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*Association of Professional Engineers
& Geoscientists of Saskatchewan*

THE PROFESSIONAL

EDGE

ISSUE 181 • JULY/AUGUST 2019



2019

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President's Message



Terry Fonstad, Ph.D., P.Eng., P.Ag., FEC

This issue of *The Edge* is themed around inclusion. Within the professions and APEGS as the regulator, the diversity that results from inclusion leads to improved service to the public. This is something to be celebrated.

Over the past decade, APEGS has seen many changes in membership. Currently, approximately half of registered engineers and geoscientists are non-resident to Saskatchewan. At one time, the majority of APEGS members were trained in Saskatchewan or western Canada, but now APEGS members have training from around the globe. Admittedly, as a regulator, this can present challenges to ensuring competence and proficiency, but as professions, this diversity of training and experience adds value to society and presents an opportunity for the professions to share this knowledge and experience to improve our service to the public. Meeting these challenges pays dividends in improving our professions and is in the public interest.

Training institutions are changing recruiting strategies and the way they deliver curriculum to both appeal to and support training of a more diverse group of graduates. In Saskatchewan, for example, recruitment of women and Indigenous students into engineering, geoscience and other science, technology, engineering and math programs is a particularly high priority.

This diversity of training and experience in the workplace has been combined with increased diversity in terms of gender, race, culture and more. It has proven to provide value in designs that take into consideration a wider array of public needs and interests. Society, in general, has also changed our view on such things as work-life balance, family units and parental responsibilities for children. As such, the workplace has adjusted to support employees more broadly, which in turn has increased retention and productivity. As well, more and more engineers and geoscientists are working outside of Saskatchewan and Canada for extended periods of time, applying their expertise to projects in jurisdictions around the world.

APEGS, as the regulator of the professions in Saskatchewan, can do several things to support these changes in order to serve the public better. APEGS can continue to ensure there are no unintended barriers within the regulatory process in terms of remaining registered and maintaining competency and proficiency. APEGS can also increase its role in facilitating the sharing of knowledge between these diverse groups of engineers and geoscientists in order to foster the practice of the professions to elevate every member's competence and improve our service to the public. APEGS can also ensure it is inclusive in the recruitment of volunteers for committees and council to take advantage of the diversity of background and experience.

The diversity within the professions is increasing and APEGS is making efforts to ensure it is as inclusive as possible in support of the regulation of the professions in the public interest.

Indigenization In Engineering

BY MARTIN CHARLTON COMMUNICATIONS



Saskatchewan delegation at the 2019 Canadian Indigenous Science and Engineering Society gathering at McGill University

When Matt Dunn, P.Eng. first started working as an engineer, he came to work wearing a long ponytail in honour of his Indigenous heritage. A co-worker made a crack about it. Dunn wears his hair shorter now but is growing it out again along with his 4 year old son.

Anecdotes like these help to illustrate why Indigenous people are underrepresented in the engineering and geoscience professions. While Indigenous people make up approximately 15 per cent of the Saskatchewan population and roughly five per cent nationally, only 1.2 per cent of engineers identify as Indigenous.

“My experience reflects those of others studying engineering. One student I talked to dropped out after second year because she said she felt she was required to leave her culture at the door in engineering,” says Dunn, who for the last five years has headed up the Indigenous Peoples Initiatives program at the College of Engineering at University of Saskatchewan (U of S).

Barriers to Entry

The challenges Indigenous people face in engineering are many and varied, Dunn says.

“Socio-economic barriers are obviously a factor. There are also academic ones. Like many rural students, many First Nations schools don’t offer calculus or even pre-calculus which is a barrier for direct entry into engineering programs.”

“Some of it is the vicious cycle of lack of role models. Indigenous students don’t see many Indigenous engineers so they can’t see themselves in those professions.”

“And racism can be a factor, both overt and subtle. Many Indigenous students may view the sciences as being Euro-centric and feel that they undervalue traditional Indigenous knowledge.”

New Initiatives

To address these issues, Dunn has spent much of the last five years designing a comprehensive program for the college – the Indigenous Peoples Initiatives Community (IPIC) Engineering Access Program, which launched last August.

The program is modelled after two existing successful programs at the University of Manitoba and Queen’s University. Manitoba’s Engineering Access Program

(ENGAP), which has been around since the 1980s, has been the inspiration for the Queen's and U of S program.

"We owe so much to both those programs for the support and guidance they provided us."

The program has three components: Pathways to Engineering, Summer Bridging Program and Student Success program.

Pathways to Engineering is a modified version of the ENGAP approach.

"ENGAP is really the Cadillac model for this idea. It takes a student with a Grade 10 education, places them in a modified first-year engineering program, delivered in-house at the university and upgrades them over two years so they're ready to enter second year."

"We don't have the luxury of upgrading in-house, so we've developed our own program that suits the needs and resources in Saskatchewan."

Students who do not have the pre-requisites to apply to the College of Engineering are provided with a year of academic upgrading, provided through Northlands College and the University of Saskatchewan College of Arts and Science.

IPIC endeavours to deliver this upgrading as close to home as possible for the students. The next phase, the Summer

Bridging Program, prepares students to make the shift to the university itself.

Students spend several days on and around campus, in sessions focusing on academic preparation, navigating campus and transitioning to life in Saskatoon. Summer Bridging is required for students entering the College of Engineering through Pathways to Engineering and is also available to all Indigenous students entering Engineering.

"In this case, I think our program is a little bit more flexible. Theirs is based on a fixed term during the summer. We offer our sessions several times during the summer to adjust to students' schedules," Dunn says.

Finally, once the students are in the college, IPIC follows-up with its ongoing Student Success Program.

"This is a very important part of the program. We don't want to just bring the students in and leave them to fend for themselves. It's a voluntary program in which we provide holistic support services."

This includes social, academic and financial support, leadership development and peer support. For first-year students, this includes meeting regularly with an academic advisor and attending first-year facilitated study sessions to help ensure their success as engineering students.

"Even before the access program started, we also put a lot of effort into providing career supports. I've spent a lot



Recruitment presentation by Matthew Dunn, P.Eng. at Northlands College in La Ronge



IPIC 2019 Grad - Inaugural 2019 Indigenous engineering student graduation banquet at the University of Saskatchewan

of time negotiating with companies like Nutrien and Hatch to join the Indigenous Peoples Industry Partnership Program, which provides our students with summer jobs and a tuition incentive. Some of those students have then gone on to careers with those companies.”

“The mining industry generally has been very supportive of our program. We received funding support from the International Minerals Innovation Institute which has been a huge help.”

Dunn cautions that the program will require patience and persistence.

“Things won’t turn on a dime. ENGAP’s experience was that it took them a long time to graduate one student. From there, they had to bootstrap themselves bit by bit over the course of years until the program built up momentum.”

Employers Can Help

Looking beyond the university, Dunn sees much that employers can do to support Indigenous engineers.

“There are culturally sensitive things that could be done. Most companies allow time off for funerals for immediate family members. But in Indigenous communities there may be many people who aren’t immediate family or maybe not even family members at all with whom you might feel just as much of a bond as a close family member. Indigenous workers sometimes have trouble getting time off for funerals or emergencies in these cases.”

Dunn encourages employers to take a cue from the university by integrating Indigenous art into the workplace and making space for cultural protocols such as smudging to create a more welcoming and diverse environment.

When companies look to provide funding for Indigenous causes, Dunn encourages them not to try to reinvent the wheel.

“You’ll often see companies decide, with the best of intentions, to launch a major initiative to support Indigenous students or workers so they will try to develop something that is brand-new and unique. In many cases, this will end up duplicating an existing program that is undersupported. So, it’s important for companies to take a look around and see if there’s an existing initiative in which they can invest.”

Moving Forward, Seeking Truth

Dunn will soon be taking his mission to a whole new level as he takes on a new position as the Indigenization and Reconciliation Coordinator in the Office of the Vice-Provost Indigenous Engagement of the U of S.

“Whether it’s engineering or any other aspect of life in Canada, we have to remember that reconciliation cannot happen without a clear understanding of the true history of Saskatchewan. Many people and companies want to become allies and their hearts are in the right place but without a thorough understanding of that true history – including residential schools, the Sixties Scoop and much else – they may not be as effective as they want to be.”



EngiQueers Canada

BY MARTIN CHARLTON COMMUNICATIONS



EQ Executives at the EQ booth-Toronto Pride 2019

Some of the diversity issues in engineering and geoscience are easy to see, such as the underrepresentation of women and Indigenous people. Others are invisible but just as important. EngiQueers Canada is a national organization dedicated to advocating for the interests of lesbian, gay, bi, transgender,

queer and others (LGBTQ+) in the engineering profession. EngiQueers Canada was founded in 2017 but it was not breaking new ground. Dozens of engineering LGBTQ+ campus clubs already existed across the country which allowed the organization to quickly grow to a membership of 30 chapters nationwide. The organization is focused on



EQ Founder Vanessa Raponi presenting about EQ

helping found new chapters in universities where such groups do not currently exist and fostering social connections among its member groups.

Unwelcome Environments

Emily Abelseth, a biomedical engineering student from Calgary studying at the University of Victoria, is the current EngiQueers Canada president. Although there are few hard numbers on the subject, Abelseth's experience is that LGBTQ+ people are underrepresented in the profession.

"The LGBTQ+ community is underrepresented in the science, technology, engineering and math fields in general because the environment isn't comfortable. What we hear from members is there isn't a great workplace environment."

To illustrate this, she notes an example of an LGBTQ+ student on a co-op work term in the oil and gas sector. The crude, derogatory "locker room talk" of the oil sector workers made the student afraid to be open about gender issues among the student's co-workers.

Armin Smajevic and Elliece Ramsey, executive members in Queers in Engineering, Science and Technology (QUEST), the University of Regina chapter, have had similar experiences.

"Have I had experience with unwelcoming workplaces?"

Yes! The day before this interview, at my co-op government research job, my co-workers started making homophobic jokes. My coworkers weren't aware of my sexuality so they didn't know they were hurting me but that shouldn't matter," Ramsey said.

"It shows we still have a way to go. Usually, when you come out to your coworkers, their attitudes change. But if you're not comfortable coming out at work yet, people often show that they still hold these biases."

Smajevic is out with his friends but is often concerned that the open, easy-going relationship he has with them might cause collateral damage.

"These are guys who I've known for years. They know me and accept me. Sometimes they joke around and I know they don't mean any harm by it. But I often wonder, if some other LGBTQ+ person was walking by and heard that, how would that make them feel hearing those jokes out of context?"

Other Challenges

While one might think, in this day and age, that almost everyone would have progressive attitudes towards LGBTQ+ students, according to Smajevic and Ramsey this is not always the case.

“Even in 2019 there are some people, students and faculty, that are not as accepting of LGBTQ+ students as we would hope. Therefore we sometimes have to be careful about expressing our sexuality,” Smajevic says.

Abelseth adds that LGBTQ+ engineers can face a bewildering intersection of different types of socio-economic and cultural biases.

“For example, I’m a bisexual woman, so I face biases where straight women, or bisexual men may not. But on the other hand, I’m white so I have some privileges that an LGBTQ+ engineer of colour would not have. Problems of bias and discrimination play out differently for different people based on the intersection of these diverse identities.”

Keeping Clubs Alive

According to Abelseth, the biggest challenge for the campus clubs that make up EngiQueers Canada is sustainability.

“These are student groups. The membership and the executive changes very rapidly. It can be very difficult for them to build up any sort of momentum. We try to support them with documentation, template constitutions, ideas about how to grow their membership and guidelines for carrying out events and initiatives,” Abelseth says.

This challenge is part of the daily struggle for QUEST, Smajevic says.

“QUEST was originally founded in 2017 but fizzled out within the year. I got involved in 2018 to help revive it but I’m graduating soon. Six out of our seven members are graduating. One of the initiatives we undertook to strengthen our membership was to open it up to other STEM students. Elliece, for example, is on the executive but she’s a biology student.”

Despite the struggles with momentum, QUEST has managed a few events over the past year. They hosted a keynote speaker, Cat Haines, a transgender woman who has worked in Silicon Valley. They also sponsored a bake sale to raise money for local LGBTQ+ causes.

“In the coming year, we want to focus more on the sustainability piece by establishing our bylaws and reaching out to professors and graduate students to invite them to join. We are also in discussions with Associate Dean David deMontigny about establishing a ‘positive space’ committee to promote healthier communication about gender issues,” Ramsey says.

What Can Employers Do?

What can companies and other engineering employers do to support LGBTQ+ employees? Smajevic and Ramsey

have some pretty clear ideas about that.

“For starters, the ‘locker room talk’ has to be shut down right now. There’s just no excuse for it in the modern workplace,” Smajevic says.

“LGBTQ+ workers are an often-unseen minority so it’s easy for people to make assumptions. They assume that everyone in their workplace is cis and straight but that’s just not the case. So, you might think those comments are just a harmless joke but there’s a good chance that someone in your workplace finds them deeply offensive and hurtful. Even just by accepting those sorts of comments, you’re creating a hostile workplace environment,” Ramsey says.

While many employers make a show of support for LGBTQ+ causes during Pride month, Smajevic and Elliece emphasize that it is important to keep this going all year.

“It is very encouraging to see so many companies and Crown corporations showing support during Pride month. I think that sends a very strong signal to the LGBTQ+ employees working there that they are accepted. It’s important, though, that this support isn’t just expressed once a year but is part of a sustained policy in the company culture,” Ramsey says.

Above all, employers should keep in mind the value of diversity of all kinds in the workplace.

“As engineers, we’re designing solutions that affect many people, so we need to have a diverse range of views in our design teams. Lack of acceptance and lack of inclusivity affects the diversity of your teams which can reduce the quality of your work for the public. So, it’s important to foster inclusivity. Awareness campaigns, fundraising for LGBTQ+ organizations, hosting inclusivity and sensitivity sessions – those are all great ways that your business can help ensure an inclusive culture,” says Abelseth.



Compassionate Professionalism and Social Sustainability

SUBMITTED BY ESAM HUSSEIN, P.ENG., PH.D., PROFESSOR AND DEAN, FACULTY OF ENGINEERING AND APPLIED SCIENCE, UNIVERSITY OF REGINA

William Sullivan defined engineering as, “an occupation characterized by three features: specialized training in a field of codified knowledge usually acquired by formal education and apprenticeship, public recognition of a certain autonomy on the part of a community of practitioners to regulate their own standards of practice, and a commitment to provide service to the public that goes beyond the economic welfare of the practitioner”.

The latter part of the definition has become more relevant than ever in our role as professional engineers. It begs the questions: Do we have a responsibility to be social and environmental activists? What does that mean to us as a profession that deals with inanimate objects? Are these values more important and relevant to the profession than when I started my career decades ago? Is it time for our profession to be a compassionate profession like other caring professions?

The Scope of Change

The world is changing around us. Climate is changing in front of our eyes and is playing havoc with many of our designs. Some of our products, while serving the public well, generate waste and hazards that we can no longer ignore. Our sensible solutions to address these problems and other economic and environmental challenges are often resisted by the public and by some decision makers. We are frustrated by the public’s perception of risk that seems to be more emotional than rational.

We observe helplessly the effect our automation technology has on employment. A recent report by Deloitte and the Human Resources Professionals Association estimates that up to 42 per cent of jobs in Canada are likely to be eliminated by automation. Globally up to 800 million jobs could disappear by 2030 according to McKinsey research.

The jobs are not only going to the global south or to Asia. They are being replaced by robots. We engineers and technologists may be making our own jobs obsolete by developing intelligent systems that soon will do the technical work for us.



What will these unemployed people do with their time? What is the effect of this so-called Fourth Industrial Revolution on social order and stability? Should we control technological development for the sake of social order? Are these questions for us engineers to answer or even worry about?

We Must Be Responsible

We know the public depends on us. Think of a few hours without power, as we have experienced recently in parts of Saskatchewan, never mind a few days or a few months. Imagine life without computers, Internet, cellular phones, gas pumps, checkout counters and so on. Almost everything in our life is dependent on reliable stable and inexpensive electric power.

Yes, there was life before these advances, but we the engineers created technology that became the bloodstream of civilization which we cannot afford to give up.



Yet, our rapid advancement in developing and deploying renewable energy systems may pose a challenge to the stability and reliability of our systems and threaten the stability of our social systems.

Centralized power generation, transmission and distribution systems served us well for a century. As we welcome renewable distributed energy, we may impoverish our centralized power utilities. Who will then maintain and expand our transmission lines, provide baseload backup and operate the smart grids needed for the distributed power systems associated with renewable energy? Should governments impose a renewable-energy tax to ensure that the essential infrastructure for power transmission and distribution is maintained and upgraded? Is it our responsibility as professional engineers to alert decision makers and the public to the unintended consequences of new technologies?

Inclusion, Diversity and Lifestyle

As we examine the composition of our profession, we see clearly that it is male-dominated, in spite of decades of focused efforts to be inclusive and welcoming of women. Is it because of the culture or the nature of the profession, or is it because our profession is not seen as a compassionate profession by women?

Our engineering programs are demanding and intense, but they are not different from other professional programs and many of us will argue that they are more fun because they challenge the mind. Nevertheless, many of our students acquire the habits of workaholics by the time they graduate and many of us practice engineering this way and we love it. We are sending, however, a message that this is a profession for those whose definition of work-life balance is that work is life and life is work.

Do you wonder why we have very few Indigenous people in our profession? Is it because we lack the collective and holistic view that integrates economic activities with our environment and people? We manage projects around their scope, budget and schedule. Should we also manage the immediate and long-term social impact of projects?

Broadening Our Horizons

We tend to be internally-focused on technical aspects (inside-out design) rather than on the human impact of our work (outside-in design). Should we devise a Humanitarian Engineering Program or, like many other professions, require our graduates to have some liberal arts education before being enrolled to study engineering?

Engineering students are currently required to take some courses outside engineering, which we call complementary or non-technical electives. These are not core courses and does calling them complementary imply that they are marginal to engineering? Should this paradigm change and humanities be in the core of studying engineering? Engineering, after all, is a subject that affects almost every aspect of modern human life.



In his book *In Defense of a Liberal Education*, Fareed Zakaria says that it costs an engineer a dollar to make a widget and it takes a liberal-arts graduate to sell it for a hundred dollars. Why are not we doing the selling, telling the story and conducting the public relations and advocacy work ourselves?

Pillars of Sustainability

As our esteemed colleague, Wayne Clifton, P.Eng., emphasizes, engineering is a driver for economic growth. We are also becoming more engaged in providing ecological balance to our activities. It is about time, I believe, to engage in the third pillar of sustainability: the social one.

Beyond safeguarding human life, we need to better understand people and their fears and aspirations. We need to better tell our story, better listen to people's concerns and do better in social engagements, in spite of our introverted tendencies.

I have posed here more questions than answers, in the hope of generating a debate within the profession. What a better place to start this conversation than in Saskatchewan, the birthplace of medicare and the cooperative movement.



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Member Profile



This month *The Professional Edge* chats with **Krystyna Kotowski, P.Eng.**, an environmental and sanitary engineer with the City of Saskatoon.

Tell us about your personal and professional background.

I grew up in Poland and attended the Warsaw Technical University, where I got my master's degree in science.

What brought you to Canada?

My husband was active in the Polish independence anti-communist movement and was imprisoned. When he was released, we were granted refugee status in Canada in 1988. Even after the collapse of the communism, we decided to stay here. Our son was three years old when we came over so this had become his home and we had put down roots.

Why did you choose to go into engineering?

I was raised in a family with a strong engineering influence. My father was a mechanical engineer and my older brother was also an engineer. From a young age I was interested in science and math, so it was an obvious path for me.

I was interested in environment and sanitary engineering especially water and wastewater purification because it intersected with my interests in biology and chemistry. I was lucky to find a profession that connected to all my interests.

What was your biggest challenge in college?

I think I faced fewer challenges in university in Poland than female engineering students in the Canada. At some technical universities, women made up 30-40 per cent of the class. In a few engineering colleges in Poland, they actually had to impose quotas for the men because the women were overrepresented.

To what do you attribute this difference?

Part of it is probably due to the effect of the two world wars on European population. Our countries were ravaged by wars so there was more acceptance of women taking over male-dominated professions because the men were off fighting. As a result, the gender equality in the engineering professions was reached there in the late 1960s so the social acceptance of women in engineering was the issue of our mother's generation but not for us.

What was your first job after college?

I worked for the municipal design and research bureau for the city of Warsaw, designing water and sewer systems for new neighborhoods. I also worked as an environmental engineer for a consulting engineering firm in Poland.

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

I am thinking about this as a two part process. First part was moving to Canada - adjusting to a very new place to live. Adapting to a different social and economic system, being away from friends and family, learning to think and talk in a new language and at the same time going through the stressful degree valuating process. It took patience and determination to succeed.

Second part was to resume and progress in my professional career - being able to prove my abilities in a demanding environment like Western Canada. From this perspective, as a project manager for a number of highly visible projects, I am most proud of the new water intake project, just south of the Gordy Howe Bridge, due to its very challenging design and difficult construction process.

What are your interests outside of work?

We still have family and friends in Europe, so I travel a lot. I enjoy art, opera and tennis (the latter, both playing it and watching it). I never miss a performance by the local Saskatoon Opera. My son has moved to Boston, so I also go there often to visit him. I love to take in the opera and art galleries wherever I go.

Have you ever met anyone famous?

Since we were involved in politics in Poland, some of our old friends have made impressive political careers since then. It's a treat meeting them when we are back in Warsaw. In operas in London and New York, I've met some famous opera singers. In the tennis world, I haven't met them personally but I've watched some of the greatest players in the world when I go to US Open or to Wimbledon.

What is your favourite vacation spot?

I like London very much. It is very beautiful city and we have some friends, other Polish expatriates, who live there and make me feel at home. I also enjoy Boston, first of all because my son is there but also because it is quite European in character too.

What is your favourite book?

For a daily reading, it is Catch-22 by Joseph Heller. It brings some sane perspective to the daily events. In general, I like reading historical books. Right now I am reading books about communist times in Russia and the history of Poland. I'm not sure I would call this my favourite book, because it is so difficult to read, but *The Archipelago Gulag* by Aleksandr Solzhenitsyn is one I've found especially moving.

What do you do for professional development?

I attend conferences regularly such as the American Water Works Association conference. I've taken many courses in project management. I took executive education project management program at the Harvard Business School which was a great experience. I gained knowledge and met people from around the world working in the same fields. I studied construction engineering and management at the University of Saskatchewan. I try to stay on top of the latest technologies. And, of course, since my husband is an engineer, we talk a lot about engineering over the dinner table, so I suppose that counts too.

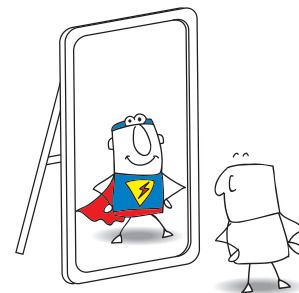
Who has had the greatest influence on your life and career?

For my life, my parents obviously made a big difference. My father, as an engineer, influenced me a lot. He was my role model.

Here in Canada, my first manager at the City of Saskatoon water works, Randy Munch had a strong influence on my later career. He showed me the profession and accepted me with my background. He worked to combine my strengths with the work required. I'll always be grateful that he believed in me. At the time I still didn't have official recognition, but it was through the support of this person and the whole team here at the city that I received my Canadian credentials.

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

2019 APEGS Salary Survey Summary Results

The Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) contacted 5,923 Professional Engineers, Professional Geoscientists, Engineers-in-Training, Geoscientists-in-Training and Licensees living in Saskatchewan. A total of 1,923 members completed the survey representing a 32.5 % response rate. Surveys were completed in March and April 2019 and salaries reported were as at December 31, 2018. Inshtrix Research Inc. compiled and tabulated all results. The detailed report, which includes analysis by gender, can be found on the APEGS web site at <http://www.apegs.ca/Portal/Pages/salary-survey>

The main goals of the survey are:

- to provide information to all members regarding monetary compensation for different levels of responsibility and advanced degrees;
- to provide information to employers to assist them in establishing appropriate pay levels for recent graduates and ensuring competitive compensation packages for experienced professionals; and
- to give students, career counsellors and other interested persons information on employment, including salaries, in the engineering and geoscience professions in Saskatchewan.

Annual Salary by Final Year of Graduation (B.Sc.)

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
1976 & Prior	22	1.2%	\$142,977	\$40,000	\$105,000	\$138,638	\$176,000	\$223,400
1977*								
1978*								
1979*								
1980	10	0.5%	\$116,756	\$10	\$82,636	\$127,255	\$170,000	\$195,000
1981*								
1982	13	0.7%	\$148,035	\$90,000	\$105,000	\$150,000	\$173,000	\$260,107
1983	15	0.8%	\$155,230	\$24,000	\$135,307	\$162,867	\$182,400	\$285,000
1984	11	0.6%	\$151,992	\$60,000	\$110,000	\$140,000	\$210,000	\$245,000
1985	13	0.7%	\$158,379	\$90,000	\$110,000	\$127,000	\$198,500	\$255,000
1986	16	0.9%	\$147,568	\$79,000	\$107,250	\$152,500	\$174,645	\$239,000
1987	24	1.3%	\$146,365	\$86,000	\$115,500	\$147,955	\$170,000	\$212,000
1988	24	1.3%	\$155,933	\$93,000	\$131,250	\$152,945	\$184,096	\$240,000
1989	21	1.2%	\$135,177	\$93,000	\$105,000	\$138,000	\$155,000	\$180,000
1990	20	1.1%	\$124,382	\$37,700	\$92,000	\$123,300	\$166,000	\$189,602
1991	20	1.1%	\$141,102	\$44,850	\$114,250	\$137,000	\$163,750	\$219,250
1992	10	0.5%	\$131,042	\$53,500	\$120,000	\$134,000	\$152,000	\$188,921
1993	15	0.8%	\$134,232	\$51,000	\$119,508	\$135,000	\$161,235	\$208,000
1994	22	1.2%	\$142,582	\$75,000	\$100,000	\$141,567	\$173,000	\$203,000
1995	27	1.5%	\$136,307	\$45,806	\$104,000	\$133,600	\$180,000	\$210,000
1996	24	1.3%	\$154,324	\$102,500	\$121,250	\$153,835	\$182,250	\$210,000
1997	27	1.5%	\$129,047	\$85,060	\$102,820	\$129,100	\$147,000	\$200,000
1998	22	1.2%	\$117,556	\$52,000	\$100,000	\$113,709	\$145,000	\$180,000
1999	43	2.4%	\$126,898	\$70,000	\$105,000	\$120,000	\$146,400	\$192,000
2000	36	2.0%	\$120,269	\$58,200	\$93,750	\$116,250	\$143,750	\$190,605
2001	49	2.7%	\$124,824	\$62,000	\$102,000	\$125,000	\$145,000	\$180,000
2002	47	2.6%	\$120,582	\$74,000	\$104,212	\$120,000	\$148,000	\$165,000
2003	49	2.7%	\$121,946	\$82,500	\$107,120	\$119,000	\$136,140	\$177,070
2004	58	3.2%	\$117,687	\$75,000	\$87,000	\$120,750	\$135,150	\$175,000
2005	67	3.7%	\$110,066	\$54,400	\$93,845	\$110,000	\$130,000	\$155,709
2006	50	2.7%	\$100,790	\$26,623	\$89,000	\$103,500	\$120,000	\$149,400
2007	85	4.7%	\$111,022	\$80,000	\$94,259	\$105,000	\$126,822	\$154,000
2008	86	4.7%	\$104,617	\$75,000	\$91,500	\$100,000	\$120,000	\$147,000
2009	86	4.7%	\$98,886	\$70,000	\$87,000	\$97,750	\$105,000	\$155,000
2010	89	4.9%	\$98,344	\$50,000	\$85,000	\$98,000	\$108,000	\$148,000
2011	83	4.6%	\$95,043	\$55,000	\$81,900	\$92,000	\$105,000	\$138,000
2012	116	6.4%	\$85,674	\$65,000	\$75,125	\$85,000	\$95,000	\$117,000
2013	92	5.1%	\$82,654	\$56,000	\$73,125	\$81,259	\$93,675	\$115,000
2014	97	5.3%	\$79,942	\$55,000	\$70,000	\$79,000	\$89,551	\$108,000
2015	91	5.0%	\$74,056	\$58,240	\$65,000	\$70,000	\$82,500	\$96,000
2016	74	4.1%	\$68,453	\$51,000	\$60,900	\$65,779	\$77,000	\$87,443
2017	71	3.9%	\$69,958	\$48,000	\$60,000	\$65,280	\$75,000	\$103,500
2018	74	4.1%	\$64,992	\$50,500	\$60,000	\$63,000	\$68,000	\$89,600

*Not available due to reporting rules (insufficient data)

Annual Salary by Designation

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
P.Eng.	1,172	64.3%	\$118,403	\$75,000	\$92,699	\$110,000	\$138,000	\$188,921
P.Geo.	85	4.7%	\$121,628	\$71,760	\$92,000	\$115,000	\$150,000	\$190,000
P.Eng. and P.Geo	16	0.9%	\$122,715	\$82,500	\$96,375	\$108,550	\$146,500	\$196,000
Engineering License	14	0.8%	\$113,360	\$62,000	\$86,794	\$107,500	\$130,000	\$170,000
Engineer-in-Training	501	27.5%	\$72,365	\$50,000	\$62,400	\$69,600	\$80,000	\$104,000
Geoscientist-in-Training	34	1.9%	\$85,906	\$50,000	\$73,000	\$82,500	\$96,000	\$138,000
Geo Licensee*								

Annual Salary by Discipline

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Ag/Forestry	47	2.6%	\$100,033	\$60,000	\$72,000	\$85,000	\$112,000	\$200,000
Biolog/Biomed*								
Chem/Ceramic/Metal	83	4.6%	\$105,590	\$58,500	\$80,000	\$95,680	\$135,000	\$179,000
Civil	389	21.4%	\$99,212	\$58,000	\$73,065	\$94,000	\$115,000	\$169,800
Elec/Eng Physics	262	14.4%	\$107,617	\$62,000	\$82,000	\$100,423	\$131,000	\$165,000
Environmental	132	7.2%	\$97,119	\$56,000	\$73,836	\$92,700	\$112,863	\$164,580
Geo/Mining/Petro	188	10.3%	\$117,427	\$66,000	\$88,125	\$106,000	\$142,375	\$200,000
Geosciences	95	5.2%	\$108,462	\$63,750	\$84,000	\$101,000	\$130,000	\$170,000
Mech/Ind	409	22.4%	\$106,849	\$58,000	\$77,900	\$100,000	\$128,000	\$183,547
Software Eng	38	2.1%	\$91,237	\$56,100	\$74,200	\$84,750	\$95,540	\$160,000
Other	172	9.4%	\$107,153	\$50,000	\$75,850	\$101,000	\$129,225	\$190,000

Annual Salary by Function

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Corp Mgmt	138	7.6%	\$153,215	\$95,000	\$120,000	\$147,000	\$173,000	\$255,000
Project/Op Mgmt	681	37.4%	\$111,330	\$63,000	\$85,000	\$104,000	\$135,000	\$180,000
Project Admin	45	2.5%	\$88,424	\$58,000	\$67,000	\$85,000	\$102,000	\$143,000
Design	389	21.3%	\$89,324	\$56,000	\$70,000	\$84,420	\$102,000	\$142,500
Research/Planning	124	6.8%	\$94,207	\$42,000	\$73,250	\$88,729	\$120,000	\$150,000
Inspec/Quality Control	52	2.9%	\$83,389	\$50,000	\$65,104	\$76,000	\$98,584	\$158,000
Operating/Maintenance	151	8.3%	\$106,501	\$62,400	\$83,135	\$103,500	\$125,000	\$153,384
Teaching	27	1.5%	\$140,373	\$81,900	\$93,000	\$146,400	\$181,383	\$217,000
Marketing/Sales	23	1.3%	\$84,200	\$41,000	\$60,000	\$82,500	\$104,000	\$122,166
Reg Approvals	66	3.6%	\$91,713	\$64,600	\$79,000	\$90,000	\$100,750	\$130,000
Exploration	44	2.4%	\$98,104	\$62,376	\$75,140	\$91,500	\$109,000	\$170,000
Other	82	4.5%	\$96,972	\$45,900	\$65,000	\$92,971	\$120,000	\$161,500

*Not available due to reporting rules (insufficient data)

Annual Salary by Industry

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Consulting	434	23.8%	\$100,384	\$58,000	\$71,760	\$93,406	\$120,000	\$179,000
Resource Oil & Gas	94	5.2%	\$108,739	\$63,000	\$85,000	\$99,900	\$130,000	\$172,000
Resource Except Oil & Gas	289	15.9%	\$121,249	\$73,000	\$95,000	\$115,000	\$142,500	\$200,000
Procurement/Construction	146	8.0%	\$96,018	\$58,000	\$72,000	\$87,000	\$110,000	\$160,000
Manufacture Durables	187	10.3%	\$88,920	\$55,000	\$65,211	\$83,000	\$103,950	\$159,000
Manufacture Non-Durables	61	3.3%	\$120,719	\$58,200	\$91,000	\$107,100	\$144,000	\$187,500
Service For Profit	37	2.0%	\$89,692	\$56,000	\$70,720	\$84,000	\$100,645	\$155,000
Service Not For Profit	157	8.6%	\$99,420	\$62,500	\$80,000	\$95,500	\$112,000	\$152,955
Utilities	270	14.8%	\$112,932	\$64,000	\$85,500	\$109,710	\$136,140	\$175,000
Educational Services	60	3.3%	\$121,460	\$29,650	\$84,299	\$98,962	\$167,318	\$223,080
Agriculture and Forestry	24	1.3%	\$91,244	\$52,000	\$68,088	\$79,250	\$101,500	\$165,000
Other	63	3.5%	\$96,778	\$50,000	\$72,000	\$92,000	\$120,000	\$155,000

Annual Salary by Degrees

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Bachelor's Degree	1279	70.2%	\$102,152	\$58,000	\$75,000	\$95,000	\$120,000	\$170,000
...	177	9.7%	\$111,041	\$63,000	\$86,000	\$104,000	\$135,000	\$180,000
Master's Degree	266	14.6%	\$108,737	\$56,000	\$80,000	\$99,774	\$130,000	\$187,500
...	25	1.4%	\$121,239	\$53,500	\$87,000	\$104,000	\$154,000	\$243,202
Doctorate Degree	75	4.1%	\$127,624	\$47,000	\$87,000	\$131,800	\$165,000	\$206,873

Annual Salary by Experience

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
<1 year	79	4.3%	\$70,260	\$50,000	\$59,000	\$64,604	\$73,000	\$123,800
1 year	37	2.0%	\$64,882	\$24,000	\$56,100	\$65,000	\$72,100	\$100,000
1.5 years	67	3.7%	\$68,649	\$48,000	\$60,000	\$65,000	\$78,500	\$105,000
2 years	79	4.3%	\$72,665	\$51,000	\$62,000	\$68,000	\$81,476	\$110,000
3 years	106	5.8%	\$76,113	\$58,000	\$65,000	\$72,000	\$83,416	\$106,600
4 years	104	5.7%	\$78,725	\$56,000	\$68,625	\$75,000	\$87,617	\$104,000
5 years	108	5.9%	\$86,845	\$63,000	\$75,000	\$84,000	\$95,845	\$125,000
6 years	113	6.2%	\$87,444	\$65,000	\$75,800	\$84,000	\$94,000	\$118,000
7-8 years	192	10.5%	\$96,439	\$70,720	\$85,000	\$95,070	\$105,000	\$130,000
9-10 years	167	9.2%	\$104,248	\$75,000	\$89,482	\$100,000	\$114,686	\$151,000
11-12 years	153	8.4%	\$114,019	\$76,764	\$96,900	\$114,500	\$130,000	\$154,000
13-14 years	111	6.1%	\$118,096	\$86,000	\$102,000	\$115,000	\$132,000	\$160,000
15-17 years	130	7.1%	\$133,386	\$83,000	\$110,000	\$128,250	\$154,000	\$190,000
18-20 years	98	5.4%	\$131,574	\$83,000	\$105,800	\$126,995	\$146,400	\$210,000
21-24 years	86	4.7%	\$144,005	\$86,000	\$117,000	\$145,000	\$170,000	\$206,500
25+ years	192	10.5%	\$150,667	\$87,000	\$120,000	\$150,000	\$173,750	\$240,000

Annual Salary by Sector

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Public Sector	603	100.0%	\$106,574	\$62,500	\$81,229	\$99,800	\$125,000	\$175,000
Private Sector	1,205	100.0%	\$105,938	\$57,000	\$75,000	\$96,563	\$126,900	\$180,000

Total Salary (full time positions)

	Count	Column N %	Mean	Percentile 05	Percentile 25	Median	Percentile 75	Percentile 95
Base Salary	1,822	95.8%	\$105,287	\$58,182	\$78,000	\$97,500	\$126,000	\$179,000
Salary incl. bonus			\$127,247	\$61,000	\$84,840	\$110,000	\$154,000	\$251,200

*Not available due to reporting rules (insufficient data)

Salary Changes - Full-Time Positions

	median	% increase	mean	% increase
1987	\$48,000		\$49,269	
1989	\$50,928	6.10%	\$62,887	27.64%
1991	\$54,110	6.25%	\$57,578	-8.44%
1993	\$54,480	0.68%	\$56,703	-1.52%
1995	\$56,400	3.52%	\$59,142	4.30%
1997	\$60,000	6.38%	\$62,266	5.28%
1999	\$62,500	4.17%	\$65,401	5.03%
2001	\$66,000	5.60%	\$68,877	5.31%
2003	\$68,800	4.24%	\$71,210	3.39%
2005	\$71,008	3.21%	\$73,607	3.37%
2007	\$74,000	4.21%	\$77,374	5.12%
2008	\$76,352	3.18%	\$83,025	7.30%
2009	\$80,000	4.78%	\$86,908	4.68%
2010	\$82,950	3.69%	\$91,548	5.34%
2011	\$84,224	1.54%	\$91,154	-0.43%
2012	\$89,472	6.23%	\$96,219	5.56%
2013	\$90,000	0.59%	\$98,030	1.88%
2014	\$94,500	5.00%	\$102,475	4.53%
2015	\$97,000	2.65%	\$105,111	2.57%
2016	\$96,000	-1.03%	\$104,628	-0.46%
2017	\$97,000	1.04%	\$107,130	2.39%
2018	\$96,485	-0.53%	\$104,743	-2.23
2019	\$97,500	1.05%	\$107,287	2.43

Regression Analysis

A stepwise linear regression was used to find the best model for predicting salaries for engineers and geoscientists working in different industries. This process was used to:

- Identify key factors which predict salary as well as factors which are not related to salary
- Make the results independent of the different scales used to measure each factor
- Identify Boolean components (such as receipt of professional designation) influencing salary
- Create a linear formula with as much predictive power as possible

An overall formula was also produced which members of APEGS can easily use to estimate their salary. The formula for 2018 explains about 57 percent (57.2%) of variance in salary. Any model explaining at least 50% of the variance in the dependent variable can be considered an effective model. B-values are the raw numerical coefficients of each variable. Since the scales for each variable are different, the beta values are a better measure of relative importance of factors within the model. Refer to the "Classification Rating Guide", which can be found on www.apegs.ca, to determine the values for each factor.

Factor	B (Coefficient)	Relative importance (Beta)
(Constant)	46481	
Duties (A)	127	0.196
Experience (C)	342	0.325
Leadership Authority and/or Supervision Exercised (F)	151	0.113
Supervision Scope (G)	784	0.200
Receipt of professional designation	10739	0.123

To calculate the approximate projected salary, input the points for each variable in the following formula:

Formula for expected salary (SE) without bonus:

$$SE = 46,481 + 127*A + 342*C + 151*F + 784*G$$

Add 10,739 if you have acquired professional status within your field (P.Eng. or P.Geo.)



ASSOCIATION OF CONSULTING
ENGINEERING COMPANIES | SK



Nancy Inglis, P.Eng., PMP

Message from new ACEC-SK Chair

I am very excited and honoured to serve as Chair of the ACEC-SK board for the 2019-2020 term. We have had a very successful year of advocacy and increasing our relevance to government and I plan on continuing to “carry the torch” on these very important issues.

This year ACEC-SK continues with an aggressive schedule of events and activities that support the vision of a strong, vibrant and respected Saskatchewan consulting engineering and geoscience industry.

The legacy of our risk committee producing a discussion paper named “Engineering our Future” will be a guideline for the association for years to come. The paper has very important messaging speaking to how engineers directly contribute to the Gross Domestic Product of Saskatchewan and support and improve the productivity and competitiveness of major provincial export and revenue generators.

This important discussion paper is available on our website and will be a point of discussion with government and strategic partners in strengthening the economy of Saskatchewan.

This upcoming year is the lead up both federal and provincial elections. It is an important time for consulting engineers to have a unified voice that is heard. We are stronger together and we support overall economic growth, long term planning and our place at the table to contribute.

The talent of ACEC-SK member firms is in demand globally. Member firms provide technology based consulting services to government and private sector clients in Saskatchewan, across Canada and in numerous countries worldwide.

I am surrounded by a very committed and engaged team at the board table and on our committees and I look forward to seeing what we can accomplish over the next year.

Sincerely,
Nancy Inglis, P.Eng., PMP
Chair, ACEC-SK Board of Directors
2019-2020

2019

ACEC-SK Annual Golf Tournament

The May 24, 2019, ACEC-SK Annual Golf Tournament brought our association’s membership and industry stakeholders out to Moonlake Golf and Country Club for an afternoon of friendly rivalry and networking. This year the ACEC-SK tournament enjoyed a record level turnout. The weather cooperated and golfers welcomed the change in venue.

2019 Tournament Winners

Catterall & Wright: Lowest Score: 57



(L to R): Carleen Bartell, P.Eng. and Mike Perrin, P.Eng.
Missing: Brett LaRoche, P.Eng. , Drew Mitchell, P.Eng.

Sponsors

ACEC-SK acknowledges and thanks this year’s major Golf Tournament sponsors for their support. Their generous contributions ensure the continued success of this annual event.

PLATINUM SPONSOR: McElhanney Ltd.

GOLD SPONSORS: APEGS and Thurber Engineering Ltd.

SILVER SPONSORS: Concrete Saskatchewan, G.E. Environmental Solutions Inc. and Souris Valley Industries.

BRONZE SPONSORS: BowRio Water Technologies Inc., CCPPA, Engineered Pipe Group, Ground Engineering Consultants Ltd and KGS Group.

PRIZE SPONSORS: Associated Engineering Ltd, BCL Engineering, Catterall & Wright, CIMA +, KGS Group, CL Construction Management Inc, Robb Kullman Engineering LLP, Saskatchewan Masonry Institute, Stantec, TD Insurance and Wallace Construction Specialities Ltd.

The ACEC-SK staff extends thanks to all our volunteers who contributed to the success of this event.

Report from Saskatchewan Mining Week:

Social License and the Future of Mining in Canada



Karen Swager, P.E

For those unfamiliar with the mining industry, outdated images and misconceptions run deep (maybe even deeper than Mosaic's new underground potash ore shaft in Esterhazy). The word 'mining' gets a mixed review from those who have not experienced the opportunities it can bring—nor understand how important mined products are to their lives.

According to Mosaic's Senior Vice-President Karen Swager, P.E., the industry needs to work harder to dispel misunderstandings and enhance its brand.

"We don't spend enough time talking about the good things that come from mining. We make a huge contribution to the economy in terms of both taxes, jobs and contracted goods and services," she said at the 2019 Saskatchewan Mining Week breakfast sponsored by APEGS and the Saskatchewan Chamber of Commerce.

Swager noted that the potash industry alone contributes \$5.2 billion to the national economy including employing over 20,000 people, directly and indirectly.

Contrary to popular belief, the mining industry in Canada is also one of the safest employers.

"Not every country can say that. It can sometimes be hard to compete with countries that don't have the same compliance standards and costs that we have in Canada."

From an environmental perspective, Swager pointed out that, in potash in particular, the Canadian industry is a leader.

"Our mines produce only 29 per cent of the greenhouse gas emissions of the global average of potash mines. That's a tremendous accomplishment and, here again, we aren't doing enough to tell people about it."

These gaps between perception and reality come down to the challenge faced by the industry in securing its social license.

"While acquiring a regulatory license is of course very important, it's just as important to secure a social license."

"This can be difficult because it's less definitive, less tangible. It means ensuring that the people support us and want us to be operating in their communities."

A big part of this, Swager says, comes simply from putting emphasis on outreach and engagement. From Mosaic's perspective, the company is focusing on participating in more speaking engagements, establishing more community outreach and engaging in more discussion with stakeholder groups such as the Indigenous communities surrounding their operations.

Mosaic has also established a respected culture of giving back to the community.

"We strongly believe our communities are our partners. We live with, work with and care about these communities."

For its part, Mosaic spends roughly \$5 million in community giving initiatives annually; including \$2 million over five years to local food banks. Recently they announced \$1 million in matching funds for updated equipment at the Mosaic Heart Centre at the Regina General Hospital.

The company strives to identify strategic opportunities to target 15% of its community investment budget to grant funding initiatives and projects that are important to the growth and sustainability of the Indigenous communities in the areas where they operate.

As well, Mosaic has a goal to have Indigenous people fill 15 per cent of its new hires and contractors.

But while the company is doing a great deal to secure its social license, it is not resting on its laurels.

"Increasingly, this is something to which regulators are paying attention. They don't just want to know about the technical standards or the economic benefits. Regulators want to hear about the social benefits of projects. It is important for everyone in the industry to be aware of this and continually work to improve their engagement with their stakeholders" Swager said.



<http://rabble.ca>

Notes From APEGS Council

The APEGS Council met June 13, 2019 in Swift Current. The meeting was attended by 15 of 19 councillors and the director to Engineers Canada. Mike Griffin, LLB – APEGS External Legal Counsel, and several committee representatives attended as guests. Council will meet next September 26 and 27, 2019 in Saskatoon.

Council received the following presentations and information items:

- The Executive Director and Registrar provided a presentation on an Introduction to Self-Regulation.
- Mike Griffin, LL.B., APEGS external legal counsel delivered a presentation on Fiduciary Responsibility.
- Activity updates from the constituent society liaisons, the ACEC-SK liaison, and the 30by30 Champion's Group liaison.
- The Manager of Communications updated council on progress with the new awareness campaign and the website redesign project. It was noted that the website redesign will begin in late 2019.
- The Executive Director and Registrar provided council with an update on staffing and the co-op student hired to help with the member database project.
- The Director of Special Projects briefed council on the progress with the implementation of the member database.
- The APEGS Director to Engineers Canada reported on the activities at the national organization. The APEGS Director to Geoscientists Canada provided council with a written report.

Council passed motions as follows:

- Approving the updated policy HR4.0 – Maternity, Parental and Adoption Leave.
- Approving the Terms of Reference for council.
- Approving amendments to the Terms of Reference for all boards and committees requiring that budget proposals be submitted to APEGS by August 31 of the current fiscal year.

- Approving Life Membership for the following members:
 - Beattie, Dr. Jay, P.Eng.
 - Brockmeyer, Robert J., P.Eng.
 - Craig, Guy D., P.Eng.
 - McLeod, Neal E., P.Eng.
 - Skeries, Rainer A., P.Geo.
 - Wiens, Kenneth G., P.Eng.
- Appointing Simon Li, P.Eng. Chair of the Professional Edge Committee for a two year term.
- Appointing Catherine Griffiths, P.Eng. Chair of the Connection and Involvement Committee for a two year term.
- Appointing Kevin Hudson, P.Eng., FEC Chair of the Environment and Sustainability Committee for a two-year term.
- Appointing Kelvin DeGrow, P.Eng. to the Investigation Committee for a three year term.
- Accepting the recommendation of Deloitte LLP that the Working Capital Reserve be increased to \$3,488,901. This recommendation is consistent with the council policy of 100 per cent of operating expenses (less amortization) be held in reserve.
- Updating the Association's signing authority to coincide with the 2019 – 2020 executive.
- Approving the updates to Policy AR1.0 - AR Policy General. This policy specifies records management and application file management and retention policy.

Council noted and received the following reports:

- Registrar's reports for October 2018 through May 2019.
- The report on compliance activities January 1 to May 31, 2019.
- The unaudited financial statements for March and April 2019.
- Executive Committee minutes, Board minutes and the reports from the committees and task groups, Abridged Investigation Committee minutes, and the Discipline Committee minutes.

APEGS Governance Review

On June 14, 2019, also in Swift Current council, APEGS staff, and committee representatives conducted a full day of APEGS governance review planning. The session was facilitated by T. Bakkeli Consultants Inc.

Professional Development Committee Response to the 2019 Membership Survey



At the end of 2018, Inshtrix Research Inc., on behalf of APEGS, conducted a member satisfaction survey to gain feedback on how members felt about APEGS and its operations.

One section of the survey asked members for their opinion on the continuing professional development (CPD) opportunities offered by APEGS. Based on the feedback received, the Professional Development Committee (PDC) was asked to provide a response.

PDC Chair Bob Cooper, P.Eng., shares his thoughts on the results of the survey.

With the new Continuing Professional Development Program taking effect January 1, 2019, what initiatives the PDC taking to help members obtain their CPD credits?

An online ethics module is available at the APEGS website that, if completed, provides an ethics refresher sufficient to satisfy the annual training requirement.

The committee is working to add new modules annually to keep the content diverse.

The PDC also decided to rotate the Spring Professional Development Days around the province. This gives members more opportunities to obtain professional development credits as well as greater interaction in exploring the difficult decisions involved in maintaining an ethical approach in our professions.

Finally, free in-person ethics presentations are offered to companies and other organizations to help members

obtain their annual verifiable ethics credit for the year. Since January 2019, 14 organizations have arranged for this presentation.

Based on the 2019 Membership Survey, it appears that members want APEGS to offer more technical courses. Will APEGS be offering more technical courses as part of its professional development offerings?

It is encouraging that the survey confirmed our members want to learn ways to do their job better. The committee is considering developing a system to make information more readily accessible regarding technical training opportunities. This may include partnering with other technical associations, universities and others.

At the most recent committee meeting it was determined that the 10 P.Eng.s and P.Geo.s present collectively belonged to more than 15 technical associations.

We hope to make members aware of training opportunities provided by technical group to make cross training available and improve overall access to technical training that is of interest to all members.

What are the challenges in offering technical courses?

The diverse nature of APEGS members' careers makes selecting of appropriate technical training opportunities difficult. The committee recognizes that most career specific technical training takes place on the job, through mentoring and job specific training courses.

At this time, the committee believes the best approach is to maximize awareness of training opportunities offered by technical societies and educational institutions, while providing professional development opportunities of a more general nature that are of interest to all APEGS members.



RCE Saskatchewan Report

SUBMITTED BY KEVIN HUDSON, P.ENG.



Kevin Hudson presenting certificate to Regina Huda School

On May 8, 2019, I had the pleasure of presenting the Lyle Benko Future Generations Award to the Grade 5 students at the Regina Huda School, as part of the Sustainability Awards for RCE Saskatchewan (Regional Centre of Expertise on Education for Sustainable Development).

This award recognizes a K-12 project that demonstrates an outstanding contribution to Education for Sustainable Development in Saskatchewan. It is presented in honour of the late Lyle Benko who volunteered for APEGS for so many years and was one of the first recipients of our Friend of the Professions Award in 2013.

The Grade 5 students at the Regina Huda School led all other students at their K-12 school in a recycling campaign

this year, collecting over 13,000 items and raising over \$1,500 to purchase composting bins for a new community garden in front of their school in Northwest Regina.

RCE Saskatchewan is a voluntary network of local sustainable development leaders, educators, researchers and UN agencies united under the UN Global Sustainability Goals. It is one of over 160 RCEs recognized by the United Nations University since 2005.

RCE Saskatchewan partners include the United Nations University (UNU), the University of Regina, University of Saskatchewan, Saskatchewan Polytechnic, Luther College at the University of Regina, First Nations University of Canada, Campion College at the University of Regina, City of Regina, City of Saskatoon and Craik Sustainable Living Project.

The 11th Annual Sustainability Awards were presented at Saskatchewan Polytechnic's Hannin Creek Education and Applied Research Centre in Candle Lake, Saskatchewan. Approximately 29 Saskatchewan initiatives were recognized. Participants also toured the centre's facilities.

APEGS has been one of the sponsors of the RCE Recognition Event since 2011. Since 2017, we have presented the event's highest honor, the Lyle Benko Future Generations Award, to a deserving K-12 project in Saskatchewan. Tara Zrymiak, P.Eng., FEC brought greetings on behalf of APEGS to the main event.

The event also featured a keynote presentation by Dr. Charles Hopkins, UNESCO Chair at York University on Reorienting Education for Sustainable Development. He encouraged local sustainability leaders to see the importance of their efforts.

Videos of the ceremony and keynote presentation are available at www.saskrce.ca.

TIP: Reporting Continuing Professional Development

Sit back and relax

If you have worked full-time since January 1, you have now earned 50 credits for Professional Practice

A Celebration of Design!

SK Design Week Returning to Saskatoon and Regina

SK Design Week is a biennial event organized by the Design Council of Saskatchewan. It is an invitation to learn about different areas of design through a series of free lectures and other educational events, all open to the general public.

SK Design Week is returning to Saskatoon and Regina this October. Last year's event featured lectures by renowned designers including Architect, Omar Gandhi and Interior Designer, Jason Kasper.

SK Design Week 2019 will feature free lectures from more of our country's top design professionals as well as other educational events open to the public.

The week will wrap up with the ever-popular Premier's Awards of Excellence in Design which recognizes Saskatchewan's great design.

Entries for this prestigious competition are displayed to the public and awards are handed out at an evening gala at the conclusion of Design Week.

For more information, visit designcouncil.sk.ca, like us on Facebook or follow us on Twitter and Instagram.



Looking for Ethics Training?



Here are two opportunities:

APEGS Online Ethics Module

- This module is free for all APEGS members
- Obtain your annual ethics credit today by completing the Ethics Module
- For more information and to access the module, please visit www.apegs.ca

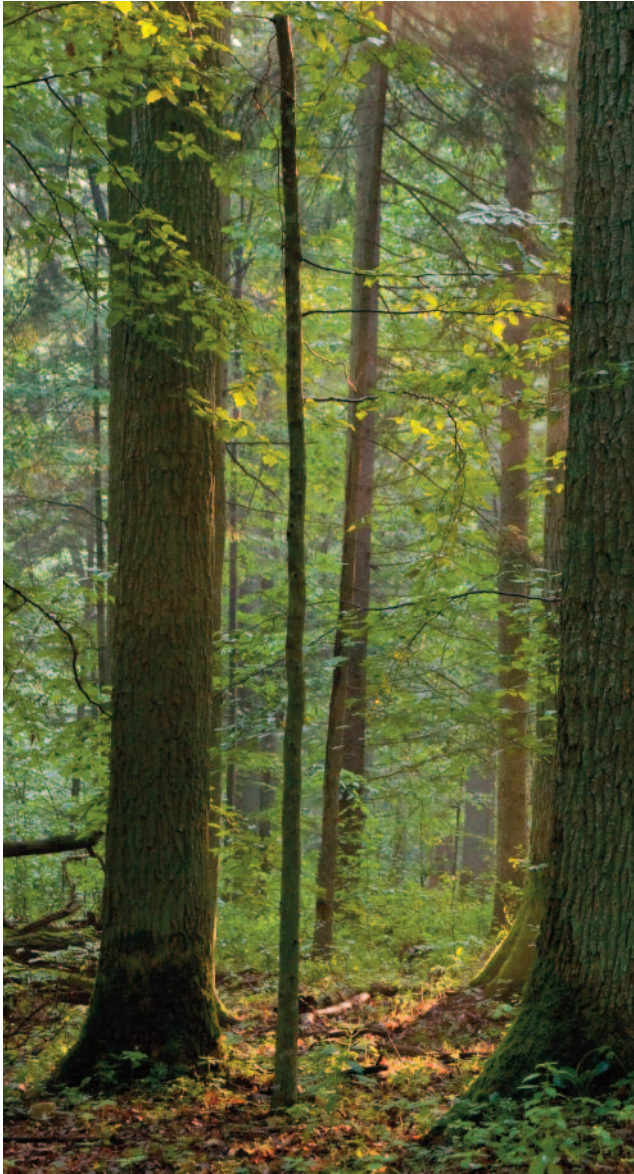
In-person ethics presentation

- If your organization is interested in hosting an ethics training session for your employees or members, contact the Jolene Arthur at jarthur@apegs.ca to book.



Saskatchewan Begins Development of Prairie Resilience Carbon Offset Framework

GOVERNMENT OF SASKATCHEWAN NEWS RELEASE, JUNE 3, 2019



The Government of Saskatchewan is sharing a discussion paper to launch development of a carbon offset framework for the province, fulfilling another commitment in the Prairie Resilience climate change strategy.

The discussion paper poses a series of questions to help develop a carbon offset framework that will create additional value for actions that result in carbon sequestration or reduced greenhouse gas (GHG) emissions, including Saskatchewan soils and forests. The paper has

already been shared with provincial stakeholders, including environmental associations, industry associations, regulated emitters, urban and rural municipalities, Crowns and government agencies, First Nations and Métis organizations and educational institutions. Stakeholders were asked to provide written feedback in May and will meet with Environment officials in June to further discuss the potential offset system.

“Our government is committed to designing an offset program that best serves the needs of the province,” Environment Minister Dustin Duncan said. “With input from Saskatchewan industries, associations, producer groups and other diverse stakeholders, we can design a system that extends to all sectors to help the province shift to a lower-carbon economy.”

Offset credits are one option for industrial emitters to comply with regulations already in place to reduce the intensity of emissions per unit of production. The market-based program will provide carbon offset credits to a project developer who uses approved methodologies to reduce, remove or sequester GHG emissions from the atmosphere. These credits can then be sold to organizations seeking to comply with the regulations and account for their own emissions. The offset program will be designed to provide incentives for developing clean technologies, renewable energy and sustainable practices.

“Prairie Resilience is designed to achieve actual greenhouse gas reductions by 2030,” Duncan said. “Despite the imposition of the ineffective federal carbon tax, these discussions ensure the offset framework accounts for economic growth, competitiveness and trade exposure.”

The discussion paper can be found on the Government of Saskatchewan’s Publication Centre at <https://publications.saskatchewan.ca> under Environment > Climate Change. A technology fund discussion paper is also available, while a paper on a performance credit system is expected later this year.

Saskatchewan’s Prairie Resilience climate change strategy includes more than 40 commitments across five areas, designed to reduce emissions and strengthen Saskatchewan’s resilience to the climatic, economic and policy impacts of climate change. The Prairie Resilience strategy is available at www.saskatchewan.ca/climate-change.

APEGS Recognizes the Top Engineering and Geoscience Graduates

Every year APEGS recognizes engineering and geoscience graduates at the University of Regina (UofR) and University of Saskatchewan (UofS) for outstanding academic achievements and leadership. Meet the next generation of innovation.

Congratulations 2019 Gold Medal Recipients!



Jamie Schmidt

Jamie Schmidt graduated from the UofR with a Bachelor of Science Honours Degree in Geology with a minor in Physical Geography in the fall of 2018. As a child, her father (also a geologist)

taught her how to identify rocks and minerals, which ignited a life-long passion in geology and geoscience. In 2017, she was a part of a research team that travelled to central Madagascar to provide a preliminary study on the origins of the volcanic fields in the Ampefy area, leading to B.Sc. Honours thesis which was presented at both the Western Inter-University Geoscience Conference 2019 and the Saskatchewan Geological Society Open House. In Saskatchewan, Jamie has taught and done research at the UofR and worked for the Saskatchewan Geological Survey, SaskEnergy and the U of R Geology Department. Jamie is currently working towards distinguishing herself as a dedicated and professional Geoscientist in Saskatchewan.



Lyndsay Hauber

Lyndsay Hauber received her Bachelor of Science Honours in the Department of Geological Sciences at the UofS where she studied treatment of dissolved metals in petroleum coke leachate for

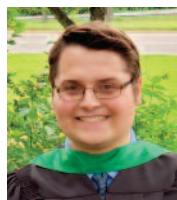
her undergraduate research project. Over the course of her studies she has held several executive positions in the Ore Gangue undergraduate student group and in the organizing committee for the World Mining Competition - an international multidisciplinary undergraduate student competition held annually in Saskatoon. Her passion for geology shines through in her outreach work for the department, providing geology-focused presentations and activities tailored to elementary, middle and high school students. While completing her degree, she held several teaching assistantships in physical geology, mineralogy and geochemistry. Lyndsay is looking forward to putting her years of study to use in the mineral exploration industry.



Ashley Stock

Ashley Stock was born and raised in Saskatoon. She decided to study engineering while in high school after doing internships at a consulting company where her sister, an

environmental engineer, worked. Initially she wanted to pursue environmental engineering but soon realized her passion for engineering physics and astrophysics when she began studying at the UofS. Throughout her undergraduate studies, Ashley has been deeply involved in student groups and has shared her love for learning with other students as a peer mentor with the Peer Assisted Learning program and as a teaching assistant in first year astronomy and physics courses. She has also done undergraduate research in atmospheric physics and astronomy, mostly focused on the emission of neutrinos from supernovae and near compact objects like black holes. She graduates with degrees in physics specializing in astronomy and engineering physics and will be continuing to pursue her research interests when she begins her PhD studies in astrophysics in the fall of 2019.



Tristan Heisler

Throughout Tristan's UofR studies he has received 31 prestigious engineering awards, scholarships and prizes, including the University Medal in 2017 and the UofR Academic Gold Prize three

times. Tristan was also in the Cooperative Education Program and worked at iQmetrix in Regina for all four of his co-op work terms as a software design engineer and a software developer. Tristan's Capstone Project was titled, "No Patience", a web application that assists both patients and doctors by attempting to address the long wait times in medical clinics. Tristan was an exceptional leader throughout his four years in engineering. He volunteered with Regina Engineering Students' Society in several executive roles. Tristan has already begun his career in software systems engineering and is working at iQmetrix as a software developer.

News Beyond Our Borders

US seeks to extradite McGill engineering professor



Postmedia - American authorities are seeking to extradite a retired McGill University engineering professor on charges that he conspired to illegally send U.S.-made computer chips to China, possibly for military use.

The prosecution of Ishiang Shih brings the West's intellectual-property dispute with Beijing to the heart of Canadian academia, with suggestions a Chinese company that employed Shih planned to make circuits for "missile-tip guidance."

Though never reported before, Ishiang was indicted in early 2018 along with brother Yi-Chi Shih, another electrical engineer. Yi-Chi, a part-time California resident, was convicted recently of several offences related to the transfer of the computer chips to China and faces up to 219 years in prison when sentenced in September.

A source said the US has asked Canada to extradite Ishiang, who retired as a McGill faculty member last year.

But the lawyer who defended the California brother said the whole case involved trumped-up charges and a prosecution strategy that deliberately misled the jury about the facts.

Attorney James Spertus said he believes the case is designed to send a message to China in the midst of a trade war and the Shih brothers — natives of Taiwan — were innocent researchers caught in the middle.

Julio Peris, a Montreal lawyer who represented Shih when his home was searched by the RCMP last year, said Canadian authorities have not acted on any extradition request.

"My Mummy Is an Engineer"

The Guardian (UK) – The number of women working in engineering in the UK remains woefully low at just 12.3 per cent. Britain also suffers from a "leaky pipeline", meaning



SELLAFIELD LTD

Charlotte and Hayley Williamson both work in engineering

women often fail to continue to progress their engineering careers.

Award-winning chartered electrical engineer Kerrine Bryan believes addressing the sector's diversity problem is key to closing the skills gap. To help tackle the issue at the roots, she began publishing career-themed children's books, including *My Mummy is an Engineer*.

"We're losing potential engineers at every stage of life and it starts from a young age because bias and misconceptions in media and toys often implant ideas into children's minds that engineering is for men and involves getting your hands dirty and fixing things, which doesn't appeal to girls if they're brought up to believe they should be quiet, neat and tidy," she says.

Lucy Gill, a qualified engineer, agrees that inspiring girls from a young age about the creative aspect of engineering is key to recruiting more women to the sector.

"There's so much embedded in our culture saying engineering isn't for girls and people still think of engineers as the men who fix your washing machine, not the people at the forefront of designing creative solutions to the world's problems," she says.

There's positive news from the sector when it comes to pay parity, too. The gender pay gap for engineering sector occupations is 18.7 per cent – more than double the UK's average pay gap of 8.6 per cent – but, among those with graduate degrees, the pay gap for first salaries is just 1.19 per cent.

OIQ welcomes revision to Act

Ordre des ingénieurs du Québec - The Ordre des ingénieurs du Québec (OIQ) welcomed the bill amending the Engineers Act.

"The bill that was introduced is a big step for the Ordre des ingénieurs du Québec and for the profession. The

current Engineers Act basically dates back to 1964. The Act absolutely needs to be modernized so that it better reflects the changes in science and technology over the last several decades and accommodates future developments,” explained Kathy Baig, Eng., FEC, MBA, President of the OIQ.

This bill will help bring the Engineers Act in step with current realities in the profession. Some of its main improvements are:

- a more broadly defined field of practice for engineers, which gives greater consideration to the many fields of engineering practice that have appeared in the last fifty years – especially computer and software, biomedical and environmental engineering – as well as emerging fields of practice;
- new reserved acts for engineers, such as certifying the validity of results generated by computer systems or design assistance software that use concepts derived from engineering principles, during the design of these systems and software;
- the clear inclusion of embedded systems in works reserved for engineers, such as programmable logic controllers;
- the inclusion of better provisions for counteracting unlawful engineering practice.

The OIQ plans to submit some recommendations to the Members of the National Assembly on how the bill can be enhanced. To help improve construction quality, the OIQ will recommend that the new Engineers Act require engineering work to be supervised. Supervision is a sure way to make certain that buildings are properly constructed and that clients actually receive what was agreed upon.

The OIQ also hopes that the new Act includes the possibility of issuing permanent restrictive permits. This type of permit, which exists elsewhere in Canada, would not only help protect the public but also help integrate professionals with atypical profiles into Québec’s professional system, such as internationally trained professionals who have specific expertise in a very small field of engineering practice. Such a measure would help reduce the labour shortage in specialized fields.

U of A to host AI hub

APEGA - The University of Alberta is well on its way to building an artificial intelligence hub, after receiving \$2.5 million in support from the federal government. The AI-Hub will house high-performance computers that can process large quantities of data in hours—it usually takes days—and will be a collaboration space for academics and industry professionals.

As well as supporting small- and medium-sized enterprises



and providing artificial-intelligence training for companies in Western Canada, the project is slated to bring in \$15 million by way of increased productivity and business revenues.

The funding extends to marketing initiatives designed to raise the visibility of Alberta’s AI sector. The AI and Interaction Digital Entertainment International Conference will be held at the university this year—taking place outside of the US for the first time.

New requirements for qualified professionals



APEGBC – The British Columbia Ministry of Environment and Climate Change Strategy has implemented a new policy to increase transparency and accountability of Qualified Professionals (QP) working in the natural resource sector by requiring declarations of competency and conflict of interest.

The Professional Accountability Policy only applies to QPs who do work under the *Environmental Management Act*, the *Integrated Pest Management Act* and the *Park Act*. The BC government began developing this policy in the fall of 2017, citing ongoing concerns about QP involvement at regulated sites.

The policy is an interim measure while the BC government develops further policy and regulations for mandatory declarations under the new *Professional Governance Act*.

News From The Field

Robots teach kids science



CBC Saskatchewan - Digital literacy — via coding and building robots — is the name of the game for a new program coming to northern Saskatchewan.

The goal of RoboX is “to increase awareness of science, technology, engineering and mathematics,” according to Innovation Saskatchewan, which developed the program.

“Children exposed to those subjects at the elementary and high school levels are more likely to continue studying them after graduating,” said the provincial government agency, which focuses on implementing innovation priorities.

There are two parts to the program: helping teachers learn engaging ways to develop robotics and coding skills with their students and hosting hands-on workshops that give students a chance to build and program their own robots.

The program was developed in partnership with the Saskatchewan Science Centre and Saskatoon Industry-Education Council and was piloted with the Northern Lights School Division and the Lac La Ronge Indian Band.

The Industry Education Council trained more than 28 teachers from 10 communities in northern Saskatchewan to incorporate robotics and coding into their classwork.

The science centre’s outreach team has also hosted student engagement workshops at schools in those 10 communities.

UNIVERSITIES AND RESEARCH

GPS device boosts mine safety

Regina Leader-Post - Dr. Terry Peckham’s wireless positioning device is small, but he hopes it will make a big difference in the potash mining industry.

The device is similar to a GPS and can track workers and vehicles in underground potash mines.

“Ideally it will be small enough that ... we’ll be able to attach it to personnel,” said Peckham.

The technology is being developed to improve mine safety and productivity.

“You’ll be able to know the person is in very close proximity to equipment,” he said. “Generally, within centimetres is what we’re hoping for.”

Peckham said the device was inspired by technology already in use in open-pit mines.

He is aware of projects in Germany and Australia similar to this one but believes this is the first in Canada.

Al Shpyth, executive director of the International Minerals Innovation Institute (IMII), which represents companies in the mining industry, said the technology is good for the scientific community as a whole. He said mine safety is a major concern for IMII, which is why this project fits well.

Synchrotron research battles rust



Saskatoon StarPhoenix - University of Saskatchewan PhD student Arthur Situm has developed a new non-invasive technique to study the rusting of steel, research that may help with the safety of potash mining and construction of buildings, roads and bridges.

At the Canadian Light Source (CLS) synchrotron, Situm has been studying how the protective coatings of rebars — the steel reinforcing bars used to strengthen concrete — withstand rusting (corrosion). He did his research with the potash mining industry especially in mind.

Salt from potash mining seeps through the porous concrete and may cause rebar to rust faster, which could require more frequent replacements.

Unlike other methods used to study corrosion, Situm’s new synchrotron technique, which stems from a combination of X-rays, a microscope and the CLS particle accelerator, shows how effective the coatings are without

removing them from the rebars. Normally, coating removal damages samples by making them unusable for future testing and may interfere with the corrosion of the coating itself.

Situm has simulated different conditions for multiple types of protective coatings in the lab to understand how the materials and surface chemicals can respond. His results show that a well-known and more expensive coating called “fusion-bonded epoxy” can withstand corrosion better than other types of coatings tested.

Situm plans to extend the applications of his technique to study the stability of the ceramics used to store nuclear waste, using a simulated nuclear fuel.

New nuke funding

Saskatoon StarPhoenix - The provincial government’s new five-year funding agreement of \$11.6 million for the University of Saskatchewan’s nuclear research institution will help attract private companies and researchers to Saskatchewan, according to Innovation Saskatchewan.

The funding was announced at the opening of the new Innovation Wing of the Saskatchewan Centre for Cyclotron Services (SCCS).

The Sylvia Fedoruk Canadian Centre for Nuclear Innovation is funded by an agreement with Innovation Saskatchewan. The new wing supports the advancement of technology for nuclear imaging and therapy in plants, animals and humans.

This could allow the Fedoruk Centre, an independent, non-profit corporation owned by the university, to start generating its own revenue.

The technologies in the new wing will give researchers the ability to develop innovative procedures that could achieve widespread use in the health care field.

Its imaging research has the potential to improve the detection and treatment of cancers and other diseases through targeted diagnosis and therapy. This is done by connecting a radio-emitting isotope to a molecule to hunt down affected tissues. The radioactive isotope would concentrate on the tissue and cause it to glow.

ENERGY

MJ power project in jeopardy

Discovermoosejaw.com - The Ministry of Energy and Environment has indicated the province will be pumping the brakes on a new natural gas plant in the city of Moose Jaw, saying new federal regulations are the cause.

The final regulations for the carbon tax calculations will



include natural gas, which was the provincial government’s first choice as it transitions out of coal.

SaskPower CEO Mike Marsh said that the new regulations will create costs that put the natural gas plant in jeopardy.

“We’re going to have to go back and look at those regulations and look at what it actually means for future decisions including, for example, Moose Jaw,” said Energy and Environment Minister Dustin Duncan.

The Chinook plant that was recently built in Swift Current will be fine because it will be online before the new regulations take effect.

Government announces investment in bioenergy



MeadowLakeNow – The federal government has announced it will be investing \$52.5 million to replace the beehive burner with a bioenergy centre at the NorSask mill in Meadow Lake.

The Meadow Lake Tribal Council Bioenergy Centre will be the first of its kind in Saskatchewan and is expected to create enough green energy to power 5,000 homes. The plant creates energy by using the same sawmill waste that is currently burned in the beehive burner.

The bioenergy centre will give Meadow Lake and Flying Dust a significant economic boost and will create new job opportunities.

The project is expected to decrease greenhouse gas emissions by more than a million tonnes over 25 years. It will also improve air quality for residents by reducing smoke and other harmful matter in the air.

OIL AND GAS

Saskatchewan June land sale

Pipeline News - The latest public offering of Crown petroleum and natural gas rights generated more than \$6 million in revenue for the province of Saskatchewan, bringing the current fiscal year's total to approximately \$8 million for the two sales thus far.

There were 31 leases acquired in the June offering, totalling 3,887.329 hectares. The highest offering was \$10,111 per hectare for a 32.203-hectare parcel, acquired by Synergy Land Services Ltd.

This parcel is located east of Lampman and has the potential for oil in the Midale Beds and Frobisher Beds of the Madison Group.

The average price per hectare for the June offering was \$1,654, the highest per hectare rate for an offering since August 2014.

Six leases posted north of St. Walburg in the Lloydminster area were acquired for a total of \$2,881,280. These parcels are prospective for heavy oil.

Two leases in the Kindersley area consisting of 648.026 hectares were acquired for \$1,418,165 and are prospective for oil.

The scheduled date for the next public offering will be August 13.

INFRASTRUCTURE

Saskatchewan to spend \$700m upgrading highways



Journal of Commerce - The province of Saskatchewan announced plans to pour \$700 million into highway improvements this year. The upgrades will cover roughly 1,000 kilometres of the province's highways, focusing on safety improvement projects.

Work has started on passing lanes on Highway 2 north of Moose Jaw, two sets between Rosetown and Kindersley on Highway 7 and on Highways 9 and 10 near Yorkton will begin this summer.

SaskPower prioritizing maintenance



Global News - If you live in the Regina area, there's a good chance you've noticed what feels like more power outages than usual this year. You're right, according to SaskPower's CEO Mike Marsh.

While tabling the Crown corporation's annual report, Marsh said they will be making major investments in "sustainability infrastructure", focusing on aging infrastructure.

"We're at the end of life for a lot of this equipment. That's why it needs more investment. You don't spend money on equipment that's not failing 20 years ago. Now that equipment is 20 years older and we're reaching a period of age where we need to continually invest going forward," Marsh said.

Going forward, SaskPower plans on spending around \$830 million annually on capital projects. Of that, around \$400 million is set aside for rehabilitating infrastructure that's 50-70 years old.

Marsh said sustainability work will take a long time, stretching across the province. This year, Regina has emerged as a problem area and will be treated as a priority.

The report shows SaskPower missed its outage targets by more than 20 per cent.

SaskPower's other infrastructure plans include continued expansion of renewable generation, finishing the natural gas Chinook Power Station near Swift Current and expanding transmission lines.

MINING

Star Diamond Corp. to start trenching operations

Saskatchewan Mining Report - Size matters. In diamond mining it matters a lot and the folks at Star Diamond Corp. say their Saskatchewan properties are expected to produce some very large diamonds.

To prove the potential of their Orion South and Star claims, both about 60 kilometres east of Prince Albert, Star Diamond and partner Rio Tinto are aiming to begin trenching operations this spring.

If the results are positive, mine construction could begin within four years, says George Read, P.Geo., a Star Diamond geologist and vice-president of exploration.

Kimberlite formations, the rock formations that have been found to hold diamonds, beneath the Fort à la Corne forest “have shown the potential for very big diamonds,” Read says.

Read says he’s expecting project-proving trenching operations this spring could recover stones up to 100 carats.

He adds that kimberlite formations in the area have shown a high proportion of type IIa diamonds — the clearest and most prized type of diamonds because they are free of nitrogen impurities.

A plus for Star Diamond, when compared with other Canadian mines, is its location, Read says.

“Those mines are all very isolated and our location is very accessible,” he says. That means it’s easier and therefore less costly to bring in heavy mining equipment, connect to the power grid and recruit and employ some 400 to 500 people for eventual open-pit mining operations.

Feds announce \$1.3M for Sask. coal communities

Regina Leader-Post - The federal government announced money for Saskatchewan communities facing job losses because of the looming coal phase-out, with nearly \$1.3 million going to specific projects based largely in Coronach and Estevan.

Saskatchewan projects focused on business development, retraining for workers and clean energy will get part of a \$4.5 million pot from the previously announced Canada Coal Transition Initiative.

Community leaders in Estevan have previously criticized the slow pace of federal funding pledged in response to the government’s Task Force on Just Transition for Canadian Coal Power Workers.

Ottawa is mandating all conventional coal-fired power plants to shut down by 2030. That’s expected to spell the



end of coal mines that supply SaskPower facilities near Estevan and Coronach, costing hundreds of jobs and sending costly ripple effects through both communities.

In response to the task force, the federal government’s 2018 budget committed \$35 million over five years to the Canada Coal Transition Initiative for skills development and economic diversification to support communities like Estevan and Coronach. Most flowed through Western Economic Diversification.

The city already has an economic development committee that has begun identifying priority sectors to attract to the city, like manufacturing, renewable energy, greenhouses, warehousing and tourism. But the coordinator will be tasked with further assessing the city’s needs in preparation for a strategic plan.

The Town of Coronach stands to receive \$320,000 to support its regional transition plan. The town recently posted a tender to seek consultants for that project, which will include an economic and employment impact analysis and a mitigation plan.

ENVIRONMENT

Husky fined \$3.8M for oil spill

The Canadian Press - Husky Oil Operations Ltd., a subsidiary of Husky Energy, was fined \$3.8 million for a pipeline oil leak that fouled a major river, harmed fish and wildlife and tainted the drinking water supply for thousands of people in Saskatchewan.

The spill into the North Saskatchewan River in July 2016 forced the cities of North Battleford, Prince Albert and Melfort to shut off their water intakes for almost two months.

Calgary-based Husky pleaded guilty to three environmental charges: two under federal migratory birds and fisheries legislation and one under a provincial law for releasing a harmful substance.



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About 225,000 litres of diluted heavy oil spilled from Husky's pipeline near Maidstone in west-central Saskatchewan. The company said about 40 per cent made it into the river and more than 90 per cent of the oil was recovered.

Provincial court Judge Lorna Dyck accepted a joint recommendation from lawyers on an amount for the fine.

"Once the leak was discovered, Husky acted quickly and properly," said the judge. "I believe Husky has learned from this mistake."

"There's no doubt it has had a detrimental effect on Husky's reputation and on the industry as a whole," Rae said. "We have expended a lot of money on the cleanup – over \$140 million."

A victim impact statement filed by three Indigenous communities in the area said the cleanup wasn't good enough. Chief Wayne Semaganis spoke on behalf of his Little Pine First Nation and for the Sweetgrass and Red Pheasant bands. The cities of North Battleford and Prince Albert also filed victim impact statements.

CCS conference

Regina Leader-Post - Carbon capture and storage (CCS) boosters met for a conference in Estevan and they think the technology isn't getting the love it deserves in Saskatchewan.

Organized by the International Brotherhood of Boilermakers and Saskatchewan Building Trades, the event at Southeast College attracted three Conservative members of Parliament who were looking for ideas for the party's upcoming environmental plan.

Most talk has turned to the Shand Power Station, which is being eyed to be outfitted with CCS technology.

A federal coal phase-out means that coal-fired power plants will have to shut down by 2030 unless they're fitted with CCS, but the province has announced no new CCS projects since Boundary Dam 3, opting for gas power plants and renewables instead.



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Corwyn Bruce, P.Eng., an engineer who is vice president of the International CCS Knowledge Centre, said that's partly because natural gas prices have become so "embarrassingly cheap that it's tough for CCS-equipped coal plants to compete."

But he said that's changing. The knowledge centre has been looking at ways to close the price gap and a study released in November estimated that CCS at Shand would be 67 per cent cheaper per megawatt hour, compared to Boundary Dam 3. The project would "sneak in" just under the billion-dollar mark.

Asked whether CCS-fitted coal power is now roughly competitive with gas, he gave a cautious affirmative.

"If you have a revenue stream to buy the CO₂, then the answer is yes," said Bruce.

He noted that CO₂ captured through CCS can be used in the oil industry to help free up hard-to-reach oil. If Shand could sell the roughly two million tonnes of CO₂ it could capture annually, then the project could have "a very compelling business case."

Unfortunately, he noted that the oil downturn means few energy companies are in any position to invest in the enhanced oil recovery techniques that use CO₂.

Despite the challenges, many of those at the conference believe that CCS will need to be a part of the planet's fight against climate change.

Robert Mitchell of the Global CCS Institute noted that there are now 43 CCS projects either in operation or in development around the world. For the world to reach the targets under the Paris Agreement on climate change, he thinks 94 Shand-sized units will have to be equipped with the technology — every year — until 2040.

Calendar Of Events

International Symposium on Energy, Water and Environment

September 7 – 9, 2019
Regina, SK
www.isewe.org

ACEC-SK Emotional Intelligence Workshop

September 10, 2019
Regina, SK
www.acec-sk.ca

HEC-RAS with Advanced Applications

September 17 – 18, 2019
Regina, SK
cwra.org

CLEAR - 2019 Annual Educational Conference

September 18 – 21, 2019
Minneapolis, MN
www.clearhq.org/event-2428933

6th Canadian Young Geotechnical Engineers & Geoscientists Conference

September 26 – 28, 2019
St. John's, NL
cygegc2019.com

WIM/WiN - Mine Your Potential

September 27, 2019
Saskatoon, SK
wimwinsk.com

Law & Ethics Seminar

September 27 – 28, 2019
Regina, SK
www.apegs.ca/Portal/Pages/Professional-Practice-Exam

AISES – National Conference

October 10 – 12, 2019
Milwaukee, WI
www.aises.org

APEGS Fall Professional Development Days

November 14 – 15, 2019
Saskatoon, SK
(Registration opens September 2019)
www.apegs.ca

Inclusivity in STEM Conference

January 22, 2020
Saskatoon SK
www.acec-sk.ca

Law & Ethics Seminar

April 17 – 18, 2020
Saskatoon, SK
www.apegs.ca/Portal/Pages/Professional-Practice-Exam

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