not happen otherwise. It's also more gratifying than some other volunteer opportunities because you can see tangible results rather than pursuing a more vague objective."

The SDC handles grants, sponsorship, mentoring and liaison work between APEGS and university student groups. This is Pitman's fourth year with the committee and his second year as chair. Over that time, he's helped the committee build on its past successes and develop some new initiatives.

Earth Ring

One innovation under Pitman's watch has been the introduction of the Earth Ring ceremony for geology graduates.

"This was a concept that originated in Alberta. It's the equivalent of the Iron Ring for engineers that reminds them of the duties and responsibilities of their profession. My dad is a P.Geo. so I have a soft spot for that profession," Pitman says.

In its first year, the Earth Ring ceremony was held for University of Regina graduates. Pitman looks forward to extending it to the University of Saskatchewan next year.

In addition to promoting the idea, SDC provided funding and a keynote speaker and assisted with the logistics.

Student Engagement Subcommittee

The SDC carried a dizzying array of funding and other interactions with student organizations. It provides more than $100,000 in funding in support of roughly a dozen separate student groups and over 50 events.

With all this activity, one would think SDC and APEGS would be household terms to the student body. But that's not the case.

"What we've found is that students who are active volunteers understand SDC and APEGS very well but they represent only a small fraction of the overall student body."

SDC conducted a baseline survey that showed most engineering and geoscience students have little awareness of APEGS as an organization, the supports it offers them now and later in their careers, and of the responsibilities they will have to the organization upon graduation.

2014 Space Design Team

The new Student Engagement subcommittee is seeking to address this through a range of outreach initiatives including luncheons, student talks and social activities.

One notion the committee is considering is introducing a limited student membership to APEGS, which exists in some other professional associations.

"We're still weighing the pros and cons of that idea. On the plus side, it would provide better student representation on APEGS committees and vice versa as well as new avenues for mentoring and career support."

"On the downside, there would be some significant costs for staff support and logistics. As well, we have yet to determine if this is something students would really value and take advantage of."

To help guide its decisions, SDC will be carrying out a further student survey in the near future to see if it has moved the needle in raising student awareness of APEGS.

Travel Costs

One of the main focuses of SDC funding is travel expenses for students to attend conferences and competitions. In most cases, those expenses are quite modest, involving only road trips to events within Western Canada. In a few cases, the expenses are almost literally out of this world.

"One group we are particularly proud to support is the U of S Space Design Team. Team members are highly respected and have won numerous award but their competitions take them all over the world, to Europe and throughout the United States. Those travel costs are obviously going to be beyond the means of the average student. SDC is pleased to provide travel support so they can take advantage of these opportunities."

"Their building and materials costs are also significantly higher than many other student groups so APEGS helps fund those expenses as well."

You Can Help

The members of the SDC don't handle the responsibilities of the committee single-handedly. The committee provides innumerable APEGS members to serve as judges and public speakers at student events, as well as generating mentoring opportunities at student-professional networking events.

"For these roles, we draw on a database of volunteers who have expressed an interest in these roles with the APEGS office. But there's a never-ending need for these positions so we can always use more," Pitman says.

Plus, you might get a few free dinners out of the deal – if you like rubber chicken.

"At various student galas and conferences and galas that we fund, there is often some provision for us to have a few seats or even a whole table at dinners and lunches. We don't always fill those spots but that's certainly available for those who help out with the committee's functions."

Member Benefits and Affinity Programs

As an APEGS member you are eligible to participate in the member benefit and affinity programs.

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APEGS partners with selected suppliers to offer discounts to members on various products and services.

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ATI INSURANCE BROKERS INC.

This program is available to members, employees of members, and staff of the association.

It has been specifically designed to deliver the most comprehensive and cost-effective travel health and accident insurance available.

APEGS Travel Discount Program

traveldiscounts

APEGS is pleased to offer an exclusive worldwide travel discount service to our members.

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All APEGS members and their families can take advantage of the insurance plans, financial and other services through Engineers Canada's sponsored initiatives.

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- Engineers Canada Affinity Programs

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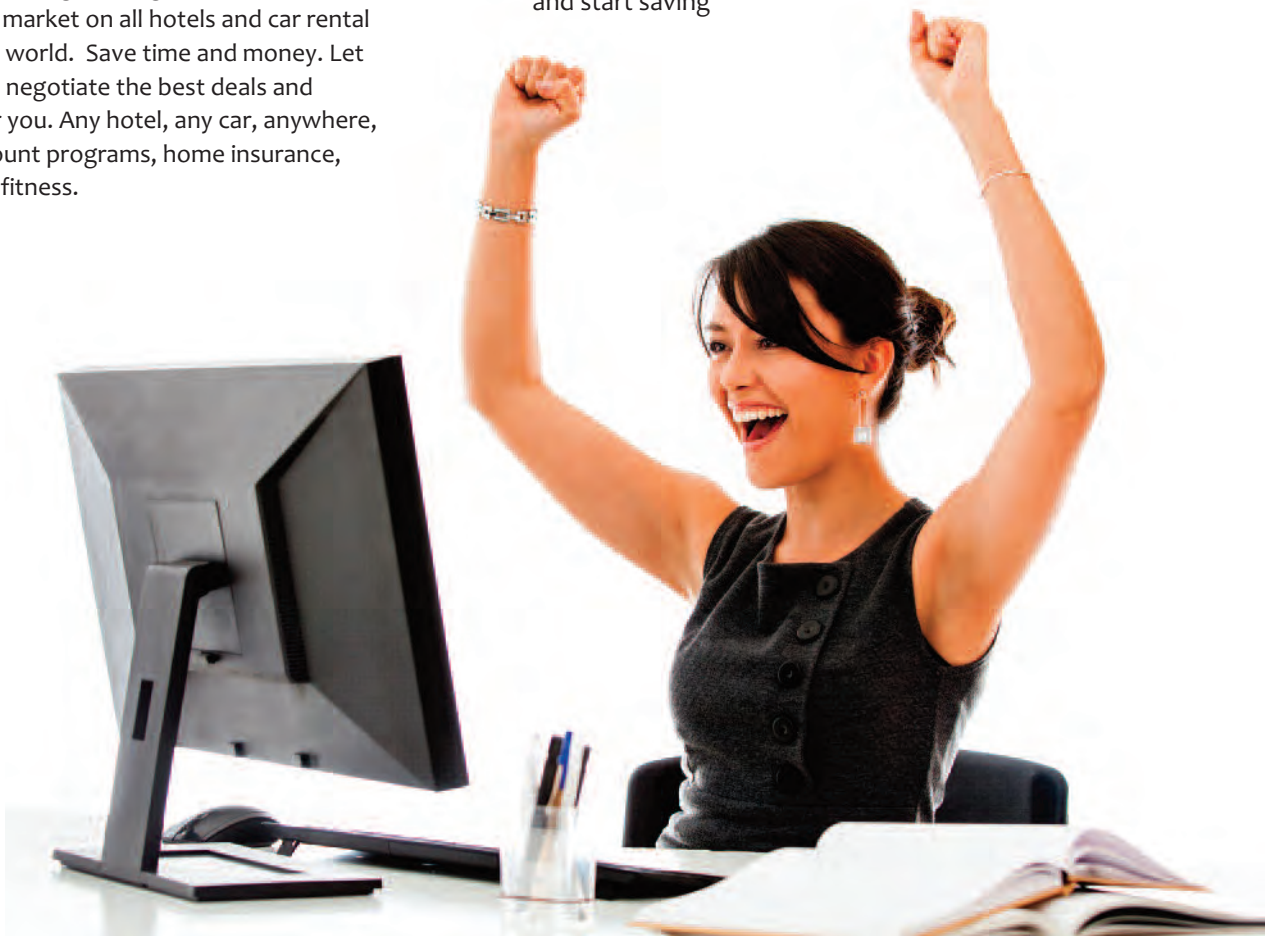


Member Profile

This month *The Professional Edge* chats with Kelvin Luedtke, P.Eng.

Tell us about your personal and professional background.

I was born in Lampman and raised on the family farm that my grandfather homesteaded in the Willmar community. I went through to grade 11 in Willmar and completed grade 12 in Carlyle.

Why did you choose to go into engineering?

I worked for my father on the farm for a year after high school but the economy wasn't favourable for farming at that time so I went to work as a petroleum battery operator in Alida. Working in the petroleum sector, a number of my peers had their petroleum technical training which paid better.

So, for the sake of career advancement, I took the two-year course at the Southern Alberta Institute of Technology. But I wanted to take my career further to the level of the professional engineers. I worked in construction supervision for Imperial Oil for one year to save money and then went to the University of Wyoming to study petroleum engineering. Canadian universities had stopped offering petroleum engineering because of the recession.

What was your biggest challenge in college?

My biggest challenge was settling down to full-time studies after being in the workplace. But that was also a motivator because I knew what the end result would be and anticipated a better career because of it.

What was your first job after college?

I went back to work for Imperial Oil in Calgary. I was sent as a resident civil engineer a construction job in Rainbow Lake, AB - about as far north as year can go – where I supervised about 100 workers.

A number of equally interesting and challenging jobs have followed since then over the course of my 40 years in petroleum engineering.

What do you feel was your single greatest accomplishment as an engineer?

There are many I can think of. At one point, I supervised all of the Imperial Oil engineers in Saskatchewan and southern Alberta, a group of about 25 professionals. That was a tremendous experience in teamwork and mentorship.

Also in the mentorship vein, for three years I was seconded by HR to Imperial's recruitment team. I visited every university and technical school west of Winnipeg to scout potential employees. My assessment from that period is that the future of the profession is in good hands.

Probably the highlight of my career was working for 10 years as an engineering supervisor for Nexen's operations in Yemen. It was a tremendous experience living and working in a different culture. I had only signed on for one year but I liked it so much I stayed for 10.

What was your experience like in Yemen?

We worked with a multi-national group who had been educated in different places – the US, Russia, Europe – but the working language at the camps was English. I found it fascinating how my Yemeni colleagues continually had to think on a multi-lingual basis. They had been trained in Russian which they then had to translate back into Arabic and then into English.

The camps and the travel were all-expenses-paid. We worked 12-hour days, five weeks in, five weeks out. So, there was a lot of air travel involved. I've calculated that my air travel adds up to enough miles to circle the globe 50 times.

Yemeni people are very friendly and family oriented. In their culture, you don't just talk about work or talk about the weather. They want to know about your family and how they're doing.

It breaks my heart to see Yemen now torn apart by civil war, especially since it's a war sponsored by outside interests. It's a real shame.

What are your interests outside of work?

I enjoy all the outdoor sports. I love golfing. I continue to help run a small family farm with about 60 head of cattle. I'm an RM councillor and a director of the local co-op. I'm active with the Lions Club in Carlyle and the Optimists Club in Arcola.

Have you ever met anyone famous?

Not famous so much but prominent. When I lived in Yemen, the local ambassadors – American, French, Italian – were obsessive bridge players and were always looking for a fourth. My mother, who learned the game from an infamous master of the game from Carlyle, taught me the basics so they regularly invited me over regularly to fill the bridge table.

What is your favourite vacation spot?

My family has travelled a few places – most recently to the Bahamas. When I worked in Yemen, on my off weeks I would sometimes connect with my family in Europe. But mostly we holiday at White Bear Lake where we enjoy boating and lake activities.

What do you do for professional development?

The work that I do with service clubs contributes to my public speaking and other softer skills. I've also attended numerous conferences and will do more once the oil industry picks up again.

Who had the greatest influence on your life and career?

I had huge support from my entire family. My parents, uncles and aunts all helped point my siblings and me in the right career directions. My mom was a school teacher, so she stressed the importance of education. My dad in addition to farming, was an RM councillor, headed up a hail insurance business and was one of the founders of the Lions Club in Carlyle. Growing up in that environment, my siblings and I learned to serve others, pursue worthwhile careers, get good training and pass that on to next generation.

Fees for 2019 are due on or before December 31, 2018

Check your contact information in your On-Line Profile.

Renewal notices have been mailed and it is the responsibility of members to make sure their contact information is up to date, including your email address.

To check your contact information, log into your On-Line Profile by clicking "Login" in the top right corner on the APEGS home page. If you have never used the system before, click on "New password/Forgot password" and follow the instructions.

If you don't receive your dues notice by December 1, 2018 contact APEGS.
Fees are due on or before December 31, 2018 regardless of problems with delivery.

Notes from APEGS Council

The APEGS Council met Friday, October 5, 2018 in Regina. 17 of 19 Councillors were present. Mike Griffin, APEGS legal counsel, attended as a guest. Council will meet next on November 29 – 30, 2018 in Saskatoon.

Council received the following presentations and information items:

- Activity updates were provided from the constituent society liaisons, the ACEC-SK liaison, the Sponsorship Task Group liaison and the 30 by 30 Task Group Liaison.
- The Director of Registration updated council on the continuing professional development implementation plan. It was noted that APEGS is receiving requests for ethics lectures. The Professional Development Committee has reviewed online ethics modules of other Canadian engineering and geoscience regulators and received a proposal to provide an online ethics training module. An online ethics training module is planned for 2019.
- The Communications Manager provided updates to the Strategic Communications Plan for 2019. The plan had been revised following the June planning sessions in Yorkton. The plan includes a redesign of the APEGS website.
- The Executive Director and Registrar provided council with an update on staffing.
- The Assistant Director of Registration advised council that the renovations at the APEGS office are complete.
- The Director of Special Projects reported on the status of the new member database. The go live dates were set for October 2018 and the new platform will be known as APEGS Central. The project will now move to development and implementation of wish list items. The wish list items are ranked as high, medium or low priority.
- The APEGS Directors to Engineers Canada and Geoscientists Canada reported on the activities at the national organizations.
- The first draft of the 2019 budget of the Association was presented.
- The Director of Registration updated council on the activities of The Pacific Northwest Economic Region (PNWER). Saskatchewan MLA Larry Doke was inducted as the 2018 – 2019 President of PNWER.

Council passed motions as follows:

- Approving the Respectful Workplace Policy HR5.0. The policy will be provided to all committees as an information item. The policy extends to APEGS volunteers.
- Approving the Strategic Communications Plan for 2019.
- Approving the 30 by 30 Champion's Group Transitional Terms of Reference with the addition of a clause "3(f) These Terms of Reference shall expire on December 31, 2019 or at an earlier date if the Champions Group is replaced or dissolved by Council" and that the existing 30 by 30 Task Group be dissolved". Executive Committee 's intent is to keep 30 by 30 moving forward by embedding the goals into the specific operating committees.
- That APEGS participates in laying a wreath at the 2018 Remembrance Day services of Regina and Saskatoon in honour of engineers and geoscientists who served in the military. For future years, APEGS will encourage constituent societies to do so.
- Approving the Mutual Recognition Applicants applying from Engineers Australia are no longer required to submit Engineers Australia practice reports to APEGS. APEGS staff can grant 36 months of experience credit to these applicants upon receiving direct confirmation of membership from Engineers Australia.
- Approving the updated Professional Practice Exam Policy PPE1.0.
- Adding the following questions to the APEGS application declarations:
  - Have you ever been convicted of a Criminal Offense in Canada or outside Canada? (Yes or No)
  - Have you ever had a civil judgment against you concerning professional misconduct, professional incompetence, negligence, fraud or breach of trust in Canada or outside Canada? (Yes or No)
  - Have you ever been denied registration and/or licensure to any professional association? (Yes or No)

- Have you ever had disciplinary proceedings initiated against you by any professional association? (Yes or No)

- Approving Life Membership for the following members:
  - Drysdale, Donald J., P.Eng.
  - Gale, John E, P.Eng.
  - Henley, William T., P.Eng.
  - Kronstal, Gerald D., P.Geo.
  - Lazurko, Carl M., P.Eng.
  - Martens, James A., P.Eng., P.Geo.
  - Weymark, William J., P.Eng.
  - Wilkinson, T. Bruce, P.Eng.
  - Van Hoof, Anthony H., P.Eng.
- Approving $145,000 to complete the database Wish List items at the discretion of staff.
- Approving Continuing Professional Development Variation Request Policy CPD5.0.
- Approving the revised Terms of Reference for the Discipline Committee.
- Appointing Trevor Chadwick, P.Eng., Rob Court, P.Eng. and Clare O'Dowd, P.Geo. to the Discipline Committee for a three-year term.
- Appointing Ernie Barber, P.Eng., FEC (Chair), Tara Zyrmiak, P.Eng. FEC, FGC (Hon) (past Executive Committee), Doug Drever (Group I – Civil Engineering), Mel Leu (Group III – Electrical and Engineering Physics), Pam Schwann, P.Geo. (Group IV – Geological, Mining, Petroleum, Geophysics and Geoscientists), and Wes Kotyk, P.Eng. (Group VII – Environmental) to the Nominating Committee for the 2019 Council Elections.

Council noted and received the following reports:

- Registrar's reports for June, July, August and September, 2018.
- The report on compliance activities for June 1 – August 31, 2018 and the CPD reporting statistic report for 2017.
- The unaudited financial statements for May, June, July and August, 2018.
- Executive Committee minutes, Board minutes and the reports from the committees.

Member Survey

APEGS secured Insightrix Research Inc. to conduct a member survey via email on various aspects of its operations, including member preferences regarding the annual meeting and conference, professional development opportunities and APEGS' communications channels.

The survey was sent during the week of November 12 to all members who have provided approval for APEGS to email them, which was 13,200 of 13,600 members. APEGS thanks all who participated in the survey. Watch for the results in an upcoming issue of *The Professional Edge.*

Introducing APEGS Central!

APEGS is excited to introduce APEGS Central, the new and improved online profile.

View and manage the following and more:

- Member information
- Applications
- Subscriptions (Communication Types)
- Pay fees
- CPD reporting
- Volunteering and Committees

All your APEGS affairs in one place!

We thank our members and applicants for their patience during this major system upgrade and apologize for any inconvenience caused by the service disruption.

APEGS Digital Seal

Engineers and Geoscientists who wish to produce legally reliable digital documents in compliance with APEGS's requirements can now accomplish this task with CertifiO for Professionals - APEGS Digital Signature (referred to as the "Digital Seal").

Members who wish to use an APEGS Digital Seal will begin the process of creating electronic originals and authenticate final document using proven technology solutions that meet government standards and archiving best practices for electronic files.

To obtain your Digital Seal, please visit the APEGS's page on Notarius' website: **https://notarius.com/APEGS**

notarius

Spring Professional Development Days

Spring
Professional Development Days

DATE: February 26, 2019

LOCATION: Days Hotel and Suites, Lloydminster

FACILITATORS: Various presenters

TOPICS INCLUDE:
- QP short course for the oil and gas industry
- Communicating in Business
- CPD Planning
- Coaching/Mentorship course
- Notarius

For more information, visit **www.apegs.ca**

Centre for Technical and Engineering Leadership

Gold Level Gourse Offerings

DATE: February 28, 2019 – March 1, 2019

LOCATION: Regina

FACILITATORS: Lisa Moretto and Lori Marra

TOPICS INCLUDE:
- Building Successful Teams
- Understanding Personality Types
- Managing Conflict
- Time Management

For more information, visit **www.apegs.ca**

Get to the Point!

A Practical Writing Course for Technical Professionals

DATE: May 1 – 2, 2019

LOCATION: Regina

FACILITATORS: Lisa Moretto and Ann Christoffersen

For more information, visit: **www.apegs.ca**

A P E G S

Association of Professional Engineers & Geoscientists of Saskatchewan

89th Annual Meeting and Professional Development Conference

Working Together, Engaging Communities

MAY 2 - 4, 2019 Hotel Saskatchewan, Regina SK

THURSDAY MAY 2

Evening Welcome Event

Jersey Night

Mosaic Stadium

FRIDAY MAY 3

Breakfast Keynote
Professional Development Streams
Professional Development Luncheon
Luncheon Keynote
President's Reception

SATURDAY MAY 4

Business Meeting
Youth Science Day
Engineering for Kids
Volunteer Luncheon
Awards Banquet

Registration will open

February 2019

ENVIRONMENT AND SUSTAINABILITY:

Bringing Electric Vehicles to Life, Right Here in Saskatchewan

BY JACOB BERMAN, ENGINEER-IN-TRAINING, WILLIAM HUGHES, P.ENG. AND KEVIN HUDSON, P.ENG.

Renewable Rides headquarters in Saskatoon

Two exciting local initiatives are accelerating the adoption of electric vehicles in Saskatoon and in underground mines around the globe.

Earlier this year, the Saskatchewan Environmental Society in partnership with the Saskatoon CarShare Co-operative, launched Renewable Rides and brought 100 per cent solar-powered electric vehicles to the car-share's fleet.

Also, in 2018, Prairie Machine and Parts (PMP), based in Saskatoon, created Rokion, a division dedicated to leading the mining industry toward fleet electrification. PMP is a global leader in the manufacture and supply of equipment, battery-operated electric vehicles and technical solutions for the heavy industrial and mining industries.

Renewable Rides

Renewable Rides is a first for Canada: a car-share program, with electric vehicles, powered by 100 per cent solar energy, for anyone to use.

Car-sharing programs are fast becoming useful ways for people to travel, especially if trying to cut the cost of expensive car ownership.

Saskatoon CarShare Co-operative members have 24-hour access to vehicles and only pay for what they use. Solar energy is delivered to five car-charging stations in neighbourhoods around the city from a 37.8 Kilowatt solar installation at Radiance Co-Housing (18th Street & Avenue L) owned by the SES Solar Co-operative. Delivery of the solar power uses a new metering technique called virtual net metering and is being piloted by Saskatoon Light & Power for this application across their electrical grid.

Rokion

Electric vehicles have entered the mining industry too. Battery powered vehicles have zero emissions translating to a safer, cleaner work environment in underground. Rokion's newest series of trucks (the R100 series) went from conception to the first working prototype over a period of 12 months. This time was filled with finite element analysis, detailed design reviews and optimizations.

Another six months of rigorous testing, redesign and a second round of prototyping led to delivery to the Saskatchewan potash industry in 2017 and to the Ontario hard rock market in 2018. The light-weight vehicle design enables operators to complete a full shift on a single charge, regardless of elevation within the mine. With its hill descent algorithms and drive interlocks, the R100 brings a new level of safety, efficiency and usability to operators.

Rokion's R-100 electric truck

PMP has sold about 100 electric vehicles and consider battery-powered trucks to be the future vehicle of choice for underground mining. This could lead to safer and cleaner working conditions for miners everywhere through ongoing developments in batteries, motors and charging solutions. PMP is dedicated to bringing that future to life, in Saskatchewan.

The first electric vehicle in the province was registered in Saskatoon in 2011. Since then, the number of battery-electric vehicles in Saskatchewan has grown to 141 and they're not just the Tesla – the list includes affordable models from Chevrolet, Ford, Mitsubishi, Nissan and Toyota.

The year-over-year growth rate has been over 50 per cent for the past five years and if this same trend continues we could see over 18,000 electric vehicles registered in the province by 2030.

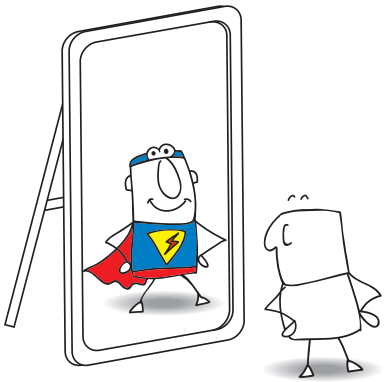
In a province with more vehicles than drivers, Renewable Rides and PMP are leading the charge to electrification of our transportation in Saskatchewan.

Something to Brag About?

The January-February issue of *The Professional Edge* is all about you!

Our annual Company Profiles issue will profile Saskatchewan-based engineering and geoscience companies and projects. If you want your company or project profiled or would like to recommend one, let us know.

Please contact: Professional Edge editor Lyle Hewitt @ lyle@martincharlton.ca



UPDATE

Experience Reporting Change for Engineers-in-Training

Competency-Based Assessment (CBA)

Does This Affect You?

If you are an engineer-in-training who has not submitted at least one complete experience report in the outgoing, paper-based system by January 1, 2019 then this applies to you. However, for those engineers-in-training who have the choice to either stay in the outgoing system or switch to the new CBA system, we are inviting and encouraging you to switch. See the APEGS website under Members, Competency-Based Assessment for more details.

How to Access CBA Online

The CBA online system is ready for you to start entering your competencies: https://competencyassessment.ca.

You create a user account by following the instructions on screen. Your APEGS registration / file number is required. APEGS is then contacted to authorize your account because the CBA system is separate from the APEGS database.

Benefits of CBA

CBA makes experience reporting easier and more transparent. It is highly recommended that engineers-in-training switch to the new CBA system even if they have already submitted reports in the outgoing, paper-based system. You may use experience examples from experience reports already submitted on the outgoing, paper-based system but make sure to include any information from there in the online CBA system for it to be considered.

It is easier to gauge if your experience qualifies for professional registration and therefore increases your confidence when writing your submission.

- What constitutes acceptable engineering work experience has not changed, we have better described it.

There are "indicators" to provide more insight into what will satisfy a competency.

- Indicators help applicants interpret the competency descriptions to further understand what information to include.

It is more quantitative and objective.

- There is an explicitly described rating scale from 0 to 5 that the applicant, validators and assessors use.

Only 34 examples required.

- You provide one example for each of the 34 competencies from any time in your entire engineering experience history instead of 54 (or more) examples in the outgoing, paper-based system.

It is online.

- No more paper and obtaining signatures. The online system facilitates all information entry, sharing and notifications. No more coordination is needed by the applicant through email and mail to supervisors and APEGS.

Here is a peak at the home page of the CBA system, called the Engineering Competency Assessment System:

APEGS Goes Big with *Dream Big*!

We're bringing the movie to every Saskatchewan school!

MacGillivray Freeman's

DREAM BIG

ENGINEERING OUR WORLD

Help APEGS Dream Bigger!

Introduce the show at a school for Engineering and Geoscience Week, March 3 to 9. We'll supply instructions and speaking notes.

Sign up at **apegs.ca**

Haven't seen it yet?

Check out Netflix!

Don't miss the opportunity to inspire a child and be an ambassador for the professions!

News Beyond Our Borders

IndigeSTEAM Empowers Indigenous Youth

Globe Newswire - Indigenous peoples in Canada (First Nations, Métis and Inuit people) are highly underrepresented in Science, Technology, Engineering and Mathematics (STEM) professions. As of September 30, 2018, the Association for Professional Engineers and Geoscientists of Alberta reports that of its total membership base of 76,400 members only 323 self-identified as Aboriginal (0.42 per cent of total membership).

IndigeSTEAM is a youth outreach program that was established to bring more diverse perspectives and seeks to eliminate barriers Indigenous youth face in STEM.

"We believe that incorporating art, creativity and social innovation into STEM outreach will lead to more successful engagement with all youth. We are passionate about the importance of these connections being made in a culturally relevant and appropriate way," states Deanna Burgart, the co-founder and president of IndigeSTEAM who is an engineer and member of Fond du Lac First Nation, Saskatchewan.

Because of the underrepresentation of Indigenous peoples in STEM, IndigeSTEAM sees the need to connect those in the mentoring space to provide a safe space for support, collaboration and the opportunity to build strategies to engage more Indigenous and non-Indigenous STEM professionals in reaching out to Indigenous Nations and youth.

IndigeSTEAM hosted its first Indigenous STEM Leadership Gathering at the Fairmont Banff Springs Hotel in Banff, Alberta on November 15 – 16, 2018.

To learn more:
http://www.digitaljournal.com/pr/3979710#ixzz5Uz2uUoud

Faculty named for renowned woman engineer

CBC - Concordia University's engineering faculty is making history with its new name — the Gina Cody School of Engineering and Computer Science — the first in Canada to be named after a woman, the university says.

Dr. Gina Parvaneh Cody, P.Eng., is the former executive chair and principal shareholder of CCI Group, a large engineering firm in Toronto. In another first, Cody became the first woman at Concordia to obtain a PhD in building engineering in 1989.

Required CPD Reporting is Coming!

Starting January 1, 2019, the new Continuing Professional Development (CPD) program comes into effect.

For more details, please visit apegs.ca and watch your mailbox for your personal copy of the APEGS CPD program document.

For more information, please contact:

Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon),
Director of Registration
Email: sargue@apegs.ca Phone: 306-525-9547
(in Regina) or 1-800-500-9547 (toll-free)

Jolene Arthur, Compliance Coordinator
Email: jarthur@apegs.ca Phone: 306-525-9547
(in Regina) or 1-800-500-9547 (toll-free)

www.theglobeandmail.com

Dr. Gina Parvaneh Cody, P.Eng.

The title is in recognition of a $15 million donation Cody has made to the school, the largest personal donation in Concordia's history.

The university says it will be dedicating part of the money to creating a fund for equity, diversity and inclusion programming.

"I arrived in Canada as a young student from Iran in 1979 with $2,000," Cody said in a news release sent by the university.

"My gift to the university is for the next generation, so that more people can succeed like I did."

She added that she wanted to make the donation because university is a place for "women, people of colour, Indigenous populations and other minorities to pursue their dreams."

The gift will also help fund scholarships and research on smart cities and allow for the creation of three new chairs in the faculty.

There will now be chairs specializing in data analytics and artificial intelligence, "the internet of things" and "Internet 4.0" and advanced manufacturing.

The goal in lending her name to the school, Cody says, is to help break down barriers for women in engineering.

Smarter and safer roads paved with research

APEGA - Good communication makes everything easier. That fact underlines the mandate of the ACTIVE-AURORA project team, spearheaded by Tony Qiu, P.Eng., PhD, as it logs hours researching and testing vehicles that talk with their surroundings to help ease gridlock, improve safety and increase energy efficiency.

An associate professor with the University of Alberta's Faculty of Engineering and the director of the university's Centre for Smart Transportation, Dr. Qiu previously ran a pilot project that tested various applications of car communication, such as notifying drivers of unsafe speeds and high-collision locations, recommending driving speeds based on traffic and issuing warnings about pedestrians and whether the vehicle can make an upcoming green light.

Now gearing up for the second phase of the project—namely security—the team has been awarded a $500,000 grant from Transport Canada to incorporate a security system that will safeguard information. Breaches are a threat when vehicles send information to each other and traffic management centres.

"Developing a security credential management system is an essential technical component to ensure that connected vehicles can securely function and communicate effectively as they become more widespread," says Dr. Qiu in a U of A story. "It is a critical component that will help us move one step closer to seeing more of this technology on public roads."

www.easymile.com

Driverless technology makes Alberta inroads

APEGA - Albertans and visitors to the province will be among the first in the country to try out autonomous vehicle technology. A 12-passenger driverless shuttle called Ela is being piloted by Pacific Western Transportation in Calgary and Edmonton, at locations segregated from pedestrian and other traffic.

Edmonton's test section remained undetermined, but in Calgary the shuttle will run on a service road between TELUS Spark and the Calgary Zoo.

Created by French company EasyMile, Ela has carried several hundred thousand people at 170 locations worldwide without a single safety-threatening incident. The shuttle, which has an emergency stop button but no steering wheel, operates using lidar (light imaging, detection and ranging, a surveying technology that uses pulsed laser technology).

Ela relies on a series of 3D sensors to continually compose a 3D map and monitor the surrounding environment for potential collision risks.

New regs for internationally trained applicants

OIQ - Quebec engineering regulator l'Ordre des ingénieurs du Québec (OIQ) announced a significant and immediate regulatory change affecting some internationally trained professionals (ITPs) applying for engineering licences to work within the province of Quebec.

The change is intended to make ITPs' application process more personal and reflective of each candidate's background and takes into consideration their diplomas earned as well as their relevant work experience and all competencies acquired when their admissions applications are evaluated.

Its objective is to ease access to the profession for ITPs while maintaining a rigorous competency validation process that protects the public.

Of the 46 professional orders in Quebec, OIQ has one of the highest rates of ITP applications: In the 2017–2018 period, a quarter of all applicants for an OIQ engineering licence received their education from a university outside Canada.

Of these internationally trained candidates, 60 per cent of them received their education from countries with no mutual recognition agreement (MRA), which is an international agreement between countries that establishes mutual recognition of academic and professional credentials, intended to foster mobility for engineers looking to practice in other jurisdictions.

Historically, ITPs from countries without an MRA have had to overcome significant hurdles. Under the old application process, ITPs who obtained their education from jurisdictions without MRAs could have faced up to 11 examinations. The process took up to 16 months.

Only 58 per cent of ITPs under this system were able to successfully navigate this process and get a permit to work in Quebec. OIQ has now set a target success rate of 75 per cent and lowered the process to eight months.

Under the new procedure, these candidates are now able to take university courses, work on engineering projects and have interviews to demonstrate their engineering skills meet OIQ's standards. Whatever the path the candidates take, their skills will be assessed by a panel of OIQ experts and licensed engineers.

Although this new regulation is designed to lessen the burden on ITPs with training from non-MRA countries, OIQ notes there can still be hurdles. Their integration also depends on the work and assistance of many other parties, including immigrant support organizations, universities and various job market–related bodies.

News From The Field

Expect self-driving cars later in Saskatchewan

Saskatoon StarPhoenix - The transition from traditional to self-driving cars is likely to take years if not decades and Saskatchewan's least favourite form of precipitation could make that process even longer, according to one expert.

Autonomous vehicles use a variety of sensors to detect objects in the environment and the province's climate is likely to prove more challenging than that of the southern United States, said Jonathan Cliffen, an engineer with 3M.

"I think the value proposition is going to be a challenge at first," said Cliffen.

"You're going to be able to use autonomous vehicles year-round in manual mode and hopefully six to eight months of the year you're going to be able to use it in autonomous mode."

At the same time, Cliffen said, autonomous cars — a category that includes everything from vehicles with driver assistance tools to fully-autonomous cars without a steering wheel — have significant benefits for safety.

That is why the global conglomerate was in Saskatoon pitching new road signs with embedded infrared markings that autonomous vehicles can read, as well as lane markers that it contends are more visible to the cars' sensors.

Retrofitting every road in Saskatchewan with materials optimized for self-driving cars would be enormously expensive, but Cliffen said jurisdictions across Western Canada are curious about what they need to do to get ready for self-driving cars.

MINING

Diamond mine approved in Saskatchewan

Saskatoon StarPhoenix - A proposed diamond mine east of Prince Albert received environmental approval from the Saskatchewan government.

Star Diamond Corp. must make accommodations to address potential impacts to First Nations treaty rights and traditional land uses as it moves forward with the project.

The James Smith Cree Nation is required to be involved in environmental monitoring and the company has to provide funding to the First Nation to support community participation in a number of programs.

Star Diamond is also required to enter an agreement to

provide training, jobs and business opportunities to the community.

Officials said a conservation area will be set aside in the Fort á la Corne Forest, where the mine will be located, so as not to infringe on Indigenous treaties.

Star Diamond is required to obtain further provincial and municipal permits as the project moves forward, including a surface lease, an environmental protection plan, an aquatic habitat protection permit and a water rights licence.

The Star-Orion South Diamond Mine, located roughly 65 kilometres east of Prince Albert, is expected to employ 700 people when operational.

The company said an assessment estimated 66 million carats of diamonds could be recovered from a surface mine over a 38-year period.

Saskatchewan targeted mineral exploration incentive

Global News - Applications for a new incentive to help encourage mineral explorations in areas of Saskatchewan are now open.

The government of Saskatchewan's Targeted Mineral Exploration Incentive is designed to cover part of expenditures associated with ground-based exploration activities.

It offers a rebate of 25 per cent of eligible direct drilling costs, up to an annual maximum of $50,000 per company on a pro-rated basis.

The incentive will focus on base metals, precious metals and diamonds – commodities that have significant unrealized potential in the province.

One objective of the incentive is to encourage base metal exploration in the Creighton-Denare Beach region, which has a long history of base metal mining and processing.

Total funding for the incentive in 2018-19 is capped at $750,000 and eligible companies can access it through a two-step application and verification process.

The incentive is administered by the Saskatchewan Geological Survey.

For more information, visit www.saskatchewan.ca/mineral-exploration-incentive.

ENERGY

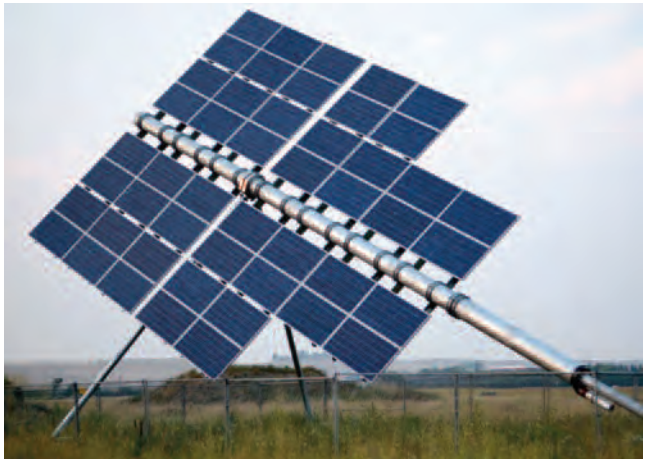
First Nation boosts wind, solar

CTV Regina - Saskatchewan is now home to a utility-scale solar and wind power site. The Cowessess First Nation unveiled the new solar energy site, alongside the existing wind power site on reserve land two kilometres east of Regina.

The new 340-kilowatt solar-power system is part of the existing 20-year power purchase agreement Cowessess has with SaskPower. An additional 57-kilowatt solar capacity system has also been installed to offset power usage at the site office and project site.

"This project will add up to 400 kilowatts of clean, renewable generation to the grid and provide us with real-life data on how a hybrid renewable generation system works on our system," said Doug Opseth, P.Eng., Director of Generation Asset Management and Planning in a news release. "We congratulate Cowessess for all of its hard work on this innovative project."

Funding for the solar panels came from revenue from the existing wind turbines at the site and debt financing from the First Nations Bank of Canada and funding from Western Economic Diversification Canada and Indigenous Services Canada.



SaskPower launches new green energy program

CKOM - As SaskPower tries to find more ways to gather renewable power, it's looking to its customers. The crown corporation is introducing a program which will allow customers to sell more power back to the company.

It's called the Power Generation Partner Program (PGPP). It replaces two previous programs SaskPower had been using and essentially increases the cap on how much power the crown corporation will buy.

It's meant for power production through renewable resources like wind farms and resource producers that flare gas.

The initiative will help SaskPower achieve its goal of having half of its power generation be from renewables by 2030. It will also help industry reduce their emissions and find a better use for the associated gases rather than flaring or venting.

The program is estimated to cost SaskPower about $840 million over the 20-year life of the contracts.

While the new program raises the caps on power generation, there are still caps in place.

According to SaskPower, the cost has already been factored into its business plan, so the program shouldn't directly affect customers' power rates.

The program was developed through significant consultation with industry and it's expected to be seen less as a revenue generator and more as a solution to the problem of emissions.

Looking for a Job?

The APEGS website provides links to the latest career opportunities in engineering and geoscience, updated daily.

Check it out at **www.apegs.ca/Portal/Pages/job-listing-7**

Between 70 and 105 megawatts of power are expected to be added to the grid through the PGPP. To put it into context, some of the province's power plants generate about 150 megawatts.

The PGPP is meant for set-ups which would produce larger amounts of power. Individuals producing less power will continue to be able to sell it back to SaskPower for a credit on their bill through the Net Metering program, which is currently undergoing a review and an update is expected to be announced later this year.

Province approves Swift Current wind project

Swift Current Online - As the province tries to reach a 40 per cent reduction in greenhouse gas emissions by 2030, there's a plan for wind energy to play a big part.

The Saskatchewan government announced approval for the Blue Hill Wind Energy Project, a large-scale project to be built south of Herbert.

Its planned location had to change, causing a delay, due to a migratory bird path.

Work is supposed to start in 2019 and things could be up and running by 2021.

The turbines are supposed to add 177 megawatts of energy for SaskPower customers, which the government said would power 70,000 houses.

In a release, the government said the site is outside avoidance zones outlined in the Wildlife Siting Guidelines for wind-energy projects in the province and that the company also did thorough wildlife surveys as part of an environmental-impact assessment.

Wind project set for Assiniboia

Regina Leader-Post - SaskPower has signed a 25-year agreement with Toronto-based Potentia Renewables for a new wind turbine project that will supply 200 megawatts of electricity.

The Golden South Wind Energy facility will be located near Assiniboia. It will have 60 wind turbines that will produce enough electricity for approximately 90,000 homes in the province. The project will bring SaskPower's total wind power capacity up to more than 600 megawatts.

The facility is expected to be operational as early as 2021.

Potentia was selected by SaskPower in a competitive tender process. Potentia is a developer, owner and operator of renewable energy assets that includes wind and solar power projects. The company is owned by Power Energy Corp., a wholly-owned subsidiary of Power Corporation of Canada.

Potentia owns and operates more than 700 installations, some which are located in the U.S. The company also has assets under construction in Latin America.

SaskPower's next competitive process for another wind facility is expected to get underway next year.

UNIVERSITIES AND RESEARCH

Geologists map out past Sask. climate

Saskatoon StarPhoenix - Swamps, hot weather and flourishing tropical plants. An ocean nearby … Florida, maybe?

No, it's the story of a long-lost Saskatchewan past that Meagan Gilbert is digging up from multimillion-year-old mud and fossils.

"If we understand how animals and plants of the past responded to major environmental changes, we can better prepare for how climate change may affect us in the future," said Gilbert, a University of Saskatchewan Ph.D. geology student.

Saskatchewan and Alberta were once on the coast of a huge seaway that periodically submerged the land, forcing animals and plants into sudden adaptations.

Gilbert has found that it's possible to grasp the evolution of climate and life on Earth by tracking sea-level changes.

These are indicated by patterns from the deposition of rocks and distribution of fossils in bedrock — the solid rock layer beneath soft soil or rock fragments. The bedrock patterns indicate the persistence of a hot climate for millions of years in Saskatchewan.

Gilbert's results are published in the journal *Palaeogeography, Palaeoclimatology and Palaeoecology*.

With funding from the federal agency NSERC, this is the first study that uses fossils to investigate the interaction between land-based organisms and environment in Saskatchewan's Cretaceous period, between 75 million and 76 million years ago.

The next step is to understand the landscape evolution by studying the rocks and badlands where Gilbert found the fossils. Then, she will compare the results with sites in Alberta and the United States to identify whether and why there are regional differences.

The findings could help shed light on how climate change works on a global scale.

Over two years, she has dug several sites in southwestern Saskatchewan, including near Lake Diefenbaker and gathered and identified almost 3,000 plant and animal fossils that are now housed at the Royal Saskatchewan Museum.

Sask. funds science internships

Government of Saskatchewan news release - The Saskatchewan government is committing $400,000 in funding to support internships in science, technology, engineering and math through Mitacs.

Mitacs is a not-for-profit organization in Canada that focuses on growth and innovation for both business and academics.

The $400,000 is expected to rise to about $2 million in federal and industry funding and in-kind support and will provide up to 68 internships for graduate students and postdoctoral fellows in industries across the province.

Through the Mitacs's internship programs, there will also be up to 33 international student research opportunities.

$12.9 million has been invested in Mitacs programming in Saskatchewan since 2007-08 including $2.96 million provided by the province.

INFRASTRUCTURE

Bridging to Tomorrow project honoured

City of Saskatoon news release - The City of Saskatoon received one of two gold Infrastructure awards at this year's National Awards for Innovation and Excellence in Public-Private Partnerships. The award, in recognition of the Bridging to Tomorrow project, was presented by the Canadian Council for Public-Private Partnerships (CCPPP) at the organization's annual conference in Toronto on November 5, 2018.

"We are incredibly honoured to be receiving this award," says Acting General Manager or Corporate Performance, Dan Willems. "Our entire team, including City employees, our Technical Advisory Team, and Graham Commuter Partners worked together to ensure that this project took into consideration the highest levels of safety, environmental preservation and value to Saskatoon and area citizens."

The project, which involved the construction of Chief Mistawasis Bridge and Traffic Bridge, was selected for breaking new ground in how public-private partnership (P3) projects are built, financed or delivered, as well as the impact they have on boosting the economy, saving costs and creating more vibrant, inclusive communities.

Willems says not only did the Bridging to Tomorrow project deliver two new bridges and connecting roadways to improve traffic flow in some of the busiest areas of Saskatoon, but it also took into account the city's cherished history and Indigenous roots.

The Bridging to Tomorrow project is the largest infrastructure project ever delivered in Saskatoon and the first bundled transportation P3 in Canada. The new bridges and roadways opened to the public on October 2, 2018.

$2B federal fund for water infrastructure

CBC - Climate change has an undeniable effect on Saskatchewan and water management is essential to adapting to warmer temperatures across the globe, according to civil engineer Wayne Clifton, P.Eng., FEC.

Clifton said the frequency of rain and water runoff is also much more variable and requires human intervention. He added that 95 per cent of the water flowing through Saskatchewan is not benefiting the province.

"Adaptation to our changing world will require management systems to contribute water for the environment, water for the communities, water for the economy," Clifton said.

Clifton spoke as the federal government announced $2 billion dollars in federal funding for water infrastructure, which the government describes is an opportunity for Saskatchewan to transform and diversify its infrastructure.

The fund is aimed at helping build major transformative infrastructure projects to advance flood proofing, drought proofing and water-based economic development.

Battlefords orders work on bridges

The Battleford News Optomist - Battlefords residents accessing Finlayson Island can rest assured the walking and vehicle bridges are still considered safe to use. However both require significant upgrades.

The Town of Battleford council agreed to allocate $70,000 for engineering work to determine how to stop erosion affecting a portion of the north walking bridge in particular.

Associated Engineering structural engineer Stephen Chiasson, P.Eng. said a study had been completed on the bridge's condition. He noted significant erosion on the river banks and that the bridge could be compromised if the erosion continued.

The town's administration recommends funding for construction to mitigate erosion in 2019, the cost of which could range from $400,000 to $1.2 million, with costs to be determined after the engineering work has been completed.

The two bridges were first built in 1905. The town took over ownership of the bridges from the province in 2003. The province upgraded the bridges to extend their lifespan for another 15 years before handing them over to the town. However, now that 15 years have passed, the bridges again require extensive work to extend their life for another 15 years.

cjme.com

OIL AND GAS

Rising oil prices spurring drilling

Financial Post - Rising oil prices that encouraged more spending by small and intermediate oil and gas companies in Western Canada in the first six months of 2018 are expected to lead drilling budgets to grow even further.

Producers say the steady march by U.S. benchmark West Texas Intermediate oil prices to higher than US$70 per barrel, a level last seen in early July, will encourage some to open their wallets.

Small and intermediate oil and gas companies reported spending an average of about 50 per cent of their planned 2018 exploration and development budgets in the first six months of the year, according to a report from analysts at CIBC World Markets.

That's up from about 47 per cent in the first half of 2017 and just 38 per cent in early 2016, when confidence faltered as WTI prices plunged below US$30 per barrel, the depths of the price crisis that began in late 2014, the bank added.

Drilling activity was strong in the three months ended June 30 thanks to warm weather that shortened spring break, the annual slowdown when the thawing landscape in Western Canada prevents companies from moving heavy equipment on provincial roads.

Extra development spending this year will come mainly from companies that produce oil or natural gas liquids, CIBC said, while producers of dry natural gas will remain in survival mode, hoping for positive investment decisions on liquefied natural gas export terminals to create demand that may bolster low gas prices.

Decline forecast for SK drilling

Pipeline News - On November 1, the Petroleum Services Association of Canada (PSAC) released its 2019 Canadian Drilling Activity Forecast. PSAC expects a total of 6,600 wells to be drilled in Canada in 2019. That's down slightly from this year. For 2018, the association's final revised forecast predicts a yearly total of 6,980 wells. For Saskatchewan, the forecast is a decline of 4.3 per cent in wells drilled.

Outgoing PSAC president and CEO Tom Whalen said, "While we've recovered from the very dark days of 2015 and 2016, there really isn't any cause for celebration in the near term, as drilling activity is in its third year of a plateau, averaging around 6,900 wells per year."

"The unprecedented, wide heavy oil price differentials caused by our chronic pipeline constraints is nothing short of a crisis for Canada. At current differentials, it exceeds a $100 million cost to the industry and Canada. Today, the only near-term line of sight to added pipeline capacity is Enbridge's Line 3 replacement which isn't projected to be in service until at least the third quarter of 2019."

On a provincial basis for 2019, PSAC estimates 3,532 wells to be drilled in Alberta, and 2,422 wells for Saskatchewan, representing year-over-year decreases of 221 and 110 wells, respectively.

"The on-again, off-again saga of the Trans Mountain pipeline expansion is another blow to investor confidence in Canada. It's not a positive signal to investors that it takes state ownership as a 'last resort' means to move national interest projects forward. Unfortunately, the biggest casualties in this debacle are the hundreds of thousands of middle-class Canadians who rely on the resource sector directly or indirectly for jobs, indigenous peoples who would benefit from jobs, skills training, and economic opportunities to raise them out of poverty, as well as all levels of government that collects royalties and taxes used to support health care, education, and other public infrastructure that benefits all Canadians," Whalen said.

Calendar Of Events

Advanced Design and Control of Hydraulic Circuits
January 3, 2019
Saskatoon, SK
homepage.usask.ca/~tkw954/me847

Spectrum 2019
January 10 – 13, 2019
Saskatoon, SK
spectrum.usask.ca

Drainage and Drought Workshop – CWRA
February 1, 2019
Regina, SK
cwra.org/en/branches/saskatchewan

SUMA Convention and Trade Show
February 3 – 6, 2019
Saskatoon, SK
suma.org/conventions

Spring PD Days
February 26, 2019
Lloydminster, SK
www.apegs.ca

Dream Big
Engineering & Geoscience Week
March 3 – 9, 2019
www.apegs.ca

ARM Annual Convention
March 11 - 14, 2019, Saskatoon, SK
sarm.ca/events/conventions

SustainTech Conference 2019 – SEIMA
March 21, 2019
Saskatoon, SK
www.seima.sk.ca

Law & Ethics Seminar
April 12 – 13, 2019
Saskatoon, SK
www.apegs.ca/Portal/Pages/Professional-Practice-Exam

APEGS Annual Meeting and Professional Development Conference
May 3 – 4, 2019
Regina, SK
www.apegs.ca

Williston Basin Petroleum Conference
May 27 – 29, 2019
Regina, SK
wbpc.ca

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