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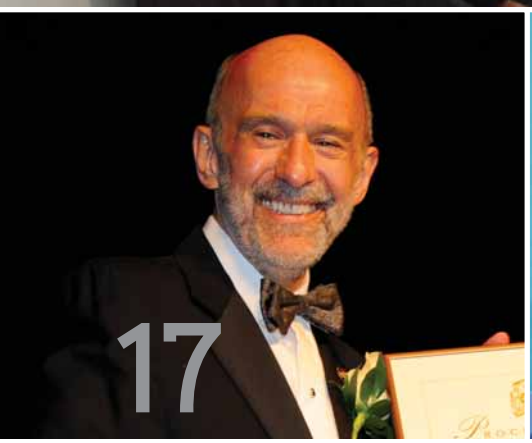

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A More Strategic Council is a More Successful Council

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

This edition of *The PEG* celebrates various forms and measures of success. Member success, APEGA success, the tools we use to build and recognize success — you'll find these areas documented throughout the magazine.

The obvious question I should answer here, then, is this one: How successful is Council? My swearing-in ceremony was in the spring, but I actually joined Council in 2013 as Vice-President.

Since then, I'm pleased to say that there are, indeed, results to report. Some of them are esoteric, because this is governance we're talking about. A major priority for this Council and the one before it has been changing our governance model. We're largely there now, so I'd like to explain what we did, why we did it, and how it is helping build continued APEGA success.

As Professional Engineers and Professional Geoscientists, most of us deal with **incremental change** on an almost daily basis. Incremental change is made up of minor adjustments within a well-defined and proven process. Routines are disrupted only minimally.

Dramatic change, as the name suggests, has a bigger impact. It's about replacing major components in a process that's no longer as effective and efficient as it should be. Disruption of routines is significant, but the overall template is the same.

And then there's **transformational change.** The entire process is replaced. The original template is not used. New routines and regimens are created and implemented.

Council is going through something between the last two types of change I've listed. Our change is in many ways transformational and in some ways dramatic. There's incremental change in there, too, because there always is.

The outcome remains the same: the sound regulation of our professions. The improvements your Council has adopted, however, are enabling APEGA to regulate more efficiently and effectively.

That's important for the future of our professions and for our continued, high-quality service to Albertans and their interests. Elsewhere in this *PEG*, you'll read about some important operational achievements. To have come so far operationally required a new and more clearly defined connection between Council and staff — which is what we are creating.

Your Council has eliminated a significant duplication of effort. It is recognizing and clarifying the difference between

How APEGA Helps Members Succeed

Recognition creates success. In fact, past recipients of APEGA Summit Awards often speak of what a boost the award was to their lives and careers.

Members have one of the best vantage points to recognize others' success. I encourage each of you to take a look around you and consider nominating a peer or project. In doing so, you help APEGA shine a light on excellence in our professions and strengthen the public's awareness of the amazing work our Members and Permit Holders do.

To recognize deserving Members is to change lives. It really is that big of a deal. The deadline for nominations for next year's Summit Awards is only a few weeks away — October 15. Nominations are now accepted digitally, in a simple system that allows sharing of the form before completion.

In the summer *PEG*, I stated that we are not successful by ourselves and that we all have roles in each other's success. This doesn't just happen — it takes effort. It is important to keep honing our mentoring skills. The better you are at mentoring, the more success everyone enjoys.

I can't emphasize enough how important mentoring is in professional development. If you don't believe me, please register for the APEGA Mentoring Conference, coming up November 2 and 3 in Calgary, and prepare to be convinced.

You will improve your mentoring skills, network with mentors and mentees, and learn all about the mentoring world's best practices.

governance and operations. It is freeing its time and energy for what Councillors are elected to do: advise the CEO and a handful of Council committees, and develop clear and relevant strategies.

Before this began, we had 11 committees reporting to Council. On the surface, that might seem like a good thing. If there are a lot of committees, a lot must be getting done. Right? Well, yes and no.

Certainly, the committees were all about great work being carried out by dedicated APEGA volunteers. The problems lay in the reporting structure and the clarity of roles. Most of those committees had earlier made their strategic recommendations to Council, which Council had accepted, tweaked, or changed. Then these committees started doing the work Council had empowered them to do.

From that point forward, the committees became cumbersome. They were reporting to Council, yet they were doing operational work that is ultimately the responsibility of the CEO. The difference between strategy and operations was unclear. The connection between committee work and staff work was unclear. Lines of authority were unclear.

We now have just four Council committees, and they have clear Council roles. The committees that did not need to report to Council have now been changed into groups that report, through staff, to the CEO. Whenever necessary, Council creates a task force in a specific area to advise it and come up with strategic recommendations. Once recommendations are accepted by Council, the task force is disbanded. If the CEO needs a group of volunteers to help turn a direction into operations, it's the CEO's responsibility to create one.

Another key element is the change in the way we gather nominations for Council. The new system is an example of how strategy becomes action, helping make Council stronger and more effective in the years to come.

Council wanted to ensure that for each election, diverse and experienced nominees run for Council. Also needed was a way to make sure strategic needs — which can change from year to year — are represented on the list of candidates. So Council directed one of the four committees, the Nominating Committee, to come back with recommendations that would transform the nominating process. The resulting proposed bylaw changes were approved by Council and then by Members attending the most recent Annual General Meeting.

What's different is that Council has identified, for the Nominating Committee, the top seven Councillor attributes and top Council needs. This information is now available for all Members, helping them decide whether to self-nominate.

So, if you are interested in self-nominating for the next Council, you have until October 19 to complete the requirements in the Member Self-Service Centre. To read more about the new system, check out the summer *PEG* — the full digital edition appears online at apega.ca.

I have confidence in the new nomination system, which I think bodes well for Council and APEGA's future — and future success.

Questions or comments?
president@apega.ca

How a Formalized Leadership Team is Helping Create APEGA Successes

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

When I was informed that the theme of this *PEG* is Success, I thought: How can I possibly choose a topic? APEGA has achieved significant success over the past year, improving the way applications are processed, improving customer service, improving the efficiency of some of our statutory processes, and continuing to refine governance.

Any one of these subjects is a story all its own. If you don't believe me, check out the rest of this edition. Many of the subjects I've mentioned are covered elsewhere.

So, back to the original question: How do I choose? The answer is that I don't. As the CEO, I'll use this space to look at the people who have directed and enabled these successes. While we have accomplished these changes in stride, none of them would have been possible without great leadership. And no, this does not mean the CEO is about claim credit.

APEGA's Council has provided leadership to me. From a day-to-day perspective, however, much of APEGA's success is due to the leadership provided by APEGA's senior leadership team.

Our current senior leaders have been working here for varying lengths of time, but they have been together as a full team for only seven months. I would like to honour their contributions by briefly discussing their achievements, starting with the leaders with the longest APEGA tenure.

APEGA's Director, Communications, is Philip Mulder, APR, FEC (Hon.), FGC (Hon.). No relation to his X-Files namesake, our Mulder leads a very capable team of communication specialists who assist me in assessing reputational risk and developing and crafting messages. Drawing on his depth of strategic communications experience with the Government of Alberta and Credit Union Central of Alberta, Philip has been a key advisor.

He has helped our team interpret items that arise in the media and their relevance to APEGA. He has also provided sage input whenever APEGA has decided to speak on potentially contentious issues.

Philip, thank you for your nuanced explanations and fearless candour.

Pat Lobregt, FEC (Hon.), FGC (Hon.), is APEGA's Director, Executive & Government Relations. Pat has been an APEGA stalwart, supporting staff members and volunteers alike.

Pat currently provides two critical functions. First, drawing on her vast experience both in and with government, Pat gives superb advice on how government might interpret situations and how APEGA can most appropriately communicate with government. Second, using diplomacy and wisdom, Pat helps me support APEGA's Council by fielding questions and coordinating a host of details, as well as by providing administrative support for Councillors as they prepare to chair committees and attend meetings.

Pat, thank you for your patience and loyalty.

Carol Moen, P.Eng., joined APEGA after more than 25 years with Dow Canada in Fort Saskatchewan. Approaching two years as APEGA's Registrar, she has been instrumental in ensuring that APEGA's regulatory mandate is effectively discharged. Responsible

CEO's Message

for a large span of our business, she initially focused on addressing capacity and process challenges facing the registration system.

She has also found time to lead our legislative renewal, while spearheading a cleanup of outstanding appeals. Carol has a keen eye for detail and the ability to manage large amounts of work.

Carol, thank you for your diligence and sense of duty.

Krista Nelson-Marciano, BA, APEGA's Director of Operations, joined the APEGA team in the summer of 2014. Coming to APEGA from GE and Intuit, Krista is an energetic and enthusiastic addition to the team.

In the midst of competing priorities, I tried for two years to create an operations unit to help me coordinate efforts internally, assist with external liaison with Engineers Canada and Geoscientists Canada, manage projects, and generally help me with everything! Krista has helped make this unit a reality, forging a great team that brings order to chaos and translates ideas into coordinated action. Although we are still getting used to what a group like this does for APEGA and how we can best take advantage of it, we're already experiencing enormous benefit.

Krista, thank you for making all of our lives easier.

Heidi Yang, P.Eng., FEC, FGC (Hon.), is a former APEGA Councillor and a former Grande Prairie Branch Chair. After more than 20 years with Weyerhaeuser, Heidi arrived at APEGA just after Krista did, becoming our Director, Member Services.

Heidi has quickly developed a clear picture of what the lives of Professional Engineers and Professional Geoscientists entail. From this has come a profound understanding of how we can optimize APEGA's support to Members and volunteers, be they applicants, students, Members-in-Training, or Professional Members — reflected in *Enriching the Member Experience*, the Member Services tagline. Heidi has the additional responsibility of leading our remarkable people in APEGA's Calgary office. A breath of fresh air at APEGA, Heidi always offers a new perspective on challenges, and she leads an outstanding group of people focused on. . .well, other people!

Heidi, thank you for your positivity and bright outlook.

The most recent addition to our leadership team is Pal Mann, P.Eng. Pal served for more than 30 years in the Canadian Army. In fact Pal and I served together as combat engineer officers. As Director, Corporate Services, he tends to critical parts of the business, such as taking care of our employees, our finances, and our information technology.

Corporate Services provides key enabling functions across APEGA, and leads business and strategic planning. This group did not exist as a cohesive, integrated group until the end of 2012.

Pal, your well-timed sense of humour and your intellect have caused us to up our game and be on our toes. Chimo!

As I said at the beginning of this article, this amazing group hasn't been together for long. Yet already, the APEGA senior leadership team is truly a success story. I am fully confident that as APEGA prepares for tough economic times over the next year or so, our ability to succeed is secure in the hands of these talented leaders.

I am truly honoured to be a part of this team, and I am very proud of how well it serves the Association.

APEGA'S SENIOR LEADERSHIP TEAM
From left: Krista Nelson-Marciano, BA, Director of Operations; Pal Mann, P.Eng., Director, Corporate Services; Carol Moen, P.Eng., Registrar; Mark Flint, P.Eng., CEO; Heidi Yang, P.Eng., FEC, FGC (Hon.), Director, Member Services; Philip Mulder, APR, FEC (Hon.), FGC (Hon.), Director, Communications; and Pat Lobregt, FEC (Hon.), FGC (Hon.), Director, Executive & Government Relations.

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The Buzz

CHANGES ON TAP
Alberta is doubling its carbon tax over the next two years and has begun a review of the province's energy royalty framework. The review will be complete by the end of the year, but in the meantime the government has promised no changes to royalty rates until the end of 2016.

CARBON TAX INCREASE, ROYALTY REVIEW MOVING AHEAD

The Government of Alberta hopes that an increased carbon tax on heavy emissions and a new carbon policy will help polish Alberta's image as a climate leader.

Alberta is doubling its carbon tax over the next two years — the first change to the levy since it was introduced eight years ago. On January 1, 2016, the tax on heavy emitters will increase to $20 from $15 per tonne. In 2017, it will rise again, to $30 per tonne. By 2017, the province will also increase the percentage of required emission reductions from 12 per cent per unit of production to 20 per cent.

The government is also working on a review of the energy royalty framework. An expert panel has been selected to complete the review by the end of the year, but the province has promised there will be no changes to the rates until the end of 2016.

-Jacqueline Louie

A LOT OF GREEN FOR CALGARY'S GREEN LINE LRT

Green stands for go. At least that's what the City of Calgary is hoping, with a recent announcement by the federal government of $1.5 billion in funding for the Green Line LRT. Ottawa is contributing one-third of the project's $4.6-billion cost. If approved, the line will run from Calgary's northern edge down Centre Street, through the downtown core, and into the far south-east to the South Health Campus.

Construction on the public transit project is expected to start in 2017 and wrap up by 2024, nearly doubling the size of the city's CTrain network. There are still some challenges to overcome, though, including determining the final alignment of the 50-kilometre track and buying land along the route.

-Jacqueline Louie

INTERIM SOLUTION FOR EDMONTON'S METRO LINE

After a lengthy delay, it's half-steam ahead for Edmonton's newest LRT line. Linking Churchill Square to the NAIT campus, the Metro line is finally transporting commuters, but at slower speeds than normal. Since opening September 6, LRT drivers have relied on line-of-sight operation, which means trains only travel at speeds up to 25 kilometres an hour. It's an interim solution until the kinks are worked out of a new signaling system. This compromise was reached in late summer after a dispute between the City of Edmonton and the project's signaling contractor.

A report released by a third-party auditor in August found communication management problems between the city

SUSTAINABLE LIVING
Edmonton's new Blatchford community will be one of the largest sustainable communities on the planet. It will boast abundant park spaces, multi-use roadways to encourage walking and cycling, accessible transit, and high-efficiency buildings fueled by renewable energy.
-artist rendering courtesy City of Edmonton

and the contractor. The line was originally scheduled to open in April 2014.

-Caitlin Crawshaw

FUNDING APPROVED FOR 56 MUNICIPAL INFRASTRUCTURE PROJECTS

New funding for 56 municipal infrastructure projects in Alberta will help smaller communities improve drinking water and wastewater systems, roadways, disaster mitigation, public transit, and solid waste management. The total combined federal, provincial, and municipal investment in the 56 projects is nearly $414 million. The funding, announced in July, comes from the Small Communities Fund, which offers grants to municipalities with fewer than 100,000 residents.

Of the 56 projects, 24 are for providing drinking water and another 24 are for handling wastewater. Four major road projects, two disaster mitigation projects, one public transit project, and a solid waste management project round out the list.

The funding was awarded using a merit-based scoring system that looked at factors like public safety, environmental stewardship, and economic development. The need for infrastructure improvements is still great — there were nearly 300 applications submitted totaling $1.1 billion.

-Corinne Lutter

RECESSION CONFIRMED BY STATSCAN

It's official. Statistics Canada announced earlier this month that the country is in the midst of a recession. That won't come as a surprise to the many oil industry employees who were laid off in recent months, the result of sustained low oil prices.

The numbers show that Canada's gross domestic product (GDP) has declined for the past two quarters. It fell by an annualized rate of 0.5 per cent between April and June, after dropping by 0.8 per cent from January to March.

There's some good news, though. StatsCan also reported 0.5 per cent growth in June, thanks to exports, household consumption, and international trade.

A TD Economics report released earlier this summer predicts that Alberta's economy will shrink by 0.9 per cent in 2015, after growing by 4.5 per cent in 2014. The company pointed to a decline in the construction sector, a reduction in oilpatch capital spending, and a 10 per cent drop in new homes being built.

-Caitlin Crawshaw

2020 VISION FOR NEW CANCER TREATMENT CENTRE

Southern Alberta is finally getting its long-awaited cancer treatment centre, with construction expected to begin next year in Calgary.

The province announced in July that the full-service centre will be built at Calgary's Foothills Medical Centre campus. The facility was first proposed a decade ago. Replacing the Tom Baker Centre, it is expected to open in 2020.

A price tag and construction timeline are expected to be announced this fall. New and expanded services at the centre will include additional inpatient beds, outpatient services, radiation therapy, and chemotherapy.

-Jacqueline Louie

CARLESS CONDOS WILL COME WITH A FREE BIKE

It's getting cool to go car-free in Calgary. Calgary city council has unanimously approved the city's first parking-free residential condo tower in the East Village. It will have 167 units — but no parking stalls.

N3 Condo, a 15-storey tower, is being developed by Knightsbridge Homes beside the former St. Louis Hotel on 8th Avenue and 4th Street S.E., one block from the City Hall LRT station. Condo buyers will receive a free bicycle and a $500 Car2Go car-sharing credit.

-Jacqueline Louie

NO CARS ALLOWED
In Calgary, city council has approved the first parking-free residential condo tower. Residents of N3, in the East Village, will get a free bike with their purchase — but no parking stall.

SMARTPHONE APP WILL TRACK MYSTERIOUS LOW-FREQUENCY HUM

Electrical and computer engineering researchers at the University of Calgary can now add sleuth to their resumes. The team has developed a smartphone app to track a mysterious low frequency hum that residents in Calgary's northwest Ranchlands community have been complaining about for years.

Headed by Mike Smith, P.Eng., a professor of electrical and computer engineering at the Schulich School of Engineering, the team has designed the app to help residents record the sound wave frequency of the approximately 40-hertz hum. They'll analyze the information to try and determine what's causing the noise.

-Jacqueline Louie

GREEN HOUSING PROJECT TAKES OFF AT FORMER AIRPORT

Construction has officially begun on Edmonton's new Blatchford community, where the City Centre Airport once was. After a ceremonial sod-turning in early August, crews began removing storm sewers under runways. Soon they'll demolish the remaining six airport buildings.

Redeveloping the 217-hectare site is a massive job, but the city hopes the first residents will move in as early as 2016. Within the next two decades, an estimated 30,000 people are expected to move into the neighbourhood, making it one of the largest sustainable communities in the world.

The city's plan for the area includes abundant park spaces, multi-use roadways to encourage walking and cycling, accessible transit, and high-efficiency buildings using renewable energy. In 2014 Edmonton city council selected Vancouver architectural firm Perkins + Will to come up with a scheme for the area.

-Caitlin Crawshaw

ALBERTA'S MINIMUM WAGE TO RISE

In a move that makes burger flippers hopeful and business owners nervous, the province is moving ahead with its plan to increase the minimum wage from a $10.50 to $15 per hour. The hike will happen in stages, beginning with an increase to $11.20 per hour on October 1 and continuing in increments until 2018.

The move will boost the minimum wage from one of the lowest in the country to the second highest. Some business groups and opposition parties have argued that the increase could harm the economy by raising the prices of goods and causing layoffs. The Government of Alberta argues that

RIVERSIDE REVITALIZED
Proponents of the proposed CalgaryNEXT development — which includes a new hockey arena and covered football stadium — say it will revitalize a neglected part of the city's downtown core, and connect communities along the Bow River.
-artist rendering courtesy Calgary Sports and Entertainment Corporation

the wage increase will improve the quality of life for many families and decrease dependency on social support programs and food banks.

-Caitlin Crawshaw

THE NEXT BIG THING FOR CALGARY

The Calgary Sports and Entertainment Corporation (CSEC) has unveiled a bold vision for a new hockey arena, a covered football stadium and a multi-sport field house in the city's West Village. CalgaryNEXT, as it's been dubbed, would cost an estimated $890 million and would replace Scotiabank Saddledome and McMahon Stadium.

CSEC says the project could be funded through a $240-million community revitalization levy, a $250-million ticket tax, and contributions of $200 million each from the city and the Flames' ownership group.

Calgary's Mayor Naheed Nenshi said the proposal was intriguing, but added that there are challenges to overcome. These include remediation of the proposed West Village site. Much of the land was contaminated decades ago by a creosote plant and still needs to be cleaned up. The price tag for CalgaryNEXT doesn't include remediation, which could hit $300 million.

-Corinne Lutter

WORLD WATCH

BY **GAIL HELGASON**
Freelance Contributor

CHINESE FIRM BUILDS 57-STOREY SKYSCRAPER — IN JUST 19 DAYS

Three weeks might be ample time to build a shed. But a 57-storey skyscraper? A Chinese company has done just that, erecting an office and residential tower in 19 working days, reports the *Canadian Consulting Engineer* (Toronto).

Mini Sky City in Changsha, Hunan province, shot up by three floors a day. It has office space for 4,000 people, plus 800 apartments and 19 atriums. The feat was accomplished by the Broad Sustainable Building Company, using 2,736 pre-assembled modular blocks, that took almost five months to prefabricate.

The company's next goal is to erect Sky City, a 220-storey skyscraper — the world's tallest — in three months.

ON THE SOLAROAD TO SUCCESS

The world's first solar road is exceeding expectations in the Netherlands, reports Science Alert website. The 70-metre test bike path, dubbed SolaRoad, was built last fall by a government and industry consortium. Paved with glass-coated solar panels, it's been generating 3,000 kilowatts per hour, sufficient to meet the annual power needs of a small household.

Engineers spent five years creating a durable, skid-resistant system capable of supporting a fire truck. The design features solar panels sandwiched between glass, silicon rubber, and concrete.

SCIENTISTS TRANFORM WOOD PULP INTO BATTERIES

Could your jacket soon charge your smartphone? Thanks to Swedish and American researchers, that technology may be getting close to reality. The team has created an aerogel from wood pulp to make foam-like batteries and supercapacitators that can stand shock and stress, says the KTH Royal Institute of Technology (Stockholm), which partnered on the project with Stanford University.

Unlike regular batteries, these ones can be used to create 3D structures, allowing the storage of more power in less space. Researchers say the batteries could be used in electric car bodies or to line flexible materials such as clothing.

The aerogel is made by breaking down tree fibres, making them about a million times thinner. It's then coated with a special ink that conducts electricity.

GREEN CONCRETE MIX INCLUDES ALUMINUM CANS AND FLY ASH

Researchers in the civil engineering faculty at the Universiti Teknologi MARA in Malaysia have come up with a way to make concrete more environmentally

-photo courtesy SolaRoad

REVOLUTIONARY ROAD
Since it was installed last fall, approximately 150,000 cyclists have driven on the SolaRoad test bike path, which is the world's first solar road. An experimental laminate coats the panels and provides protection.

ROBO PARKING
A new automated parking garage in California was designed with sustainability in mind. Features include roof-mounted photovoltaic solar panels and drought-tolerant landscaping, while sustainable material, made from recycled grocery bags, was used in construction.
-artist rendering courtesy City of West Hollywood

friendly. Their green concrete contains conventional materials mixed with a blend of recycled waste materials, including aluminum can fibres, concrete aggregates, and fly ash from coal power plants.

The resulting product is cost-effective, and tests show it's up to 30 per cent stronger than regular concrete.

GIVING SKIERS A LIFT, AT 365-METRES-PER-MINUTE

Skiers can spend more time hitting the slopes, and less time riding up the ski lift in Vail Mountain, Colo. Leitner-Poma of America. recently introduced what it believes is the fastest gondola lift in the United States, reports the American Society of Mechanical Engineers.

The lift can travel up to 365 metres per minute. It's driven by a 1,200-horse-power electric motor connected to a gearbox that's connected to a bull wheel.

TECHNOLOGY REDUCES SMALL AIRCRAFT COLLISIONS

Engineers at North Carolina State University in Raleigh have developed technology to help pilots of small aircraft avoid mid-air collisions. Improvements were made to the GPS cockpit displays that pilots use to spot nearby planes, reports *Science Daily*.

Pilots tend to focus on the closest aircraft displayed, even though a faster plane, further away, could cross their path first. Researchers at the Edward P. Fitts Department of Industrial and Systems Engineering modified the display to draw attention to the plane that will first cross the pilot's path. The display either blinks or is coloured yellow.

Tests show the modifications improve pilot decision making and significantly reduce response times.

HAVE ROBOT, WILL PARK

An automated parking structure could ease parking congestion in West Hollywood City, reports the *Engineering News-Record* (New York). The US $10.6-million robo garage uses motorized vertical lifts and horizontal shuttles to move vehicles from the arrivals level to a remote parking space.

It requires only 60 per cent of the land needed by conventional ramp-style garages and can hold up to 200 cars — about three times more than a ramp-style garage in the same space.

The garage was designed by LPA Inc. of Sacramento, Calif., and the mechanical system by Unitronics of Quincy, Mass.

The technology is just emerging in North America. There are about 15 other automated parking garages in the U.S., compared with more than 500 in Europe and 1.6 million automated parking spaces in Asia.

THIS ONE CAN MAKE YOU BREAKFAST

In Europe, a robot named PR2 has been teaching itself to cook by perusing online videos and recipes. Researchers from universities across the European Union have created PR2 as part of a project dubbed RoboHow, says an article in *MTI Technology Review*.

The robot, which calls Germany's University of Bremen home, is learning to make pancakes and pizzas by following directions on WikiHow. The goal is to teach robots to understand language so that one day a person can simply tell a robot what to do. So far, researchers have been able to turn a few WikiHow instructions into useful behaviour, both in simulations and in real robots.

Movers&Shakers

COMPILED AND WRITTEN BY
GILLIAN BENNETT
The PEG

DISTINGUISHED DEAN HAS HIS DAY

After 21 years as Dean of Engineering at the University of Alberta, **David Lynch, P.Eng., FEC, FGC (Hon.)**, finally has a day to call his own. By proclamation of Edmonton Mayor Don Iveson, June 30 will now and forever be known as David Lynch Day. Such proclamations don't happen often — they're awarded only to individuals or groups that have supported the betterment of society through education and charitable works.

Dr. Lynch, the University of Alberta's longest-serving Dean of Engineering, certainly fits the bill. During his time in the position, he oversaw the education of more than 13,000 undergraduates, or more than 50 per cent of the 25,000-plus engineering undergrads who've studied at the U of A over the past 107 years.

When Dr. Lynch was first appointed interim dean in 1994, it was something of a surprise for the chemical engineering professor. Alberta was in the midst of a serious budget crisis and post-secondary funding was being slashed. The University of Alberta was in a state of disarray — the president having resigned on short notice — and the vacant dean position needed to be filled. The acting president called Dr. Lynch and, with just three days' notice, told him he would be appointed acting dean.

Despite the tumultuous times, Dr. Lynch was able to look to the future, drafting a plan that would see the engineering faculty undergo enormous expansion. Under his leadership, the faculty more than doubled in size, with the addition of 110,000 square metres of teaching and research space. And for his last day as dean on June 30, he opened the new Donadeo Innovation Centre for Engineering, adding another 26,360 square metres of space to the mix.

DAY OF THE DEAN
Dr. David Lynch, P.Eng., FEC, FGC (Hon.), (left) receives a proclamation from City of Edmonton Coun. Mike Nickel declaring June 30 as David Lynch Day.

Dr. Lynch saw 5,000 students earn their master's or doctoral degrees — 75 per cent of all engineering graduate degrees ever awarded at the U of A. His focus was always on students, in keeping with his conviction that skilled, creative types are what ensure a prosperous society. "There's one thing there is no shortage of, and that's human creativity..." Dr. Lynch told the *Edmonton Journal*. "We always seem to be able to find solutions to the challenges of the day."

To celebrate his achievements, APEGA and the Alberta Chamber of Resources held a special recognition event for Dr. Lynch on June 23 at Edmonton's Shaw Conference Centre. Over 300 people were on hand to honour his achievements.

Dr. Lynch — on administrative leave to refocus on his education and research — is a professor of chemical engineering with the Faculty of Engineering.

CIVIL ENGINEER SHOOTS FOR GOLD

Being a straight-shooter has taken on a whole new meaning for **Lynda Kiejko, P.Eng.** A senior civil engineer with AltaLink, Ms. Kiejko took home two gold medals for pistol shooting this summer

at the Pan Am Games in Toronto, assuring Canada a spot at the 2016 Rio Olympics.

Born in Ontario, Ms. Kiejko grew up in small towns across Alberta. Her late father, Bill Hare, a minister in the United Church and a three-time Olympic pistol shooter, was known as the Pistol Packing Preacher. It was her father who encouraged Ms. Kiejko and her sister Dorothy to take up pistol shooting.

In 1998 Ms. Kiejko made the national team, and in 1999 she competed in her first World Cup. She then decided to focus on her education, completing a bachelor's degree in engineering at the University of Alberta. She started her career with North

PISTOL PACKING P.ENG. WINS GOLD AT PAN AM GAMES

Lynda Kiejko, P.Eng., pictured with husband Kevin and daughter Olivia, won two pistol shooting gold medals at the Pan Am Games in July, securing a spot for Canada in the Rio Olympics in 2016.

American Construction Group and worked in Fort McMurray on Syncrude projects until joining AltaLink in 2004, progressing from Engineer-in-Training to Manager Operational Engineering, and now Senior Civil Engineer.

After graduation, Ms. Kiejko renewed her dedication to pistol shooting. In 2003 she took home a bronze medal at the Pan Am Games in the Dominican Republic, which led to more competitions at national and international levels.

This July, Ms. Kiejko competed at the Pan Am Games before an unusually boisterous crowd. Her sister Dorothy, also a pistol shooter, had won gold four years ago in Mexico, so she was determined to win another one for her family. Despite the noise and distraction, she maintained her composure and took home gold in the women's 10-metre air pistol and in the 25-metre rapid fire.




-photo courtesy Canadian Academy of Engineering

CANADIAN ACADEMY OF ENGINEERING NAMES NEW FELLOWS
From left, Horacio Marquez, P.Eng., Kenneth Andre Corbould, P.Eng., and Simaan AbouRizk, P.Eng., were recently named Fellows of the Canadian Academy of Engineering. Norbert Morgenstern, P.Eng., (far right) was given a special Honorary Fellowship, the highest accolade given to a current fellow of the academy. Presenting the award is Kim Sturgess, P.Eng., FCAE.

Among those cheering her on was Ms. Kiejko's daughter, Olivia. She's often on hand when her mom competes. Indeed, Ms. Kiejko was six months pregnant with Olivia while competing at the 2014 USA World Cup. Olivia travelled with her mom to the 2014 Commonwealth Games in Scotland when she was only 15 days old, and she's watched her mom compete in Spain, Mexico, South Korea, and the United States.

Ms. Kiejko will continue competing at the provincial and international levels, and hopes to make the Canadian team for the Rio Olympics in 2016.

APEGA MEMBERS NAMED NATIONAL FELLOWS

June of this year saw four distinguished APEGA Members receive fellowships from the Canadian Academy of Engineering.

Norbert Morgenstern, CM, P.Eng., is already a fellow with the CAE, but in June was given an Honorary Fellowship, the highest accolade bestowed by the academy. Given to only a handful of individuals, it recognizes those who have made an outstanding contribution to the profession of engineering — well beyond what is expected for a fellow. He was presented the award by **Kim Sturgess, P.Eng., FCAE**, founder and CEO of Alberta WaterSMART.

Born in Ontario, Dr. Morgenstern graduated from the University of Toronto with a bachelor of applied science in civil engineering. Awarded a fellowship for post-graduate studies, he then left to study soil mechanics at the Imperial College of Science and Technology at the University of London. In 1960, he joined the college as a lecturer and stayed for another eight years.

Dr. Morgenstern began to earn a reputation in Earth sciences and soon caught the attention of the late **R. M. Hardy, P.Eng.**, Dean of Engineering at the University of Alberta. Dr. Hardy had started the field of geotechnical engineering. He encouraged Dr. Morgenstern to return and join the U of A faculty as a civil engineering professor, which he did in 1968.

Over the next 50 years, Dr. Morgenstern shaped the university into a leading geotechnical school and became an internationally recognized authority in geotechnical engineering. His research focused on dam design and slope stability and earned him multiple awards. Many recommendations resulting from his work have passed into professional practice. Indeed, he helped lay the framework for modern permafrost engineering, tackling engineering challenges in the Arctic and the Alberta oilsands.

In addition to teaching and research, Dr. Morgenstern has shared his expertise with research institutions, multinational companies, and governments in over 30 countries. He has 330 published manuscripts, and he helped rewrite the provincial regulations and guidelines of engineering practice.

Those named as Fellows of the Canadian Academy of Engineering include **Horacio Marquez, P.Eng., Kenneth Andre Corbould, P.Eng., OMM**, and **Simaan AbouRizk, P.Eng.**

A professor at the University of Alberta, Horacio Marquez, P.Eng., is a world-class expert in nonlinear dynamical systems and control theory — simply put, his designs help detect faults in industrial systems, in particular Alberta's oil and gas systems. He has co-authored 81 journals and a book on nonlinear control systems. Dr. Marquez received a bachelor of science degree in Argentina before moving to New Brunswick to pursue a master of science degree, a master of engineering degree, and a PhD in electrical engineering. After three years of visiting appointments at colleges and universities in British Columbia, he took a position as professor at the U of A in the Department of Electrical and Computer Engineering of the Faculty of

NICK MALYCHUK, P.ENG., FEC, FGC (Hon.) . . .
. . . cart full of inspiration

-photo courtesy Seniors Association of Greater Edmonton

Engineering. From 2004 to 2014, Dr. Marquez was chair of the department and was instrumental in its growth to one of the largest research departments in the country.

Retired Brigadier-General Kenneth Andre Corbould, P.Eng., has an esteemed reputation for applying his engineering skills in situations of conflict, disaster, and reconstruction. He led the planning and execution of the province's flood recovery task force in 2013, helping Albertans cope with the largest natural disaster in Canadian history. Prior to that he had a 28-year career in the Canadian Forces, with tours in Kuwait, Bosnia, East Timor, and Afghanistan. In Afghanistan, Mr. Corbould led the combat and reconstruction efforts of 25,000 multinational troops, focusing on sustainable development and training for locals. He is currently the province's Deputy Minister, Jobs, Skills, Training and Labour.

Simaan AbouRizk, P.Eng., is an award-winning researcher in the world of construction engineering. He has been a professor at the University of Alberta in the Department of Civil and Environmental Engineering for the past 25 years, focusing on construction simulation modeling and analysis. Dr. AbouRizk's work includes over 300 published papers. In addition to academic endeavours, he regularly consults with construction companies to put his research into practice. He has gained recognition for helping companies with productivity improvement, risk analysis, and assessment of management systems.

MEMBER IGNITES STUDENTS' IMAGINATIONS

He has inspired 16,931 children since joining the APEGA Outreach program in 1995 and has been sharing his enthusiasm for the profession for close to 20 years. APEGA Life Member **Nick Malychuk, P.Eng., FEC, FGC (Hon.)**, received a Sage Award for Science & Technology earlier this year from the Seniors Association of Greater Edmonton (Sage).

Mr. Malychuk completed a bachelor of mechanical engineering degree from the University of British Columbia in 1957. He began his career at Canadian Phoenix Steel & Pipe Ltd. in plant engineering, where he stayed for 15 years. In 1973, he joined **Syncrude Canada Ltd.** in research facilities management,

A CLEAR VISION OF WATER NEEDS
Camille Dow Baker, P.Eng., received the Canadian Medical Association's Medal of Honour for her role in founding the Centre for Affordable Water and Sanitation Technology (CAWST). The non-profit has improved water, sanitation and hygiene conditions in 68 countries.

-photo courtesy CAWST

and stayed with the company until his retirement in 1995.

Mr. Malychuk was an avid volunteer throughout his professional career, and his passion has continued well into retirement. He has been a member of Scouts Canada since 1968 and volunteers with Habitat for Humanity. He is a longtime APEGA volunteer, having served on a number of committees and as a school outreach volunteer.

It is through the APEGA Outreach program that Mr. Malychuk has channelled his enthusiasm, expertise, and creativity to inspire students to explore science and technology. With a cart full of engineering materials, Mr. Malychuk ignites their imaginations by explaining complicated scientific principles with fun visuals and hands-on activities. During the 2013/14 school year he visited 43 classrooms, passing on his love for science, engineering, and technology to the next generation.

Mr. Malychuk has previously received the APEGA Special Award (now the Community Service Summit Award), the Scouts Canada Medal of Merit, and the Queen's Golden Jubilee Medal.

WATER WARRIOR

Engineering makes a difference in many different sectors, as proven by APEGA Life Member **Camille Dow Baker, P.Eng.**, recent recipient of the Canadian Medical Association's Medal of Honour. The medal is the highest award the association gives to a non-physician. She was recognized for her

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Klohn Crippen Berger

Len Murray, President and CEO, is pleased to announce the following Principal and Associates appointments.

Warren Vincent-Lambert, P. Geo.
Manager, Oil & Gas and Mining Group, Alberta Business Unit
Principal

Warren Vincent-Lambert has over twenty years of experience in mining water management, environmental investigations and impact assessments. Since joining KCB in 2005, Warren has managed multi-disciplinary teams for mining impact assessments and environmental management program compilations for mines and oil sands developments. He has provided technical guidance and senior review on numerous groundwater management projects, covering mining, oil & gas and civil infrastructure projects.

Andrew Brunsdon, P. Eng.
Team Lead, Foundations & Civil Design, Alberta Business Unit
Associate

Andrew Brunsdon has over ten years of progressive work experience in the civil engineering industry. Since joining KCB's Calgary office in 2010, his responsibilities have included managing and coordinating multi-disciplinary project teams, conducting detailed designs, preparing tender and contract documents, and providing technical support and construction management during project construction.

Karen Sagar, P. Eng.
Oil Sands Group Manager, Alberta Business Unit
Associate

Karen Sagar has over twenty-three years of experience managing multi-disciplinary design projects for a variety of clients. The scope of work for projects she has been involved with includes: geotechnical design for colliery reclamation schemes, offshore wind farm foundations, roads and railways in the UK and Ireland, soil and rock slope stability assessments in Hong Kong, and pile design and testing supervision for a development in Abu Dhabi. Since joining KCB in 2010, Karen has managed projects for Alberta's oil sands operators and taken on leadership roles for a number of internal company environmental, diversity and health and safety initiatives.

Darren Senft, P. Geol.
Oil Sands Group Manager, Alberta Business Unit
Associate

Darren Senft has more than eighteen years of experience as a professional geologist. This experience includes eight years on hard rock exploration projects, as well as an additional ten years working on, and managing, a variety of oil sands projects. His experience includes: planning, implementation, supervision and quality control of drilling projects; stratigraphic interpretation of borehole data; geological modelling; bedrock mapping; and project management of geological and engineering studies. Darren joined KCB in 2007 and is currently based in Calgary.

CANADA'S BEST MANAGED COMPANIES Platinum member

KCB is an international engineering, geoscience and environmental consulting firm with 10 offices located in Canada, Australia, South America and the United Kingdom.

role in founding the Centre for Affordable Water and Sanitation Technology (CAWST).

A native of Trinidad and Tobago, Ms. Dow Baker studied mining engineering at McGill University. After 20 years in Canada's oil and gas sector, she decided to apply her engineering knowledge and skill to improving sanitation and drinking water in developing countries. She enrolled in environmental design at the University of Calgary, where she met **David Manz, P.Eng.**

Dr. Manz is the inventor of innovative biosand filter technology, which removes pathogens and suspended solids from contaminated drinking water. Together, he and Ms. Dow Baker founded CAWST with the goal of sharing this technology with the developing world.

Ms. Dow Baker was CEO of CAWST from 2001 to 2011 and now serves on its board of directors. Since its founding, the non-profit has helped provide consulting services in water, sanitation, and hygiene to nearly 10 million people in 68 countries. CAWST focuses on delivering interactive training programs, free resources, and education materials to local organizations and individuals.

Ms. Dow Baker is also a recipient of the Alberta Centennial Medal, the Global Woman of Vision Award, and the National Griot Award for science and technology.

GEOLOGY PIONEER TURNS 98

In the early 1940s, before continental drift theory, **Charles Stelck, OC, P.Geol., FGC, FEC (Hon.),** suspected coral reefs had once existed in what is now the Arctic. But his hypothesis needed evidence. So, he did what any geologist would do — he got himself a dog team and set off into the snow-covered mountains of Norman Wells. Dr. Stelck did, indeed, find reef material to support this hypothesis, which led to further inquiry into reefs in Alberta. If there were reefs, there would be oil, and this groundbreaking work would lead to some of Alberta's most important discoveries.

CHARLES STELCK, OC, P.GEOL, FGC, FEC (Hon.) . . .
. . . a geology great
-photos courtesy the University of Alberta

A founder of geology research in Alberta, Dr. Stelck was honoured by friends, students, graduates, and colleagues at a celebration of his 98th birthday.

Dr. Stelck was born in Edmonton and first encountered Earth sciences as a teenager working on summer geological field parties. He enrolled in chemistry at the University of Alberta, but switched to geology on the advice of his friend, **Robert Folinsbee, P.Geoph., FGC, FEC (Hon.),** (1944-2013). After completing a bachelor's and a masters' degree in geology, he moved to California and obtained a PhD from Stanford.

Dr. Stelck's first oilpatch job involved monitoring an old well in Pouce Coupe, a small town in northeastern B.C. He then worked for the U.S. military and Imperial Oil on the Canol Project, exploring for oil in the Arctic and piping it to the Whitehorse refinery to provide fuel for Second World War efforts.

Following the war, Dr. Stelck came back to the U of A as a professor and made his first reef hypothesis. He continued with fossil research, teaching, and mentoring for the next 35

years, guiding students in their own discoveries of Alberta's oil reserves. Leduc No. 1 and the Pembina oilfields were both discovered by students of Dr. Stelck.

When the Geological Survey of Canada stopped identifying fossils outside of their own collections, Dr. Stelck and a colleague continued the work, identifying more than 50,000 fossils every year for 10 years.

Dr. Stelck's work is continued through the C.R. Stelck Chair in Petroleum Geology, currently held by **George Pemberton, P.Geol.**

In addition to being an officer of the Order of Canada, Dr. Stelck has received the Queen's Golden Jubilee and Diamond Jubilee medals, and the R.J.W. Douglas Medal, among other honours.

To top it off, he remains active in his field — and recently published a paper.

WHO'S MOVING WHERE

Chris Martin, P.Eng., of Calgary, has been appointed President and CEO of **Engenium Chemicals Corp.** Mr. Martin has been with the company for 15 years, most recently as Vice-President and Chief Operating Officer. Mr. Martin replaces the founder of Engenium, **Greg Martin, P.Eng.**, who stepped down after more than 31 years with the company.

Harold Kim, P.Eng., of Calgary, was appointed Environmental Business Lead at **McElhanney Consulting Services Inc.** for the company's Prairies region. Before joining McElhanney, he led several engineering consulting firms across Canada and North America.

The Government of Alberta has announced **Ernie Hui, P.Eng.**, of Edmonton, has been appointed to a new special advisory role on water quality. Mr. Hui is currently the Deputy Minister at Alberta Seniors and was previously the Deputy Minister of Environment and Water.

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Join us for a packed day at this year's APEGA Mentoring Conference. Engaging presenters will lead educational sessions on everything from mentoring styles and feedback strategies to leading with purpose and framing successful mentoring relationships.

Don't miss the keynote dinner with mentoring coach and former Olympian Tanya Dubnicoff for an inspiring evening.

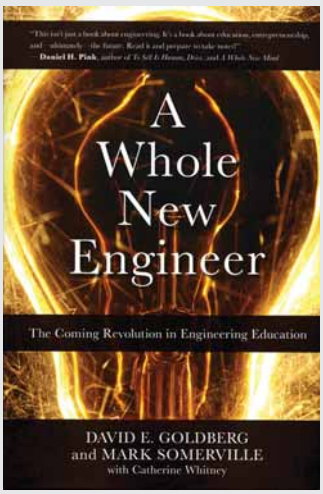
Earn 7 CPD credits!

Register by October 2, 2015 for early-bird pricing.

Go to **apega.ca/mentoringconference2015** for session details and to register.

APEGA

A Whole New Engineer



By David E. Goldberg and Mark Somerville with Catherine Whitney

264 Pages
US $27.95
ThreeJoy Associates Inc.

Back when it was still just a concept, one of the first marketing pieces sent by the Franklin W. Olin College of Engineering to high school recruits was a card that read "7 Reasons You Should Apply to an Engineering College That Doesn't Exist." Reason number one: free tuition. This inauspicious beginning was the start of a new method of engineering education, one that saw students turning down offers from Harvard, MIT, and Stanford to attend the revolutionary new college.

A Whole New Engineer tracks the story of the college and another pioneering institution, the iFoundry incubator at the University of Illinois College of Engineering. It's a fascinating read for leaders, educators, or anyone who has studied engineering.

In 1997, the Franklin W. Olin College of Engineering started up with a blank slate and a large budget, offering not only free tuition and world-class professors, but the promise of student and faculty collaboration. The iFoundry, on the other hand, was an unfunded pilot program founded in 2008 and operating on a shoestring budget. Its founders had aspirations to overhaul the college's engineering education to better meet the challenges and opportunities of the 21st century.

Though opposite in many ways, the schools agreed on the necessary components for educational reform and fashioned an unlikely partnership. Along the way, both institutions discovered that the key to reform wasn't financial, curricular, or research-based, but deeply cultural and emotional.

Indeed, four of their five pillars of educational transformation are joy, trust, courage, and openness. The fifth pillar is more of a concept: connectedness and collaboration between individuals and the school as a community. They're all described in detail in the book, along with a new engineering theory focused on engaging the six minds or multiple intelligences.

Also included are strategies from Olin and iFoundry on how to better shape current educational experiences and motivate students. Their proven approaches can be used as a guide for other institutions looking to do the same.

-Gillian Bennett

APEGA COUNCIL NOMINATIONS

Nominations for 2016 Council close on

Monday, October 19, 2015
at
11:59 p.m.

Election Dates February 19 to March 20, 2016

MORE INFORMATION

Member Self-Service Centre at apega.ca
Summer Edition of the *PEG* (Digital or Hardcopy)

- Nominations are accepted electronically through the Member Self-Service Centre at apega.ca.
- A new process means you will have no further opportunity to self-nominate for the 2016 election.
- Based on governance and strategic needs of Council, the Nominating Committee will review all nominations for possible endorsement, but the names of all qualifying nominees will appear on the ballot.
- Information about candidates will be distributed to Members in mid-November.

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Each scholarship will assist the candidate to pursue studies or research in a field other than engineering. The discipline should favour the acquisition of knowledge, which enhances performance in the engineering profession. Candidates must be accepted or registered, no later than September 2016, in a faculty other than engineering.

APPLICATION DEADLINE: March 1, 2016

Application forms are available at engineerscanada.ca/scholarship-program or by contacting the Engineers Canada National Scholarship Program at **awards@engineerscanada.ca**

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Paying it Forward

Two APEGA Members were recognized on the national stage in May at the Engineers Canada Awards Gala in Calgary. One is an accomplished student who dreams of changing the world through engineering; the other a seasoned veteran who has built his profession and community through his passion for volunteering. Meet Connor Scheu and Mark Bellamy, P.Eng., FEC, FGC (Hon.)

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

Mark Bellamy, P.Eng., FEC, FGC (Hon.), Meritorious Service Award for Community Service

for Exemplary Voluntary Contribution to a Community Organization or Humanitarian Endeavour

Mark Bellamy, P.Eng., FEC, FGC (Hon.), fondly remembers his first volunteer role with APEGA. It was 1988 and his first week on the job at UMA Engineering (now AECOM), and he was learning the ropes as a water resources Engineer-in-Training. That same week, the APEGA Lethbridge Branch hosted the APEGA Annual Meeting and Conference. His new boss encouraged volunteerism, and that's how he found himself driving a van full of APEGA delegates around southern Alberta, giving them a tour of the region's irrigation infrastructure, including the Oldman River Dam construction site.

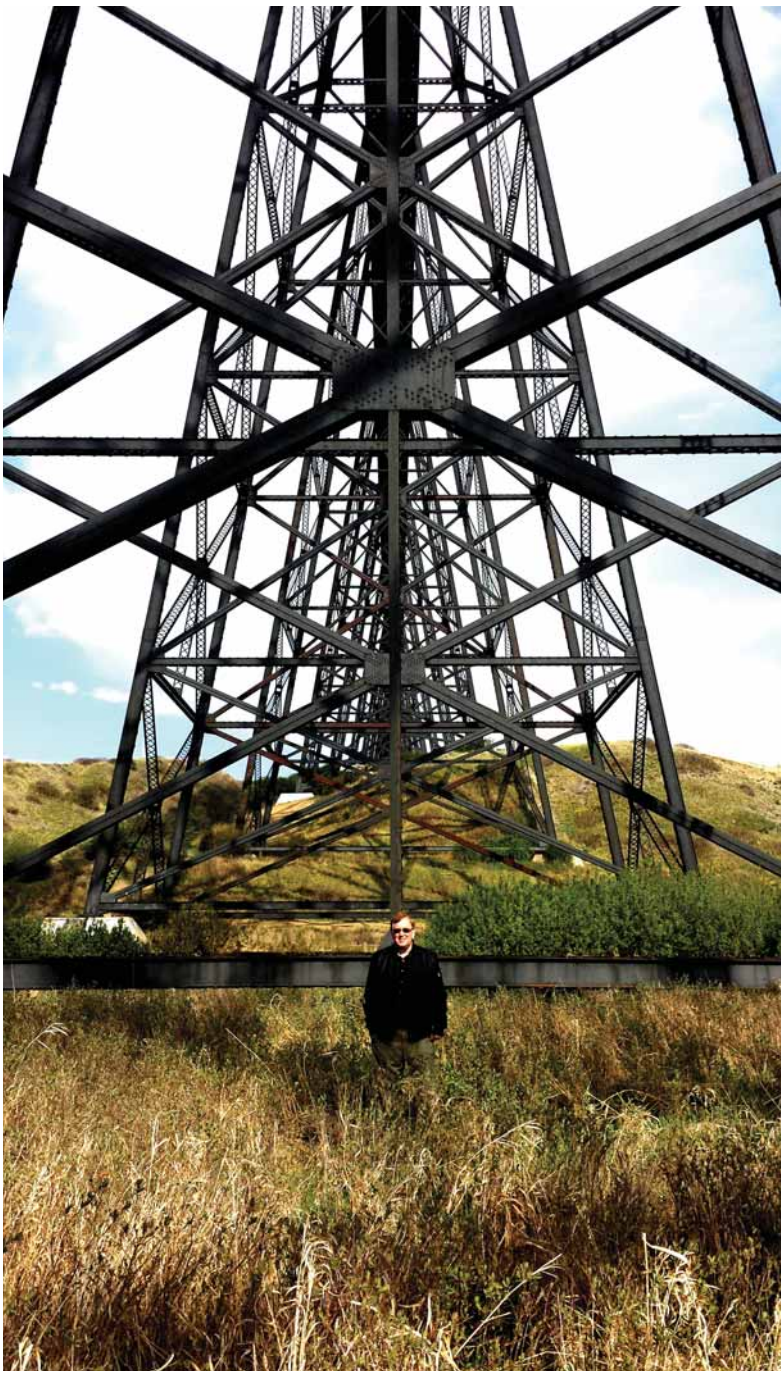
He enjoyed the experience so much, he's now spent over 23 years volunteering with APEGA's Lethbridge Branch Executive, taking on various roles from Member-at-Large to Branch Chair. In fact, it was just the start of a lifelong commitment to volunteerism, not only within his profession, but in his community.

"Between volunteering and my career, it's kept me very busy — but it really balances my life. Volunteering is personally rewarding, I gain so much more out of the experiences than I could ever contribute," says Mr. Bellamy, a managing senior principal and office leader with Stantec in Lethbridge. "For me, it is a professional responsibility to volunteer in the community that you live in and be an active and supportive member of your community."

It was his involvement with the Branch Executive that led him to volunteer for the APEGA classroom outreach program, helping nurture a love of science and math in young students. He and Branch Outreach Coordinator Cal Koskowich, P.Eng., FEC., FGC (Hon.), started talking about restarting the Lethbridge Regional Science Fair, which hadn't been held for several years.

In 2003, they established the Southern Alberta Technology Council (SATC), a non-profit organization that aims to get young people interested in science, technology, and engineering. Thanks to their hard work, SCI-FUSION was born, an annual event that combines the Lethbridge Regional Science Fair and the APEGA Science Olympics. In addition to SCI-FUSION, SATC also works with the Alberta Science Network (ASN) and APEGA to bring the Scientists & Engineers-in-the-Classroom program to southern Alberta schools.

Mr. Bellamy served as SATC's President for 11 years and remains a director. He's also on the ASN board. He's a strong believer in giving youth opportunities to take part in "mind-expanding" educational programs. "It's about creating excitement and enthusiasm for science and



-photo courtesy Mark Bellamy, P.Eng., FEC, FGC (Hon.)

COMMUNITY BUILDER
For Mark Bellamy, P.Eng., FEC, FGC (Hon.), being a Professional Engineer means giving back both to his profession and to his community. He's shown here by the historic Lethbridge CP Rail Viaduct, commonly known as the High Level Bridge.

engineering at the elementary and high school levels," he explains. "Students have to make major curriculum decisions going into Grade 9 for pure math and pure science streams that ultimately lead to post-secondary training in geoscience and engineering, so it is important to create the interest at a young age."

One of the highlights of his science outreach volunteer work was his role as Co-chair and Project Manager for the Canada-Wide Science Fair, which came to Lethbridge in 2013. SATC and the University of Lethbridge agreed to take on the event when the original host city backed out. They had only 12 months to prepare for the week-long event, which normally takes four years to plan. "It was a very intense but satisfying experience."

Tasks included recruiting 675 volunteers, including 400 judges, and fundraising $300,000 for expenses. Fundraising and volunteer recruitment were a new experience for him, but the community stepped up. "I was also fortunate to have the strong support of the management team at Stantec for this significant commitment," he says.

He drew on his project management skills — developed over his engineering career — to achieve success and create an amazing experience for nearly 500 young competitors. Just like a typical engineering project, it was all about turning a concept and vision into reality.

COMMUNITY BUILDING

This fall, it's possible that some of the students who've taken part in these science outreach programs over the years may be enrolling in the University of Lethbridge Engineering Transfer program. After being on hiatus, the program is being reinstated, and Mr. Bellamy is a volunteer on the advisory board, an active liaison with the local engineering community and instrumental in fundraising for entrance scholarships.

The program is close to his heart. When he returned to university as a mature student to study engineering in 1983, after working several years as an engineering technician and surveyor for Stanley Associates (now Stantec), he took his first year at U of L before transferring to the University of Alberta to complete his B.Sc. in civil engineering.

As well as being a leader supporting his profession, Mr. Bellamy has also been an active supporter of other community-focused organizations. He has volunteered with the Lethbridge Chamber of Commerce and the Lethbridge County Airport Advisory Board, and chaired the Lethbridge Heart of Our City Downtown Committee. He and his wife, Bev, also support the Streets Alive Mission, the Lethbridge Symphony Young Artist Competition, and to help children in developing countries, Compassion Canada.

He encourages other APEGA Members to volunteer and make an impact in their own communities. "That's intrinsic to what being a professional means — it's about protecting and serving society through our practice and community service," says Mr. Bellamy.

And, as he points out, most APEGA Members are already doing just that.

"Our impact as APEGA Members is certainly significant economically, but there are also thousands of APEGA volunteers who are making daily contributions to the cultural and social fabric of their community."

SUMMARY OF MAJOR ACHIEVEMENTS

- APEGA Community Service Summit Award (2014)
- Honouree, Award for Excellence In Science and Technology Public Awareness, Alberta Science and Technology Foundation (2013)
- Alberta Science Network, Board Member (2013–present)
- Canada-Wide Science Fair, Lethbridge, Project Manager and Co-Chair (2013)
- Lethbridge Heart of Our City Downtown Committee, Member and Chair, (2009–present)
- Lethbridge Regional Science Fair and APEGA Science Olympics, Chair (2003–present)
- Southern Alberta Technology Council, Board Member (2003-present) and Director (2006-2014)
- Lethbridge Chamber of Commerce, Board Member (2002–2013)
- Lethbridge County Airport Advisory Board (2000–2004)
- APEGA Member (1990–present)
- APEGA Lethbridge Branch Executive (1990–2014)

Q+A

What does it mean to you to receive the Meritorious Service Award for Community Service?
I was honoured and humbled to receive this significant award, as Engineers Canada represents over 280,000 Professional Engineers across Canada, many of whom are actively involved in their community.

Personally, and maybe typically as an APEGA Member, I'm more comfortable working in the background and the reward is a job well done. Receiving this award is important, if it can help motivate and inspire other Members and showcase to society the social and community contribution of our Members.

Who are your biggest influences and inspirations?
I was fortunate to have two excellent mentors early in my career — Dale Miller, P. Eng., FEC, FGC (Hon.), and Dave Chalcroft, P.Eng. FEC., FGC (Hon.), who were actively involved in APEGA, technical associations and their community. Both have served as APEGA President.

My wife, Bev, and sons, Allen, Shaun, and Aaron, are my inspiration. They have always supported me and many times were volunteered to actively participate in my various activities.

Also inspiring and transformational is the spark, passion, and enquiry of young students, who are excited about math and science, and proudly presenting their science fair projects or learning about what APEGA Members do.

Connor Scheu, Gold Medal Student Award

for Outstanding Leadership, Contributions to Society and Volunteerism by an Undergraduate Engineering Student

You could say Connor Scheu is going places — both literally and figuratively. At 23, he's travelled the globe working on humanitarian and sustainable development projects. In high school, he spent a summer in Tanzania as a World Vision Youth Ambassador to better understand issues surrounding poverty. This was followed by a year of public advocacy, during which he brought these lessons to Canadian youth through public speaking engagements. He continued this work by volunteering with Homes of Hope, helping build houses for impoverished families in Mexico, and through a water sanitation project at an orphanage in Nepal.

But it was a trip to the Arctic after he finished Grade 12 — right before beginning his studies at the University of Calgary's Schulich School of Engineering — that had the biggest impact on his future career aspirations. As part of a Students on Ice polar expedition, he spent a month with 100 other youth on a research vessel traversing the eastern portion of the Northwest Passage, learning about the effects of climate change on the wildlife and Inuit Peoples who live there. For a Métis youth who was taught to respect nature, the journey was life-changing. It led him to focus his studies on environmental sustainability instead of international development — although in the end, both are deeply connected.

"Through my trip to the Arctic, I discovered that all the work we're doing in international development is at risk from climate change. Every time there's a drought in sub-Saharan Africa, for example, they lose up to 10 years of development work," says Mr. Scheu, an APEGA Student Member who is pursuing a degree in civil engineering, with an energy and environment specialization. "That's what steered me towards a renewable energy path, that galvanizing experience in the Arctic."

A second one-month voyage with Students on Ice two years later — this one to the Antarctic Peninsula — was equally inspiring. Living on an icebreaker, communing with penguins, and conducting a research project on the use of phytoplankton for carbon sequestration, he came home with a new perspective and a renewed desire to combat climate change.

"I learned to view the world differently and to view our place in the world differently," says Mr. Scheu. "I decided the way I can achieve change is with engineering — to change the way we use our energy and where we get it from, for the betterment of the planet and those who come after us."

Indeed, his stated life's ambition is to bring Alberta, and the world, one step closer to a sustainable energy future. "My dream is to make our energy mix a little more sustainable, because at the moment Alberta has the most carbon-intensive energy in the country," he says. "We have a long way to go, but there are solutions out there."

He's even more passionate about finding solutions after travelling to Bonn, Germany, this June to attend the latest round of dis-

LAVA LESSONS
This summer, Engineers Canada award recipient Connor Scheu spent three weeks learning about sustainable energy while studying in Iceland, where nearly 100 per cent of the electricity and heat come from renewable resources. He's shown here in front of the lava field that surrounds the famous Blue Lagoon Geothermal Spa, fed by the water from a nearby geothermal power plant.

-photo courtesy Iceland School of Energy/Golli

cussions at the United Nations Framework Convention on Climate Change. He was one of four Schulich engineering students invited to join a delegation from the World Federation of Engineering Organizations at the convention, where countries from across the globe were negotiating greenhouse gas emission targets. He believes it's vital for engineers to play a role in the talks.

"It was a great opportunity to get perspective on what the policy and decision makers see our expertise to be, and what policy changes will affect our industry," he says. Another highlight from the convention was having the chance to learn from world-leading experts on the latest in renewable energy design.

FINDING THE RIGHT MIX

Mr. Scheu's first experience working in renewable energy was as an intern with Suncor Energy. Over 15 months starting in May 2013, he was part of the company's wind energy team, working on wind farm development and operation. "It was challenging, fulfilling, and rewarding. I loved it so much," he says.

More recently, he's been exploring geothermal and solar energy. This summer, he spent three weeks in Iceland attending lectures and visiting geothermal plants as part of an introductory master's program with the Iceland School of Energy — paid for with the help of the $10,000 scholarship that came with the Engineers Canada Gold Medal Student Award. The course provides an intensive overview of sustainable technologies, in a country where nearly 100 per cent of electricity and heat come from renewable resources.

Q+A

What does it mean to you to receive the Gold Medal Student Award?

It was a tremendous honour, and very humbling, being recognized alongside the other outstanding recipients. To me, it was acknowledgment that my values of sustainable energy and public welfare are valued by my peers and industry. This incredible vote of confidence only makes me want to redouble my efforts and strive every day to pay it forward.

Who are your biggest influences and inspirations?

I owe a great deal to my mother, Kathleen Scheu, raising me as a single mom while going to school herself. She sacrificed a great deal for me. My mentor Ed Nowicki, P.Eng., FEC, FGC (Hon.), who nominated me for the award, has also been a great influence. He was my first professor in my energy and environment specialization, and he has helped me along the road and steered me towards this renewable energy path.

Other influences were the people who have supported me and helped finance an education that I otherwise would not have gotten. We were not a well-off family, and I am what I am because people were there to help me, so that's always inspired me to give back.

"I'm always trying to find new ways to get hands-on experience with renewables. By studying what they're doing in Iceland, my goal was to bring back some lessons for Alberta, and for the work that I intend to do here in my career," he says.

Right now, that work includes a job as a research assistant with Schulich School of Engineering doctoral candidate Hamid Shaker. Mr. Shaker is developing software that estimates the invisible solar generation produced by small-scale home installations in California. Currently, this energy is metered and deducted from each home's electricity consumption, but it isn't reported to grid operators — they can't see how much energy the house is producing, which is why it's called invisible.

"It's becoming more challenging for grid operators to predict and respond to this ever-growing unknown variable. We're trying to better predict it so grid operators can avoid issues with ramping and peak production errors," explains Mr. Scheu.

Mr. Scheu and Mr. Shaker are also entering into discussions with the Alberta Electric System Operator to see how the technology could be applied here at home. "This technology could be used worldwide to reduce the cost of monitoring and responding to invisible generation, paving the way for even higher degrees of renewable energy penetration," Mr. Scheu says.

As he wraps up his final four courses before graduating in December, Mr. Scheu has a strong vision for his future. "I'd like to get back to the corporate world, where I can gather more experience and make a difference while I finish my P.Eng. I plan to get an MBA when the time is right, and then maybe even start my own sustainable energy company."

SUMMARY OF MAJOR ACHIEVEMENTS

- Suncor Energy Emerging Leaders Engineering Scholarship (2015)
- Iceland School of Energy International Essay Competition Winner (2014)
- Institute of Engineering Technology, Present Around the World Competition, Americas Finalist (2014)
- Dialog Structural Design Competition Scholarship Winner (2014)
- Member, University of Calgary Scholars Academy (2014-present)
- Jason Lang Scholarship (2010-2013)
- Excellence in Leadership Award, University of Calgary Residence Services (2013)
- Stuart Olson Dominion Engineering Leadership Scholarship (2013)
- David Williams Undergraduate Scholarship in Project Management (2013)
- Seymour Schulich Academic Excellence Scholarship (2010-2013)
- Loran Award National Finalist, Canadian Merit Scholarship Foundation (2010)
- Grant McEwan United World College Scholarship (2008-2010)
- Vancouver Olympics Torchbearer, Métis Nation of Alberta Representative (2010)
- Aboriginal Youth Achievement Award for Volunteerism (2009)

YOU CAN MAKE A DIFFERENCE IN THE LIVES OF OUR YOUTH

By giving to the APEGA Education Foundation, you are helping students fulfill their dreams of one day becoming Professional Engineers or Professional Geoscientists.

Help remove the financial stress that can distract students from their studies. Your generosity ensures that the building blocks are in place for students to have a successful future in our professions.

Donate today at **apegaeducationfoundation.ca**

APEGA | education FOUNDATION

Investing in People

Your donation to the APEGA Education Foundation helps students like Adriana, Kendra, Vidhi and Volodymyr realize their engineering and geoscience dreams

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

Each year, the APEGA Education Foundation (AEF) awards approximately 50 engineering and geoscience students almost $200,000 worth of scholarships and bursaries. The foundation — an arms-length, Member-run group — is dedicated to increasing the diversity of the professions and easing the financial burden of students as they pursue their degrees.

These scholarships and bursaries wouldn't be possible without the generous support of APEGA Members, who donated $270,000 in 2014. The foundation's long-term goal is to increase the number of APEGA donors from 4,000 to 5,000, and to increase their average donation from $75 to $100. This would boost donations by $200,000 annually.

Members like to know they've made a difference — and they have. Over the next few pages, we'll introduce you to four young recipients of AEF funding, who share their dreams for the future, and explain how AEF funding has helped them on their journey.

HOW TO GIVE

When you give to the APEGA Education Foundation, you're investing in the future of the engineering and geoscience professions. Your gift will live on in perpetuity — not only through the endowments created and built through your support, but through the meaningful work of young people entering the profession, creating wealth, sustaining the environment, and enhancing the quality of life in our communities.

FOUR METHODS

- Attach a cheque for the foundation to your annual APEGA membership renewal form and mail it in.
- Donate online any time through the APEGA Member Self-Service Centre.
- Donate online or begin monthly donations through CanadaHelps.org.
- Download a donation form from the AEF website at apega.ca/AEF and mail in a cheque.

FOCUSED ON THE FUTURE

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

- increase the value of all scholarships and bursaries to $5,000 each, which requires an additional $70,000 annually
- double the number of bursaries available to groups that are underrepresented in the professions, including women and Aboriginals, from $55,000 to $110,000
- increase outreach funding from $95,000 to $145,000 annually, to attract more Alberta youth — girls and Aboriginals in particular — into Professional Engineering and Geoscience careers

Adriana Holcek, 20

University of Calgary (B.Sc. Chemical Engineering, Minor in Petroleum Engineering)
Class of 2017

Could badminton be a metaphor for life? The sport has certainly taught Adriana Holcek a lot more than how to hit a great smash. Through it she learned mental toughness, discipline and how to succeed — all things she can apply to her studies and a future career in chemical engineering.

"Playing competitive sport from a young age really taught me dedication, perseverance and that nothing is given to you. You have to go out and get it yourself," says Ms. Holcek, who played throughout junior high and high school, and represented Canada at the World Junior Badminton Championships during her first year at the University of Calgary. "I've continued that mindset at university."

While she no longer competes, she's still involved with the sport as a coach. And she's found other ways to stay active, like joining the U of C Dinos Track and Field Team and the university's Triathlon Club. She also competes in half-marathon and half-Ironman races.

"I just love staying active," explain Ms. Holcek. "Sport is a really great way to stay balanced."

That's important if — like Ms. Holcek — you're also juggling school work, community service, and other leadership endeavours. Several scholarships, including a $3,500 award from the APEGA Education Foundation, have helped make it all possible.

"They allowed me to really buckle down and focus on my education during the school year — and to pursue both community and athletic extracurricular activities on the side, without having to worry about where the funds are going to come from," notes Ms. Holcek.

This spring, she wrapped up her third year at the Schulich School of Engineering before starting a seven-month work term with a petroleum evaluations firm. "It's really cool to see how the engineering work that you do fits into the bigger picture and helps meet society's needs," she says.

On campus, Ms. Holcek was president of Students Offering Support (SOS) Tutoring, a club that raises money for community projects in Latin America by holding Exam Aid lectures. As a member of the Chemical and Oil & Gas Engineering Students' Society, she coordinated lunch-and-learns and industry tours. She's also been accepted into the university's Scholars Academy, which provides unique programming and mentorship for the U of C's best and brightest students.

In January, after her work term finishes, she plans to spend a semester abroad studying in Singapore before returning to the U of C. She caught the travel bug a couple years ago after spending two months as an international student at Fudan University in Shanghai, China. "One of my goals is to spend some time working internationally and broaden my knowledge," she says.

A scholarship from the APEGA Education Foundation helped Adriana Holcek focus on her engineering education.
-photo courtesy Adriana Holcek

Vidhi Purohit, 19

University of Alberta (B.Sc. Chemical Engineering)
Class of 2018

Vidhi Purohit has always loved math, science, and problem solving — so much so that in junior and senior high, she tutored other students to help them wrap their heads around things like equations and formulas. Even at home, she couldn't turn off her proclivity for analytical thinking.

"If we bought a shed, I would be the one reading the instructions and building it. I was always into that hands-on experience," recalls Ms. Purohit.

When the time came to head to university, she was torn between two potential career paths: physiology and engineering. Her initial inclination was physiology, but that changed after she learned more about the diverse career opportunities an engineering degree would present. In the end, she enrolled in engineering. And after completing her second year of studies at the University of Alberta in April, there's no doubt in her mind she made the right choice.

"One of those epiphany moments I had was when I realized I could do thermodynamics and chemical processing problems for hours and not even realize it," says Ms. Purohit, a chemical engineering major in the Faculty of Engineering.

Several scholarships, including a $3,500 award from the APEGA Education Foundation, have helped her focus on grades. "I was able to use that money for tuition, so I don't have to worry about working part-time while I'm at school. I can put all my efforts into studying, which has been reflected in the fact that I'm doing pretty well," says Ms. Purohit.

It's also enabled her to continue her volunteer work with the Canadian Breast Cancer Foundation. She started supporting the foundation in junior high, taking part in Run for the Cure after a family member was diagnosed with breast cancer. In Grade 11, she joined the foundation's regional youth advisory council and helped start an Edmonton chapter, of which she's the volunteer coordinator.

In her spare time, she enjoys playing recreational basketball and volleyball, cycling and getting out into nature. "Anytime I have free time I like to go biking in the ravines or around the river valley," she says.

Although she's studying chemical engineering, Ms. Purohit is keeping her future career options open. She's in the middle of an eight-month coop placement with a Calgary oil and gas company, working in an operations engineering role. She's also considering taking a biomedical engineering course as an elective when she returns to school.

"Biomedical engineering is an extremely innovative field, where engineers use applications from all realms of science to advance the furthering of medicine. It's definitely something I'm looking to explore, but I'm also equally as excited to learn about other areas such as the oil and gas industry."

Vidhi Purohit used a scholarship from the APEGA Education Foundation to help pay for her engineering tuition at the University of Alberta.
-photo courtesy Vidhi Purohit

Kendra Carlson, 19

University of Alberta (B.Sc. Civil Engineering)
Class of 2019

As a synchronized swimmer in junior and senior high school, Kendra Carlson learned her ABCs — agility, balance, coordination and speed. But it was her interest in numbers and formulas — math and science in particular — that led her to the University of Alberta to study engineering.

This fall she's heading into her second year, having just been accepted into the civil engineering co-op program in the University of Alberta's Faculty of Engineering. She's excited about exploring the many options a career in civil engineering can provide. "There are so many areas you can go into — designing buildings, roads, water and sewage plants, to name a few," she says. "I like how broad the discipline is — and the opportunity to make society a better place."

She also hopes to suit up again for the U of A's synchronized swimming squad — and will continue to apply the skills she's learned as an athlete to her schooling.

"Synchronized swimming has definitely taught me team work. You have to learn how to cooperate with people," she explains. "And also time management. I've had to learn how to manage my time with swimming and school, while still getting good marks."

Over the summer break, Ms. Carlson also learned a bit about chipping and putting while working for a local golf course doing maintenance. Starting her days at 5 a.m. didn't bother her, though, since the job helped her save money for tuition. During her first year at university, a $2,000 scholarship from the APEGA Education Foundation was also a big help in paying for her education.

"That scholarship, along with a few others, helped pay for my entire first year of tuition," she says. "I was able to go through my first year without having to get a student loan or a job. I could focus on being a student."

When she started university last year, several scholarships helped Kendra Carlson pay for tuition and allowed her to concentrate on her grades.
-photo courtesy Kendra Carlson

Before starting Grade 12 at Strathcona Christian Academy in Sherwood Park, Ms. Carlson spent her summer working in a materials engineering lab at the U of A, as part of the Women in Scholarship, Engineering, Science & Technology (WISEST) Summer Research Program. The program gives students a chance to work as paid research assistants while learning about careers in engineering, science, and technology.

"I made dental ceramics and got to do lots of cool experiments. It took me probably four weeks to make these ceramic bars, then I put them in a four-point bending machine and got to break them all and see how much pressure they could withstand," recalls Ms. Carlson.

The program, which included industry tours, made a big impression on a young high school student. "I got to do my own research project and present my findings. I really enjoyed that experience, which is what made me want to go into engineering," she says.

Volodymyr Vragov, G.I.T., 23

University of Alberta (B.Sc. Geophysics)
Class of 2014

When he was an international student, scholarships helped Volodymyr Vragov, G.I.T., finance the costs of living and learning overseas. Today, he's working towards his P.Geo. designation.
-photo courtesy Volodymyr Vragov, G.I.T.

When Volodymyr Vragov, G.I.T., left Ukraine in 2011 to study physics at the University of Alberta, he never imagined that a few years later he'd be training to be a geoscientist.

Arriving in Canada at 19 years young, his career goal was to work in the aerospace industry or be a space physics researcher. He had already studied physics for two years at the Taras Shevchenko National University of Kyiv, then spent another year in the U of A's physics program — including exciting research that involved launching a rocket in the Norwegian Sea as part of the CaNoRock student exchange program. But after befriending students in the U of A's geophysics program in the Faculty of Science, he had an aha moment that altered his career path trajectory.

"They showed me how cool the program is, so I transferred into geophysics," he says. "It's a combination of geology, physics, even a little bit of coding and computational science. Also, there is an amazing geoscience community at the school. I really liked their spirit and unity — it's a great group of people interested in the same thing."

Since graduating, he's moved again, this time to Calgary to work in technology deployment at Shell Canada. "We're developing new work flows to help geoscientists either speed up their work or make it easier for them to get better results out of the data they have," explains Mr. Vragov. "It's a lot of learning, but a very interesting combination of a few disciplines, including a bit of rock physics, geophysics, and some geology."

As a youth in Ukraine, Mr. Vragov always wanted to study abroad. He was accepted into several different universities in Canada and the United States, but chose the U of A because of its excellent physics program. He was also awarded a prestigious U of A Scholastic Distinction scholarship, which helped solidify his decision. It paid for his first year's tuition at the U of A, while subsequent scholarships over the next few years — including a $1,000 award from the APEGA Education Foundation — helped him finance the costs of living and learning overseas.

"Scholarships really helped me to concentrate on the most important things — my studying, the research I was doing while at school, and my volunteering with the geophysics undergraduate society," he says.

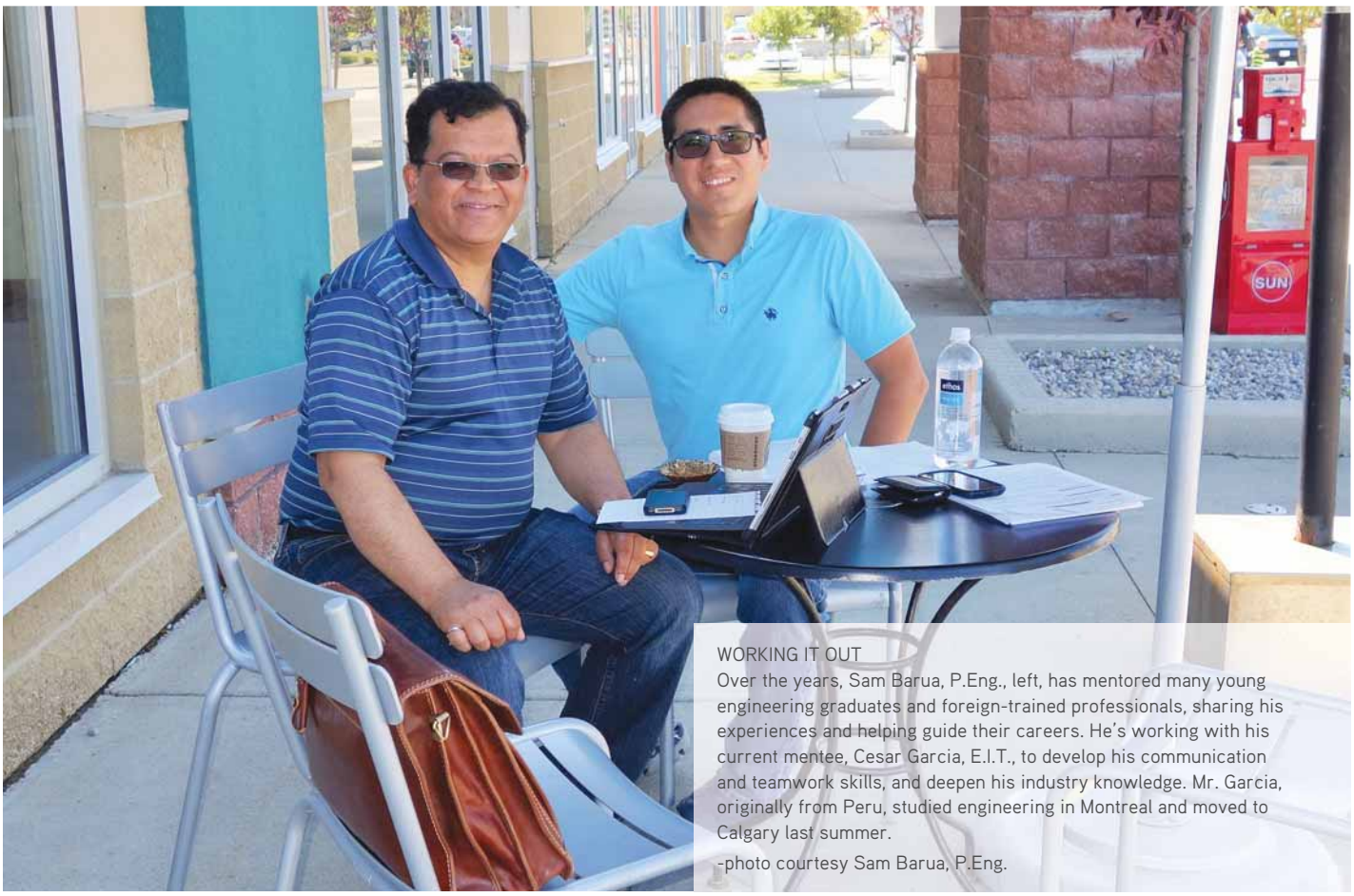
At first, being an international student was a challenge. "I had never been to an English-speaking country before. It was all a little bit of a shock," he says. Although he had learned English in Ukraine, it was more academic than conversational. But living in a dorm for the first eight months and working as a research assistant helped immerse him in the language and culture of his new home.

Today, he's excited to be working towards his P.Geo. and is looking forward to seeing where his geoscience degree takes him, whether in Canada or elsewhere. "The doors are open. We'll see what kind of opportunities show up later down the road."

‘To Teach is to Learn Twice’

Joseph Joubert, the French essayist, penned the above words two centuries ago. But any successful mentor will tell you that they still have relevance today. No matter where you are in your career, mentoring and being mentored are powerful ways to learn and grow. This is not lost on APEGA, which supports mentoring in at least three direct and success-building ways — the annual Summit Awards, a formal mentoring program, and the APEGA Mentoring Conference, which takes place November 2 and 3 in Calgary

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



WORKING IT OUT
Over the years, Sam Barua, P.Eng., left, has mentored many young engineering graduates and foreign-trained professionals, sharing his experiences and helping guide their careers. He’s working with his current mentee, Cesar Garcia, E.I.T., to develop his communication and teamwork skills, and deepen his industry knowledge. Mr. Garcia, originally from Peru, studied engineering in Montreal and moved to Calgary last summer.
-photo courtesy Sam Barua, P.Eng.

Lorna Harron, P.Eng., and Sam Barua, P.Eng., have a lot to say about the rewards of mentoring. The two past recipients of the APEGA Outstanding Mentor Summit Award speak of giving back to their profession, passing on their knowledge, and helping mentees achieve their career goals.

Another reward that’s not quite as obvious is the shared opportunity for learning and growth that mentors themselves experience. Mentors often learn just as much from their mentees as the mentees learn from them. It’s known by several terms, including reflexive, reverse, and multi-modal mentoring.

“When I meet with mentees, I tell them, ‘There are things you know better than me. There are things I know better than you. Let’s share, and let’s both enrich ourselves,’ ” says Mr. Barua, Oil and Gas Engineering Manager at WSP Canada’s Calgary office.

“Not only do I get a chance to share my experience and insight, but I also ask my mentees to tell me about something they’re working on or a project they’ve done. It gives me an opportunity to learn a new subject and at the same time evaluate the presentation skills of my mentee,” he explains.

One of his mentees taught him about a specialized oil and gas filtering process. Others have taught him about new mining and geotechnical techniques. He’s also picked up some computer tips. “It’s this two-way learning process that makes mentoring relationships so wonderful,” he says.

Ms. Harron, too, believes in the power of reverse mentorship, often by allowing a mentee the opportunity help a mentor deal with an issue or challenge. The mentee gains confidence and learns critical thinking skills, and the mentor gets to see things from a fresh perspective — one they may not have even considered otherwise.

"Don't be afraid to discuss issues or challenges you have. You're there to learn and grow," says Ms. Harron, Senior Manager of Integrity Technology Advancement, Pipeline Integrity, for Edmonton-based Enbridge Pipelines. "You have to be yourself — come as the real person you are. Be authentic and real."

Taking this approach has helped her develop and grow her own leadership skills, says Ms. Harron. "It forces you to reflect on the way you've done things."

> "One of my proudest moments was when a mentee said, 'Hey, Sam, I'm following in your footsteps, and now I've become a mentor.' That's a priceless moment for me."
>
> **SAM BARUA,** *P.ENG.*

A GUIDING HAND

Throughout their careers, Ms. Harron and Mr. Barua have mentored dozens of individuals throughout their careers. Not surprisingly, they've had their own mentors, too.

One of Mr. Barua's strongest influences was the CEO of an engineering firm in his homeland of India. They still stay in contact, more than a dozen years later. After immigrating to Calgary in 2005, he also received support and guidance from mentors who helped him successfully transition into a foreign work environment. "When I came here, there were people who mentored me, helping me secure my first engineering job in Canada," he says.

His resume was 10 pages long and included his picture, which is common in his homeland. A friend gave him tips on what Canadian employers were looking for and how to make his resume reflect that. After getting a job at Jacobs Engineering, Mr. Barua's first supervisor, Raj Ganapathy P.Eng., was also a great mentor.

"Raj helped me understand the Canadian work culture and business environment during my initial career progression in Canada," he says.

These positive experiences led him to sign up for the APEGA Mentoring Program in 2008. "I firmly believe it's my responsibility to share some of my knowledge and experience that I've gained over the years," he says. Through the APEGA program, he's been paired with about a half-dozen new engineering graduates and foreign-trained professionals. He also started up a group mentoring program for Engineers-in-Training at Amec Foster Wheeler, a former employer, and hopes to do something similar at his current workplace.

"I enjoy getting to know the mentees and their ambitions, and trying to find a way to help them," he says. "When people are committed (to improvement), I love to help them. It's very satisfying."

Even more rewarding is when a mentee he's helped decides to become a mentor. "One of my proudest moments was when a mentee said, 'Hey, Sam, I'm following in your footsteps, and now

CONTINUED ON PAGE **43** ››

HOW TO BUILD STRONGER MENTORING RELATIONSHIPS — IDEAS FROM TWO MENTORS WITH PROVEN TRACK RECORDS

APEGA asked mentors Lorna Harron, P.Eng., and Sam Barua, P.Eng., for some of their top tips for building strong mentoring relationships. They're well equipped to answer — both are past recipients of the APEGA Outstanding Mentor Summit Award, which recognizes exceptional achievements as mentors.

Commitment, selflessness, a willingness to listen, a positive attitude, and mutual respect are some of the key ingredients for a successful mentoring relationship, they say. Here are a few more tips to keep in mind:

- Create a mentorship agreement. Set goals, then stay focused on those goals. Review them regularly
- Meet regularly, ideally once or twice a month. Give yourself time for a meaningful discussion. Try meeting after work or on weekends, when there's no pressure to scroll through your in-box or rush off to your next meeting
- Come to meetings prepared. Understand what you want to work on. Know what you want to share. Have your questions ready
- Be open feedback, whether its laudatory or a little less so — i.e., constructive
- Be open and honest in your conversations. Share your thoughts and feelings honestly. Don't minimize your concerns or try to hide how you feel
- Approach the relationship with the right perspective. For the mentee, getting a job from your mentor should not be your goal. Certainly ask questions about how to succeed in a job or career path, but that's different from asking for an interview from your mentor or your mentor's employer
- Work with several mentors to target different aspects of your life and career. No one person has the best advice for everything

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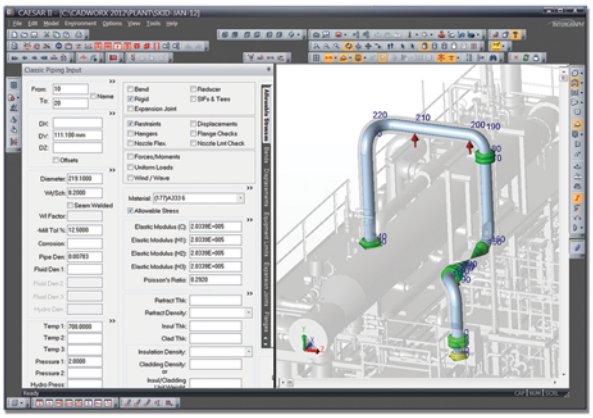

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THINK SAFE

‘Before I talked to Lorna, I was shy and didn’t want my voice heard. I learned so much from her. It is not an exaggeration to say that she changed me, my life, and the way I see things.’

HELEN QU, *P.ENG.*

CONTINUED FROM PAGE **40** ››

-photo by Demetri Giannitsios

SHARING STORIES — AND ADVICE
Lorna Harron, P.Eng., founded the FEMINEN (Females in Engineering) program at Enbridge to improve the engagement and retention of the company’s female engineers. Mentoring is a key component of the program — the women support each other by sharing stories and advice on how to overcome workplace challenges.

LEADING THROUGH LEARNING: THE APEGA MENTORING CONFERENCE

Professional development is an excellent way for mentors, mentees, and other mentoring supporters to learn new strategies for building stronger and more effective mentoring relationships. This year’s APEGA Mentoring Conference, November 2 and 3 in Calgary, will provide just such an opportunity.

One of Western Canada’s major mentoring conferences, it’s returning after a two-year break. Leading Through Learning promises to be better than ever with a strong lineup of mentoring experts and inspiring keynote speakers. Also on tap are plenty of opportunities to network with the mentoring community and gain practical tips and strategies.

Sam Barua, P.Eng., has attended the APEGA conference many times in the past. He’s a long-time mentor with APEGA’s Mentoring Program.

“It’s a great way to refresh your knowledge and skills, and it’s always inspiring to learn from other mentors and mentees,” he says. “Like any new job or new skill, mentoring has to be learned and practised for you to become better at it.”

I’ve become a mentor.’ That’s a priceless moment for me.”

One of his recent mentees, Russell Hoy, P.Eng., was a new mechanical engineering graduate in search of career guidance, when he was matched with Mr. Barua though the APEGA Mentoring Program. They would meet monthly, usually over coffee or at Mr. Barua’s office.

“Sam definitely shed some light on different paths I could take. He helped me define what I needed to do to become a P.Eng. He also introduced me to other fields, such as project management,” says Mr. Hoy.

At each session they would also discuss soft skills — things like negotiating, public speaking, and networking. Mr. Hoy was sent home with action items to follow-up on. To build his networking skills, for example, his homework included reading books on networking, as well as signing up for LinkedIn and creating different online networks for recruiters and fellow professionals in his field. He was also encouraged to attend networking events.

Working with a mentor was enlightening, says Mr. Hoy. And it built an enduring friendship — he and Mr. Barua continue to stay in touch, even though the formal part of their mentorship has ended.

“I would definitely recommend the mentoring program to all new engineers. Not only is it a great tool for understanding and developing soft skills, but you have the opportunity to build a solid relationship that will hopefully continue as you continue your career,” Mr. Hoy says. “Go into the experience with an open mind, and a willingness to learn. It’s just like any relationship: You get out what you put in.”

Those thoughts are echoed by Helen Qu, P.Eng. She was guided in her career development by a supportive mentor who pushed her outside her comfort zone. “Be open and willing to take advice and make changes, even though it may feel challenging at the beginning,” she says.

Having a mentor was life changing, Ms. Qu says. She was working at Enbridge when she got an email about the company’s mentoring program. She quickly signed on and was matched with Lorna Harron, P.Eng.

At the time, Ms. Qu wasn’t working in engineering, even though she had the required education and work experience. “Lorna saw potential in me that I didn’t see in myself. She pointed out there was a better fit for my skillset, and she encouraged me to approach the right group within Enbridge and seek career development. It was not as hard as I thought it would be.”

Ms. Qu had specifically asked to be paired with a female engineer — someone

she could talk to about the unique challenges faced by women in a male-dominated profession.

"I just wanted to talk to a female engineer. I felt very isolated in my work environment. My goal simply was to talk to someone with an engineering background who would understand me."

Meeting with Ms. Harron every couple weeks gave her the boost of confidence she needed to move her career in a new direction. Today, she's a process controls engineer with Enbridge. She's also giving back as a mentor herself. She volunteers with several programs that encourage young girls to explore engineering careers, and she also helps guide E.I.T.s and new engineering hires at her workplace.

"Before I talked to Lorna, I was shy and didn't want my voice heard," says Ms. Qu. "I learned so much from her. It is not an exaggeration to say that she changed me, my life, and the way I see things."

LEARNING FROM THE SUCCESS OF OTHERS

Her experience as a mentor inspired Ms. Harron to start a new employee resource group at Enbridge. Called FEMINEN (Females in Engineering), the program's mandate is to improve the engagement and retention of female engineers at Enbridge. Mentoring is an important part of that equation. Through the group, female engineers support each other by sharing stories and advice, and acting as sounding boards for each other. FEMINEN has also extended mentorship into the community through the Engineering Futures program, which pairs female engineers with high school Aboriginal girls.

Ms. Harron also continues to be involved in Enbridge's regular mentoring program. She's currently working with a young engineer who wants to learn how to use his time more effectively and how to better manoeuvre workplace politics.

Her experience as a mentor has its roots in her teen years, when she began mentoring her younger sister in high school. When she returned to university in her 30s to change careers from dental assistant to engineer, she found herself informally mentoring the younger students and sharing her life experiences.

Later, at one of her first jobs as an E.I.T., she had a work buddy who helped her navigate the corporate culture. Working in the field as a young professional, she also got advice from her dad — a pipefitter — on how to get field personnel to listen to her ideas.

"You can learn from anyone's experience, engineers or otherwise," notes Ms. Harron. She has a mentor at Enbridge, a senior executive in the company, who is not an engineer. "I talk to him about some of the things I want to do as a leader, and he talks about his own experiences," she says. "To be an effective mentor, you also have to be a mentee if you want to keep growing and developing."

MORE INFO

APEGA Mentoring Conference
Page 25, this *PEG*, or apega.ca

APEGA Summit Awards
Page 3 and Pages 46-48 this *PEG*, or apega.ca

Great Inspirations

If you work in engineering or geoscience, chances are you're surrounded by colleagues and role models who've inspired you. You might even think that their achievements, along with their dedication to their professions and the larger community, are worthy of being recognized. At the APEGA Summit Awards Gala, perhaps?

Inspiration arrives in many forms and many places. For Rizwan Al-Rahman, E.I.T., a major inspiration in his life showed up in the classroom, in the form of Dr. Pierre Mertiny, P.Eng., recipient of the 2015 Excellence in Education Summit Award.

Mr. Al-Rahman was a student taking a second-year mechanical engineering design course at the University of Alberta, in the Faculty of Engineering. The respect Mr. Al-Rahman has for the professor, both as a teacher and a professional, was one of the reasons he wrote a letter supporting Dr. Mertiny's nomination.

"His passion for engineering and teaching was a great inspiration for me. He was a leader and mentor to me, both inside and outside the classroom. His level of energy got his students very engaged, often spellbound. We were all excited to be in his class."

Mr. Al-Rahman's admiration only grew when he worked as a research assistant in Dr. Mertiny's lab. "His knowledge, personality, and attitude make him a great teacher and supervisor. As a very curious person myself, I learned a lot from his technical know-how, working with him on research projects. That's why I thought he should be recognized," explains Mr. Al-Rahman.

A CHANCE TO REFLECT

At our annual Summit Awards Gala, APEGA celebrates the achievements of deserving professionals like Dr. Mertiny. The next gala will be held April 21, 2016, in Edmonton. If you know a Professional Engineer or Professional Geoscientist who deserves to be honoured, now is the time to complete the nomination. Deadline is October 15. *See How to Nominate, page 48.*

Dr. Hasan Rizvi, P.Eng., reacted to a call for nominations like this one a few years ago. He thought Dr. Zainab Syed, P.Eng., of the Schulich School of Engineering, was a perfect candidate for the Early Achievement Summit Award, which she she did indeed receive at the 2012 Summit Awards Gala.

As a professional, Dr. Rizvi was inspired by Dr. Syed's research accomplishments at the University of Calgary's Department of Geomatics Engineering, her success as an entrepreneur, and her generosity as a mentor to young girls interested in engineering. And as her uncle, he was just plain proud of her tenacity and determination.

"She's an accomplished scientist who has earned distinction as a student, mentor, leader, and entrepreneur. She's contributed to the world at large through her innovations and to the community through her volunteerism," Dr. Rizvi says.

For Dr. Syed, being honoured by APEGA and fellow professionals was an experience she'll never forget. "It was a great feeling to have my work recognized by APEGA and celebrated by my peers."

Since receiving the award, Dr. Syed has continued to enjoy great success. The portable navigation system company she cofounded at the U of C was sold to a private firm last year for $36 million. She now works for the firm as the Director of Navigation Engineering.

SEISMIC ACHIEVEMENT
Being recognized with the 2014 Frank Spragins Technical Summit Award has inspired Satinder Chopra, P.Geoph., FGC, to keep working hard and developing as a professional.
-photo courtesy Satinder Chopra, P.Geoph., FGC

PEER RECOGNITION (right)
Receiving the Early Accomplishment Summit Award and being celebrated by her peers was an experience she'll never forget, says Dr. Zainab Syed, P.Eng.

"Receiving the award gave me a chance to reflect on myself and my accomplishments. It reinforced in me the importance of always doing the right thing and always striving to do better. It changed me for the better," she says.

Her award is proudly displayed in her living room, and it serves as a constant inspiration to keep working hard.

A MILESTONE MOMENT

Dr. Mertiny's award has a place of honour on the windowsill of his new office at the U of A's Donadeo Innovation Centre for Engineering. The light catches the colours in the blown-glass statuette, which is backdropped by the beautiful river valley.

He fondly remembers being called to the stage to receive his Summit Award. "I'm sure there are a lot of deserving people to choose from. So getting an APEGA Summit Award was truly a great honour and a milestone in my career," says Dr. Mertiny.

He was impressed by the quality and distinction of the event itself. "I see the Summit Awards as a little bit like the Oscars for our professions."

Being recognized gave him more confidence in his work — and in his future.

"The award inspired me to forge ahead with new initiatives instead of resting on my laurels," says Dr. Mertiny. Case in point: he was recently awarded a grant for a new education initiative at the U of A, which will mean improved online learning tools for his students.

"I believe that the Summit Awards not only inspire recipients to continue doing good things; the Summit Awards lift up the professions by highlighting the great things we all do," he says.

A LIFETIME OF ACHIEVEMENTS

Satinder Chopra, P.Geoph., FGC, was humbled to receive the Frank Spragins Technical Summit Award in 2014, recognizing his lifetime of technical achievements in seismic processing and interactive interpretation. He has worked in the industry for three decades, including more than 10 years as Chief Geophysicist at Arcis Seismic Solutions in Calgary.

"I'll never forget the night I received the award," he says. "For me, it served as a testimony to a lifetime of technical devotion. It was a great feeling, and it has instilled more confidence in me."

Past recipients of the Frank Spragins Award are some of the most distinguished Professional Geoscientists and Professional Engineers in Canada, Mr. Chopra notes. Being in their company has encouraged him to work even harder.

"Awards are important as recognition and encouragement to deserving individuals who have made significant contributions in their fields of expertise. They also serve to raise their morale, reinforce their energies for higher levels of performance, and help them rise in their careers for future successes," he says.

Mr. Chopra received awards from geophysical societies and companies he's worked for, but the APEGA award was something different. "It is recognition by peers from outside the geophysical

"I believe that the Summit Awards not only inspire the recipients to continue doing good things; the Summit Awards lift up the professions by highlighting the great things we all do"

DR. PIERRE MERTINY, *P.ENG.*

INSPIRED TEACHING, INSPIRED LEARNING
Dr. Pierre Mertiny, P.Eng., has inspired thousands of University of Alberta students with his passion for teaching. He was honoured for his work with the 2015 Excellence in Education Summit Award.

community, as the selection is done by a mix of engineering and geoscience professionals. That makes it special."

He keeps his award in his office, on a separate table right up front. "Anyone visiting me cannot miss a glimpse at it."

HOW TO NOMINATE

To nominate a Member for an APEGA Summit Award, go to apega.ca/summitnominations. Our new — and shareable — online nomination form makes it easier than ever.

The system features:

- improved access
- online sharing for multiple contributors
- the ability to pause while filling out a nomination and resume the process later

PRACTICE STANDARDS COMMITTEE

Gas Technical Council Representative

APEGA plans to nominate a Member to serve as a representative on the Gas Technical Council, a sub-council of the Alberta Safety Codes Council. If the nomination is confirmed by the Safety Codes Council, the nominee will also be accepted as a Member of APEGA's Practice Standards Committee (PSC).

This volunteer position is an opportunity to:

- advance the professions by sharing your knowledge and experience
- learn new skills
- expand your business network
- earn credits to meet requirements of the APEGA Continuing Professional Development Program
- earn credits for APEGA service awards

The PSC develops practice standards and guidelines to assist APEGA Members in performing their professional roles in accordance with the *Engineering and Geoscience Professions Act.*

These documents also help the public understand the professional roles and responsibilities of APEGA Members.

The representative of the Practice Standards Committee on the Gas Technical Council will actively put expertise to use by assisting in the development and revision of codes and standards for the safety and protection of the Alberta public.

Reasonable travel expenses are reimbursed.

Duties and Expectations

The Member will:

- serve a three-year term (renewable)
- attend up to 7, half-day PSC meetings per year, alternating between APEGA's Edmonton and Calgary offices
- attend up to 4 meetings per year of the Gas Technical Council
- serve as an information conduit between the Safety Codes Council and APEGA's PSC

Skills and Qualifications

- Licensed with APEGA as a P.Eng., P.Geo., P.Geol., P.Geoph., P.L.(Eng.), or P.L.(Geo.)
- Minimum of 7 years' practice experience with expertise in gas systems used in the building industry
- Familiarity with codes and standards related to gas system design

Are You Interested?

Please submit an expression of interest — mentioning the position you're applying for and including your resume — to:

Sue Armitage

APEGA Volunteer Management Coordinator

volunteer@apega.ca

Call toll-free
1-888-262-3688

APEGA Volunteer

For further sub-council information, visit www.safetycodes.ab.ca/council

PRACTICE STANDARDS COMMITTEE

Passenger Ropeways Technical Council Representative

APEGA plans to nominate a Member to serve as a representative on the Passenger Ropeways Technical Council, a sub-council of the Alberta Safety Codes Council. If the nomination is confirmed by the Safety Codes Council, the nominee will also be accepted as a Member of APEGA's Practice Standards Committee (PSC).

This volunteer position is an opportunity to:

- advance the professions by sharing your knowledge and experience
- learn new skills
- expand your business network
- earn credits to meet requirements of the APEGA Continuing Professional Development Program
- earn credits for APEGA service awards

The PSC develops practice standards and guidelines to assist APEGA Members in performing their professional roles in accordance with the *Engineering and Geoscience Professions Act.*

These documents also help the public understand the professional roles and responsibilities of APEGA Members.

The representative of the Practice Standards Committee on the Passenger Ropeways Technical Council will actively put expertise to use by assisting in the development and revision of codes and standards for the safety and protection of the Alberta public.

Reasonable travel expenses are reimbursed.

Duties and Expectations

The Member will:

- serve a three-year term (renewable)
- attend up to 7, half-day PSC meetings per year, alternating between APEGA's Edmonton and Calgary offices
- attend up to 4 meetings per year of the Passenger Ropeways Technical Council
- serve as an information conduit between the Safety Codes Council and APEGA's PSC

Skills and Qualifications

- Licensed with APEGA as a P. Eng., P.Geo., P.Geol., P.Geoph., P.L.(Eng.), or P.L.(Geo.)
- Minimum of 7 years' practice experience with expertise in passenger ropeways systems
- Familiarity with codes and standards related to passenger ropeway design

Are You Interested?

Please submit an expression of interest — mentioning the position you're applying for and including your resume — to:

Sue Armitage

APEGA Volunteer Management Coordinator

volunteer@apega.ca

Call toll-free
1-888-262-3688

APEGA Volunteer

For further sub-council information, visit www.safetycodes.ab.ca/council

EDMONTON BRANCH CALENDAR

LUNCHEONS

Thursday, October 15
Location: DOW Cetennial Centre, 8700 84 St.
Fort Saskatchewan
Making Safety Real
Gord Winkel, P.Eng., M.Sc.

Tuesday, October 20
Creating the New Alberta — the Role of Emerging Technologies
Dr. Perry Kinkaide, M.Sc., CMC

Monday, November 9
Alberta Climate Change Renewal and the Road to Paris
Kate Rich, AEP

Luncheons held at *(unless otherwise noted above):* Westin Hotel, 10135 100th St. NW

Schedule: 11:30 a.m. Registration
12 p.m. Lunch
12:30 p.m. Presentation

Cost: Members — $35 ($40 at door)
Non-members — $40 ($45 at door)
Students — $20

Register: Online at **www.apega.ca** under Fast Find › Branches › Edmonton; or phone Sara Wolbeck at 780-426-3990, toll free 1-800-661-7020, ext. 2338.

SPONSORS

CALGARY BRANCH CALENDAR

LUNCHEONS

Thursday, October 15
Cyber Attacks and Terrorism: Alberta Critical Infrastructure
Vincent Chiew, P.Eng., FEC, FGC (Hon.), PhD

Thursday, November 12
Improving Capital Project Outcomes Through Innovative Integrated Solutions
Morgan Rodwell, P.Eng., Fluor Canada Ltd.

Thursday, December 10
TBD

Luncheons held at: Fairmont Palliser Hotel, 133 Ninth Ave. SW

Schedule: 11:15 a.m. Registration
11:45 a.m. Luncheon

Cost: Members & Guests — $50
Students — $25
ASAP (APEGA Student Advantage Program) — $15

Register: Online at **www.apega.ca** under Fast Find › Branches › Calgary; or phone the Calgary APEGA Office at 403-262-7714, toll free 1-888-262-3688, noting dietary restrictions.

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APEGA Professional Development

Incineration as a Waste Management Option
Instructor: Albert Liem, P.Eng., PhD
Edmonton— September 28

Effective Engineering Consulting Practices & Processes
Instructor: Diana Ionescu, P.Eng.
Calgary — September 28
Edmonton — October 1

Project Management Fundamentals (2 days)
Instructor: George Jergeas, P.Eng., PhD
Edmonton — September 29 & 30

Managing the Unmanageable: Powerful Conversations for Performance Improvement
Instructor: Russell Stratton, M.A.
Calgary — September 29
Edmonton — November 20

Mobility Solutions: Engineering, Implementing & Managing 3S (Safe, Smart & Sustainable)
Instructor: Sadiq A. Pirani, P.Eng.
Calgary — September 30

Kickstart Your Career: How to Prepare for Job Applications
Instructor: Mark Karpinka, CHRP
Calgary — October 1
Edmonton — October 20

Employee to Self-employed Consultant: What You Need to Know
Instructor: Jim Ewing
Calgary — October 5
Edmonton — October 7

Emerging Leaders Protocol: Practice in Growth
Instructor: Tyler Waye, M.A,
Edmonton — October 5
Calgary — October 15

Technical Writing: Procedures and Manuals
Instructor: Angela Wiens, B.Sc.
Calgary — October 9
Edmonton — October 15

Presentation Skills: Delivering Award-Winning Talks Every Time
Instructor: Paula Goebel, B.Comm.
Edmonton — October 9
Calgary — October 27

Communication and Feedback: Team Essentials
Instructor: Pauline Perreault, B.Comm.
Calgary— October 14
Edmonton — October 28

Corporate Sustainability: International Standards, Guidelines and Best Practices
Instructor: Yogendra Chaudhry, PhD, CRSP, EP
Edmonton – October 19
Calgary – October 26

Value Engineering: The Best Tool for Delivering Projects with Value
Presenter: Lucie Parrot, P.Eng. (QC), M.Eng., & Gary Evans, P.Eng., M.Sc., MBA, PMP
Calgary – October 20 (8:30 a.m. to 12 noon)

All sessions run 8:30 a.m.-4:30 p.m.
unless otherwise stated

APEGA

MORE INFO

Contact Karen Carleton
APEGA PD & Mentoring Manager
kcarleton@apega.ca
or
Visit apega.ca/Events/pd.html

LOCATIONS

Edmonton
APEGA
Lindberg Conference Centre
1500 Scotia One
10060 Jasper Ave. NW

Calgary
APEGA
Windsor Conference Centre
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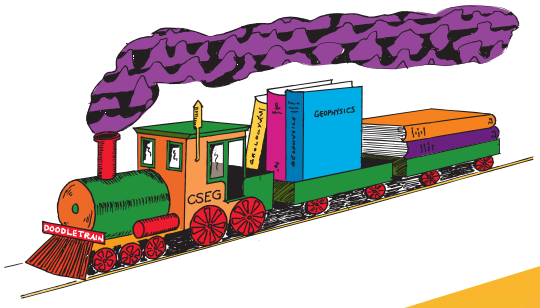

November 2 – 6, 2015
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TOPICS FOR TECHNOLOGISTS

1 **Introduction to 3D Seismic Data Acquisition and Processing for Geoscience and Engineering Technologists**
John Fernando — Nov 4–5

2 **Introduction ... Data Asset ...**
CANCELLED
Lisa Mic... /Denise Freeland — Nov 5–6

ACQUISITION & PROCESSING

3 **A Practical Understanding of Geophysical Inversion from Deconvolution to Full Waveform Inversion**
John Bancroft — Nov 5–6

4 **Integrated Seismic Acquisition and Processing**
Jack Bouska — Nov 4–5

5 **Multicomponent Seismic Exploration in Western Canada**
Richard Bale / Rob Kendall — Nov 3–4

6 **3D Seismic Survey Design**
Gijs Vermeer — Nov 2–3

7 **Introduction to Applied Depth Imaging**
Ruben Martinez — Nov 2–3

8 **Seismic Imaging ... tropic Velocity ...**
CANCELLED
Etienne R... — Nov 2–3

RESERVOIR GEOPHYSICS

9 **Microseismic Moni... n Oil or Gas ...**
CANCELLED
Leo Eisne... — Nov 4–5

10 **Rock Physics for Geophysical Reservoir Characterization and Recovery Monitoring**
Gary Mavko — Nov 2–3

11 **Seismic Attributes for Prospect Identification and Reservoir Characterization**
Kurt Marfurt / Satinder Chopra — Nov 5–6

12 **Understanding Seismic Anisotropy in Exploration and Exploitation: Hands On**
Leon Thomsen — Nov 3–4

13 **Dynamic Reservoir Characterization – Multicomponent 4D**
Steve Roche / Thomas Davis — Nov 5–6

14 **Reservoir Geophysics: Applications**
William Abriel — Nov 4

15 **Seismic Amplitude Interpretation**
Fred Hilterman — Nov 2–3

INTERDISCIPLINARY

16 **Completions and Stimulations for Geophysicists**
Jennifer Miskimins — Nov 4

17 **Value of Geophysics with Case Histories**
Lee Hunt / John Duhault — Nov 5–6

18 **Geophysics Under S... s: Geomechani... of Seismic and Bo... stic Waves**
CANCELLED
Colin Sayers — Nov 2–3

19 **Seismic Geo-morphology**
Henry Posamentier — Nov 3–4

20 **Recent Sand Models – The Key to Interpreting the Subsurface**
Larry Meckel — Nov 5–6

REGISTRATION OPENS **MAY 4, 2015** – COURSES SUBJECT TO CHANGE WITHOUT NOTICE
LIMITED CLASS SIZES, SO BOOK EARLY AT **CSEG.CA/EDUCATION/DOODLETRAIN**
Early Bird Registration deadline is **July 17, 2015**. Registration closes **October 9, 2015**.
Wednesday Night Social Event (Meet the Teacher) – **November 4, 2015**.

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Canadian Society of Exploration Geophysicists

FOR COURSE DETAILS AND REGISTRATION INFORMATION CALL 403-262-0015 OR VISIT OUR WEBSITE AT: WWW.CSEG.CA

The Value of Professional Services 2015

SALARY SURVEY HIGHLIGHTS

For good reason, the *Value of Professional Services* is one of APEGA's most highly sought-after publications. It provides APEGA Members — individual and corporate — with unbiased salary and benefits comparisons across a wide range of industries in Alberta. APEGA encourages the use of this resource, and any others at your disposal, to ensure fair compensation for individual practitioners and to help employers stay competitive in the labour market.

We are particularly pleased with the level of participation, this year. Again we engaged the services of Aon Hewitt to administer and conduct the salary and benefits survey, and again we contacted Permit Holders to encourage participation. Aon Hewitt also compiled the data for publication of the *Value of Professional Services* (known informally as the APEGA salary survey).

This year, 156 organizations participated. That's up 75 per cent from 2014, when 89 employers took part.

Individual data points are up as well. The report encompasses 13,464 data points in 2015, compared with 10,996 in 2014. APEGA's 10 regional branches and Alberta's major industry sectors are represented.

We know from experience how popular and useful the *Value of Professional Services* is, and we appreciate the effort Permit Holders make each spring to complete the survey. Without your help, this service to Members would not be possible.

Please feel free to contact us with your comments. Contact Mohamed El Daly, Director, Outreach & Product Services, by phone at 1-800-661-7020 or email at meldaly@apega.ca.

This summary report also appears on apega.ca, and the full report will be available soon.

HOW TO USE THE SALARY SURVEY RESULTS

Step 1: Determine your responsibility level

Step 2: Determine your 2015 cash compensation results based on your responsibility level

Step 3: Review predicted salary increases, as reported by Permit Holders

Step 4: Review perquisites, additional cash compensation, and benefit plans

The flowchart on the following page gives an overview of responsibility levels. To determine your responsibility level more accurately, please see the *Value of Professional Services* final report and its detailed methodology.

NOTES ON SALARY SURVEY METHODS

APEGA engaged the services of Aon Hewitt to administer and conduct the 2015 Value of Professional Services salary survey. Invitations to participate in the survey were distributed to APEGA Permit Holders in May. Results were gathered and compiled by Aon Hewitt in June and July.

A survey was completed by each participating Permit Holder's human resources department or other applicable department. The sources of all data are anonymous.

The 10 industry categories used in this report are:

- Engineering and/or Geoscience Consulting Services
- Engineering, Procurement, and Construction
- Resource Exploitation (except oil and gas)
- Resource Exploitation (oil and gas only)
- Manufacturing (durables)
- Manufacturing (non-durables)
- Not-For-Profit Service, Control, and Utilities
- For-Profit Service, Control, and Utilities
- Information and Other Advanced Technologies

INFORMATION FROM PARTICIPANTS

Participation for the 2015 survey is based on 156 companies submitting data in time for inclusion in the final published report. The 2015 survey captured current compensation data for 13,464 Engineering and Geoscience Professionals across Alberta. Engineering Professionals account for 93.2 per cent of the total, Geoscience Professionals the other 6.8 per cent.

PREDICTED SALARY INCREASE

Note: All data were reported well before Canada, by accepted measures, had entered a recession.

Based on survey responses, 57 per cent of companies (94 per cent in 2014) planned to increase salaries in the next 12 months by an average of 3.0 per cent (3.5 per cent in 2014), with a range of 1.5 per cent to 10.0 per cent (2.0 per cent to 7.0 per cent in 2014). However, 31 per cent of companies (six per cent in 2014) forecasted a salary freeze in the next 12 months. Respondents unable to provide predicted salary increases made up 12 per cent of respondents (4.5 per cent in 2014).

PREDICTED PROFESSIONAL STAFFING LEVELS FOR 2016

Note: All data were reported well before Canada, by accepted measures, had entered a recession.

Of our survey respondents, 37 per cent (75 per cent in 2014) indicated that they expected to add to their professional staff over the next year, and 39 per cent (23 per cent in 2014) indicated that they planned on maintaining current staffing levels. Reductions in professional staffing levels were planned by five per cent of participants (two per cent in 2014).

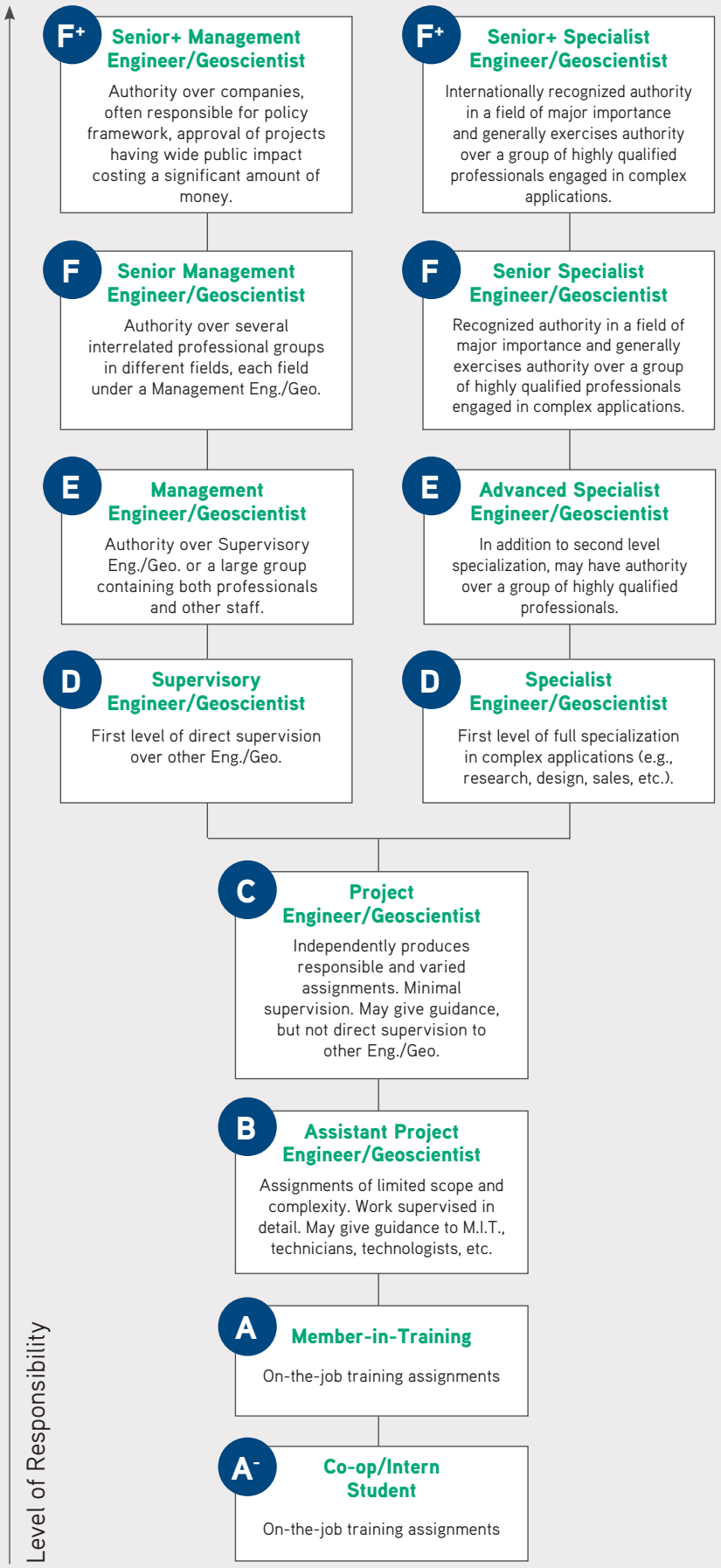
The *Value of Professional Services* includes the full salary survey results, with other information pertaining to:

- benefits and additional cash compensation
- vacation
- personal and family days
- sick days
- flexible work arrangements
- overtime
- turnover
- contract employee pay rates
- gender
- location
- engineering disciplines
- years of experience
- APEGA licence
- company size
- co-op student salaries
- degrees

Participation in the salary survey was free. Each year, we encourage all Permit Holders to participate. Our goal is always to garner the most robust and representative database possible. As survey participation grows, the accuracy of our membership representation improves.

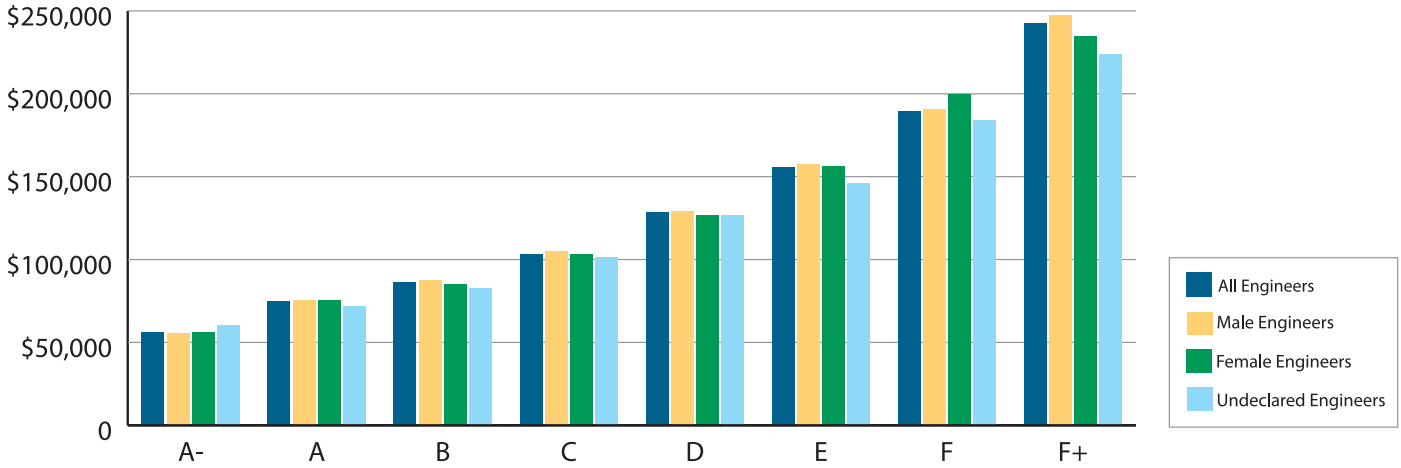
Please contact Mohamed El Daly at meldaly@apega.ca to ensure you are sent your 2016 survey participation package next year.

JOB CLASSIFICATION FLOWCHART



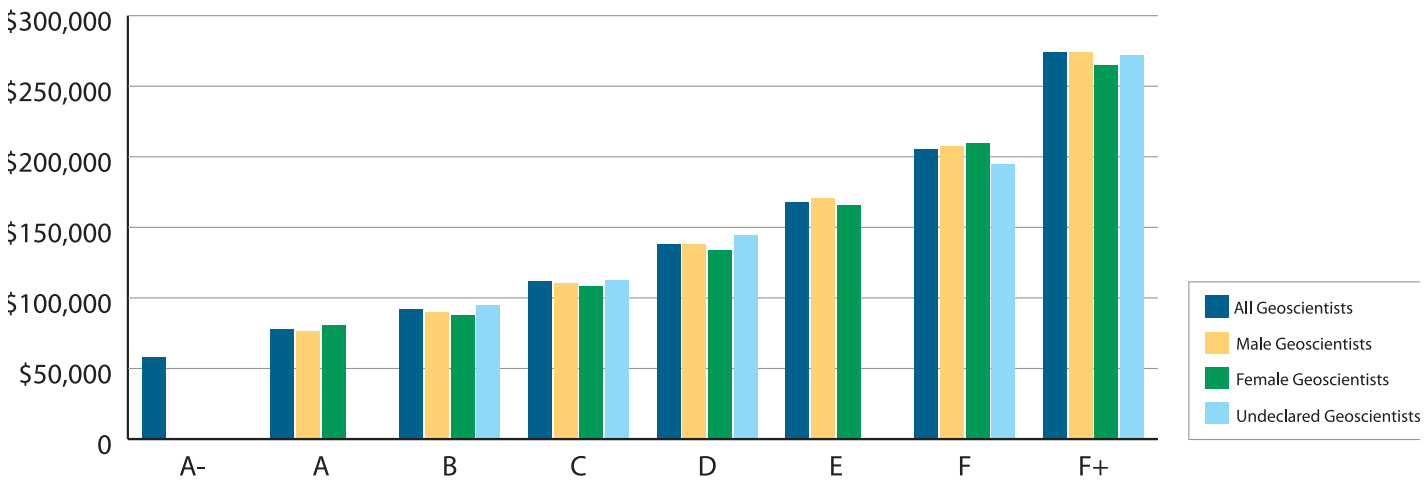
Engineering

ANNUAL BASE SALARY BY GENDER AND RESPONSIBILITY LEVEL



Geoscience

ANNUAL BASE SALARY BY GENDER AND RESPONSIBILITY LEVEL



For engineers, average base salaries have increased for all levels except B and C. Total compensation values have increased for levels A-, A, and F+ only.

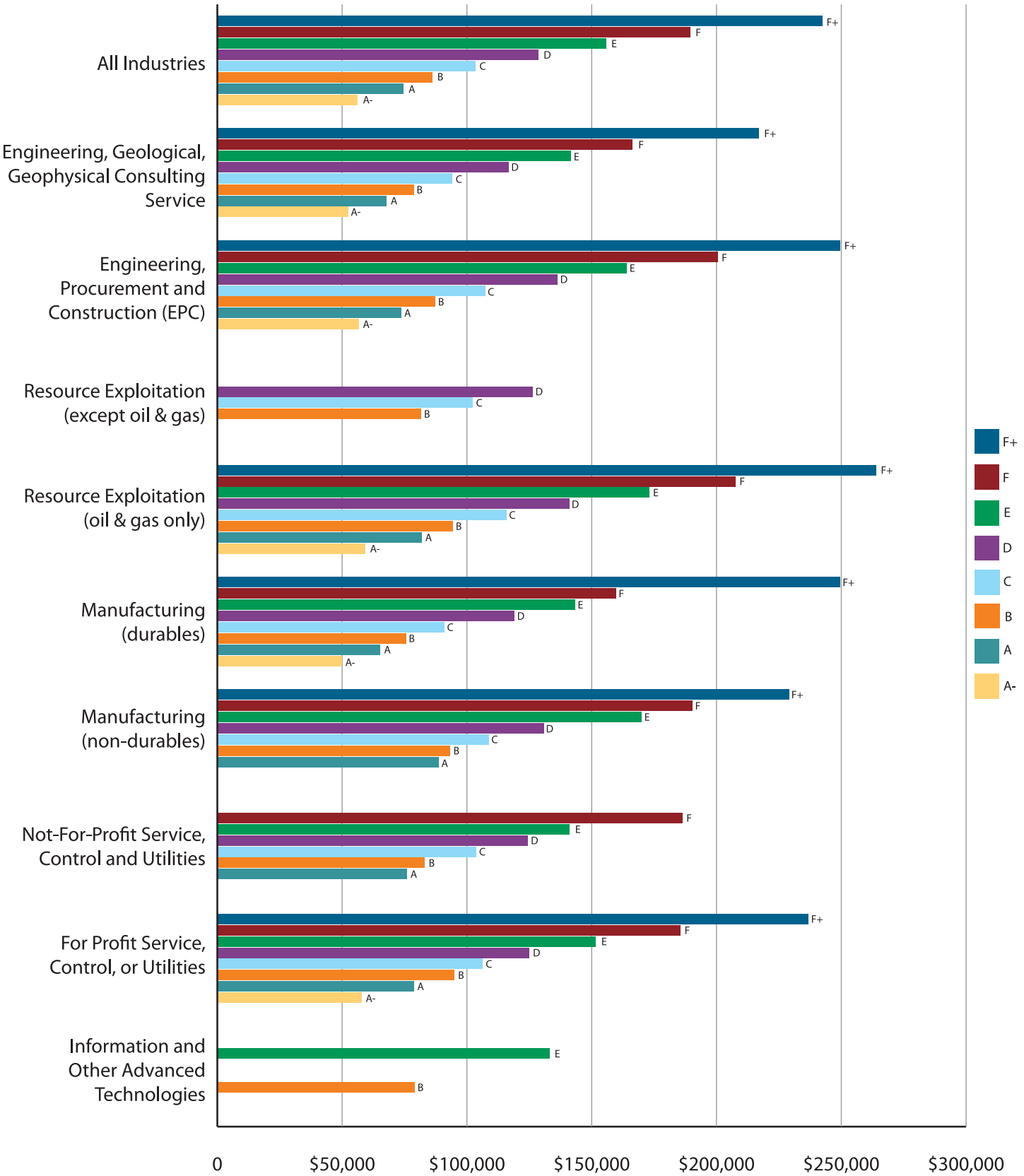
For geoscientists, with the exception of level F, base salaries have increased across all responsibility levels. Total compensation values increased for most levels. Exceptions were D, E, and F+.

In addition to maintaining market competitiveness in total compensation, most Permit Holders surveyed continued to target pools of potential members, especially internationally educated graduates, women, and Aboriginals. Outreach and diversity programs for these groups continue to gain momentum, as do meaningful collaborations among APEGA, industry, government, and outreach organizations. The salary survey is one way to gather information and gauge progress.

It is encouraging to see that there are more females in geoscience. They represent just over 16 per cent of the total geoscience data sample in the 2015 survey. Base salary survey results for female geoscientists are consistent and equitable with their male counterparts for the majority of responsibility levels. Results in the base salary category for female engineering staff continue to move towards equitability in most responsibility levels.

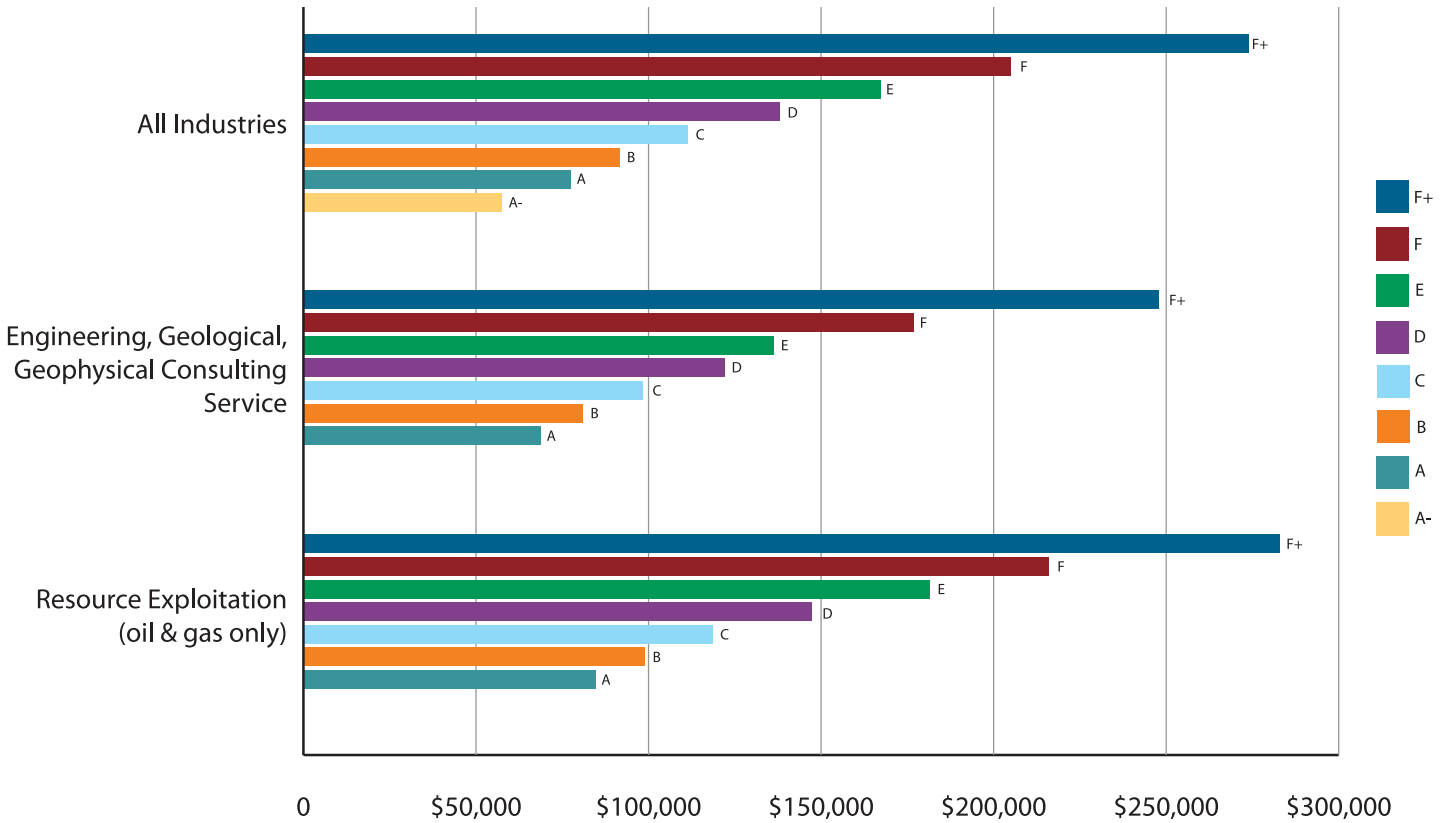
Engineering

ANNUAL BASE SALARIES — INDUSTRY COMPARISONS



Geoscience

ANNUAL BASE SALARIES — INDUSTRY COMPARISONS



Resource Exploitation (oil and gas only) consistently ranked as one of the top four industry sectors in terms of overall total compensation at all levels of responsibility.

The top four industry sectors, when base salaries are compared to all-industry averages at various levels, are:

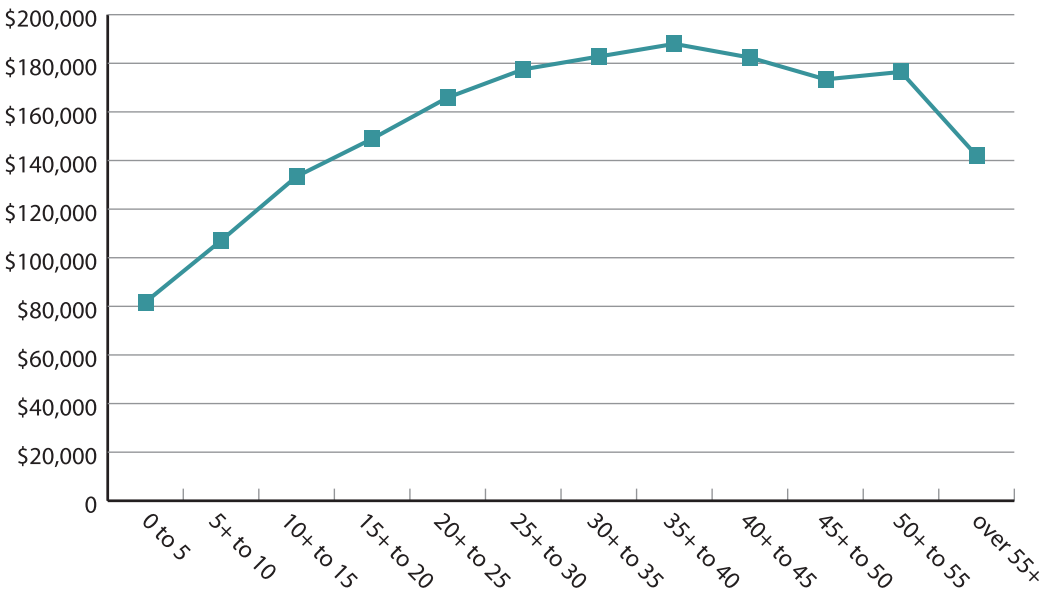
1. Resource Exploitation (oil and gas only) at $59,375 to $264,057 for A- to F+
2. Engineering, Procurement, and Construction (EPC) at $56,817 to $249,516 for A- to F+
3. Manufacturing (non-durable) at $88,621 to $229,176 for A to F+
4. For-Profit Service, Control, or Utilities at $57,526 to $236,776 for A to F+

The top four industry sectors, when total compensation is ranked against all-industry averages at various levels, are:

1. Resource Exploitation (oil and gas only) at $60,969 to $587,067 for A- to F+
2. For-Profit Service, Control, or Utilities at $57,526 to $449,891 for A- to F+
3. Manufacturing (non-durable) at $97,568 to $351,231 for A to F+
4. Engineering, Procurement, and Construction (EPC) at $57,279 to $266,028 for A- to F

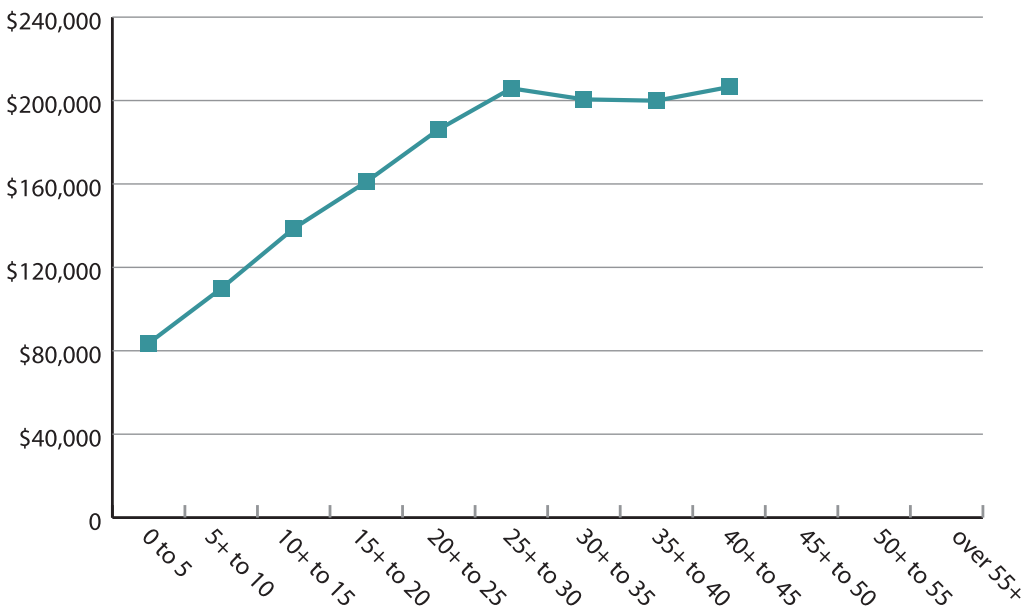
Engineering

SALARIES BY YEARS OF EXPERIENCE



Geoscience

SALARIES BY YEARS OF EXPERIENCE



When calculating years of experience since graduation, we assumed that an individual enters the workforce immediately upon completing his or her last degree. This may not be the case for all individuals. However, it is considered the norm from a surveying perspective.

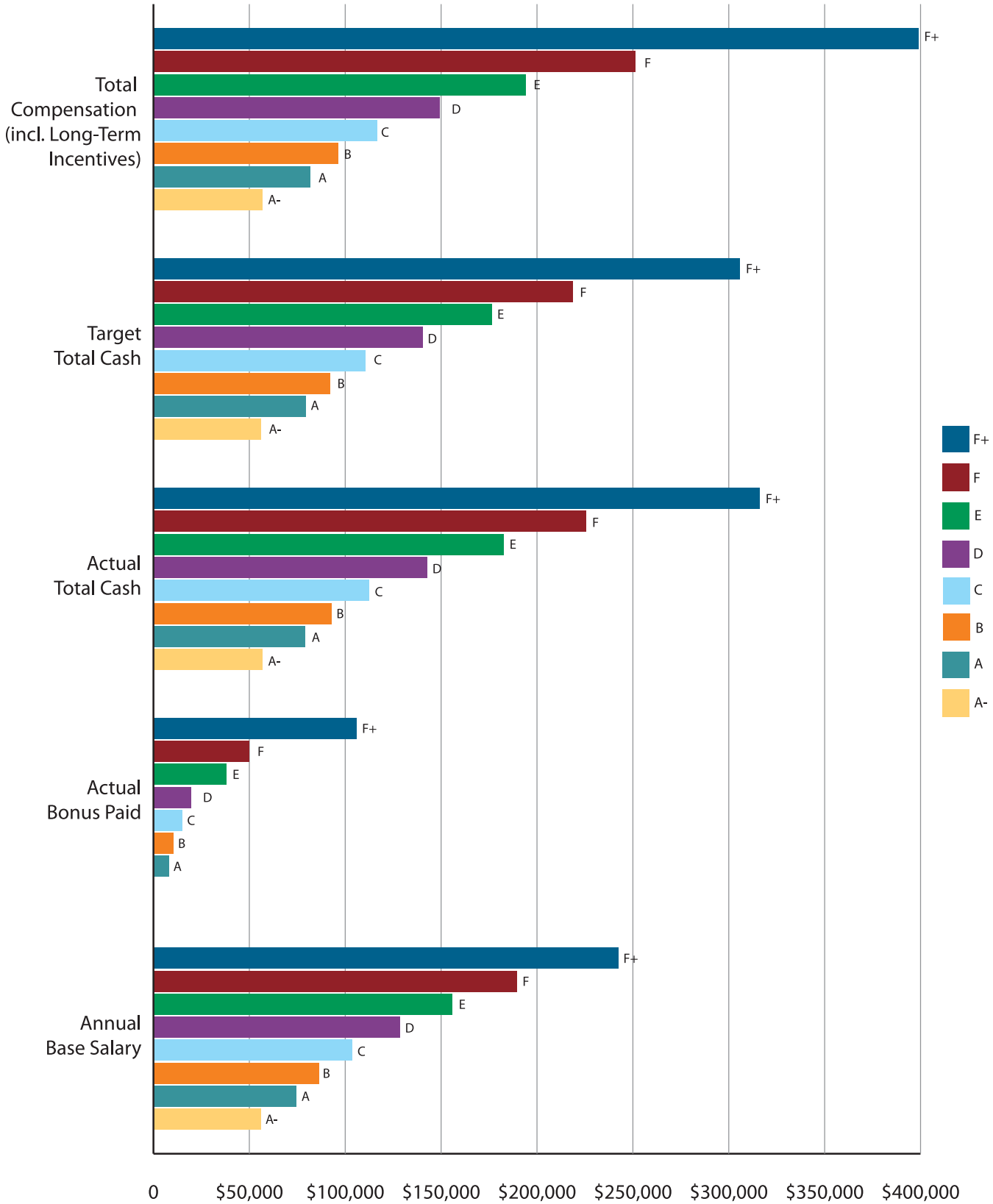
Usually, progression to the next responsibility level is also dependent on an individual's years of experience in the workforce. As more in-depth knowledge and specializations are gained over time, an individual's overall level of contribution and responsibility within a company progresses as well.

The highest average base salary is not necessarily attributed solely to the individuals with the most years of experience. It is generally more directly related to an individual's level of expertise or specialization, individual performance, and overall contribution within the company.

Responsibility level A- has been omitted in these charts, as this level falls outside of the defined parameters for years of experience since graduation.

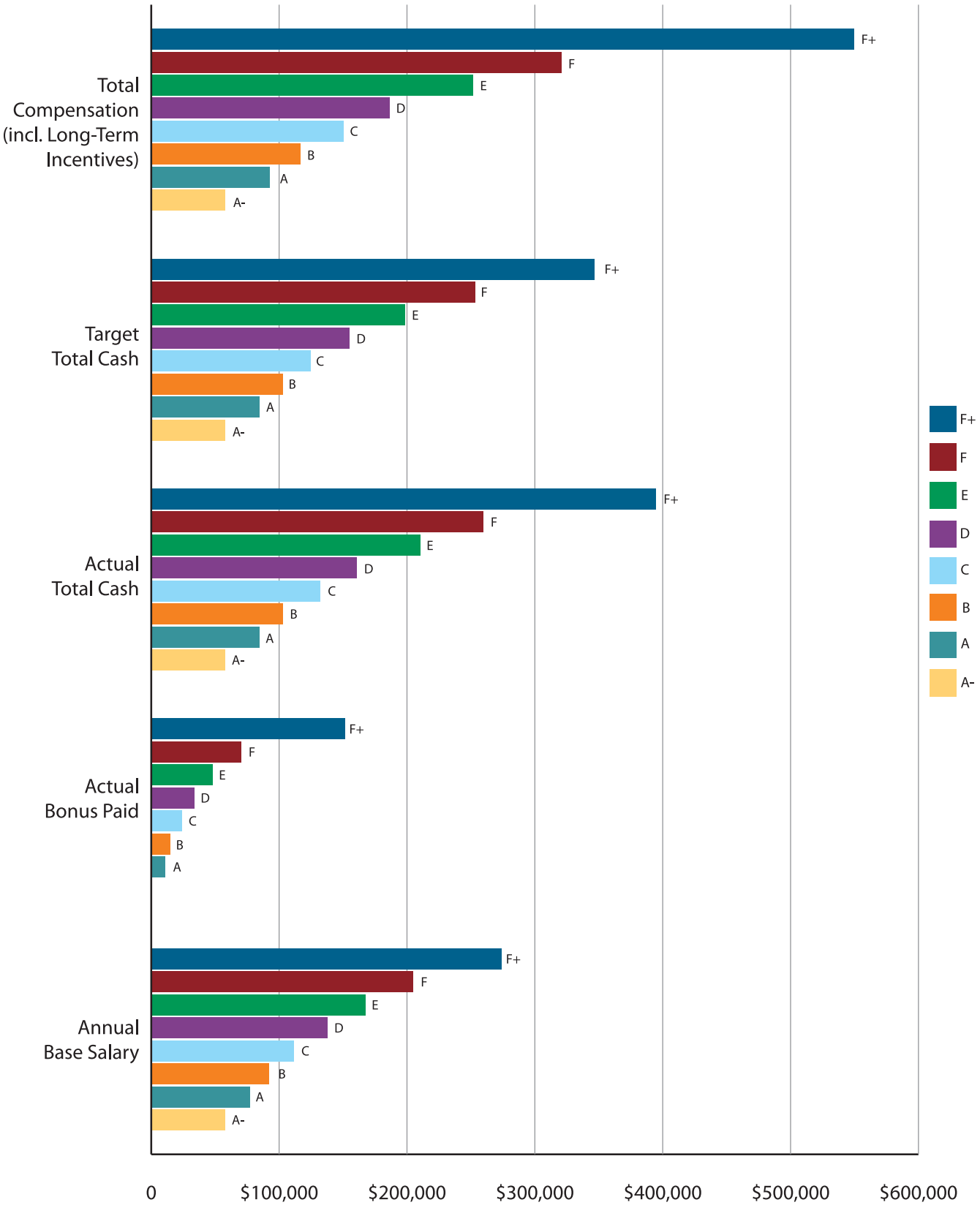
Engineering

ALL INDUSTRIES



Geoscience

ALL INDUSTRIES



Members and the Public Perceive APEGA Positively, New Research Reveals

Member perceptions about APEGA are generally positive and have trended upwards in numerous categories, recent research suggests. The public, too, continues to hold the regulator in high regard.

Even though we received good news in two Ispos Reid surveys, there's a lot to learn from the findings. Results will inform our strategic, business, and budget planning, as well as help us set programs and initiatives for 2016 and beyond.

Most Members of APEGA believe the regulator is performing well in key areas like licensing, self-regulation, and discipline, the 2014 research conducted on behalf of APEGA found. As well, the percentage of Members surveyed who expressed overall satisfaction in the Association has jumped nine points since 2011.

Ipsos Reid conducted two surveys — an email survey of Members and an online survey of the public — to gauge perceptions about the professions and the Association. Similar surveys were conducted in 2006 and 2011. A total of 7,518 Members took part in the Member survey, most of them Professional Engineers, Professional Geoscientists, and Members-in-Training.

The results suggest that an increasing number of Members believe we're fulfilling our mandate as a self-regulating professional association. Overall Member satisfaction with APEGA is up to 64 per cent from 55 per cent in 2011, but there's still a big variation by designation: 69 per cent of Professional Engineers are satisfied with APEGA, compared with 44 per cent of Professional Geoscientists.

More Members are finding more value in their APEGA membership than in the past, the results suggest. The percentage in that category was 69 per cent in 2014, up from 61 per cent in 2011. By designation, 73 per cent of Professional Engineers and 47 per cent of Professional Geoscientists say their membership is valuable.

Members were asked to evaluate 17 of APEGA's roles and functions. For the most part, awareness of APEGA's roles and functions is high, with at least eight in 10 Members saying they were aware of 12 of the 17 roles and functions evaluated. Not surprisingly, the three roles and functions deemed most valuable by more than nine in 10 Members were:

- determining who is qualified to be licensed
- maintaining the self-regulation of our professions
- investigating and disciplining infractions

Survey data suggest that 93 per cent of Members consider our role in licensing professionals valuable to them, up from 88 per cent in 2011. As well, 91 per cent said our role as a self-regulator was valuable, up six percentage points from three years ago. Similarly, 91 per cent said that discipline is a valuable function, a jump of eight percentage points.

When considering performance and value for roles and functions, Members identified five primary strengths and three primary weaknesses.

PRIMARY STRENGTHS

Relatively High Performance and Relatively High Value

- Maintaining self-regulation
- Determining who is qualified to be licensed
- Investigating infractions and disciplining Members
- Acting in the public interest
- Establishing agreements with other licensing agencies

PRIMARY WEAKNESSES

Relatively Low Performance and Relatively High Value

- Assisting Members in the practice of their professions
- Providing opportunities to stay current
- Promoting the professions to the public

A relationship exists between familiarity with APEGA's roles and functions and perceptions of strength in value and performance. That suggests that continuing to build Member familiarity with our roles and functions could have a positive impact on Members' perceptions of value and performance.

When it comes to engagement, Members are notably more engaged with their professions than they are with APEGA. Three-quarters of Members said they feel engaged with their profession, while only 34 per cent said they feel engaged with APEGA. While perceptions of engagement with APEGA are low, positive responses did go up five percentage points from 2011.

Member perceptions about the career advantages of being a professional have also improved. In total, 87 per cent of Members said their designation offers career advantages, up from 82 per cent in 2011. The perception remains higher for P.Eng.s (89 per cent) than for P.Geo.s (69 per cent).

PROGRESS WITH THE PUBLIC

The public survey found that Albertans continue to view Professional Engineers and Professional Geoscientists in a positive

light. Most members of the public agree that APEGA professionals provide benefits to the province, results suggest.

Some of the cited benefits are:

- building safer and better infrastructure
- protecting the environment
- helping the economy grow

Agreement in this area is higher when Professional Engineers are looked at separately, at 76 per cent, than when Professional Geoscientists are, at 68 per cent, Disagreement is extremely low for both, at two and three per cent respectively.

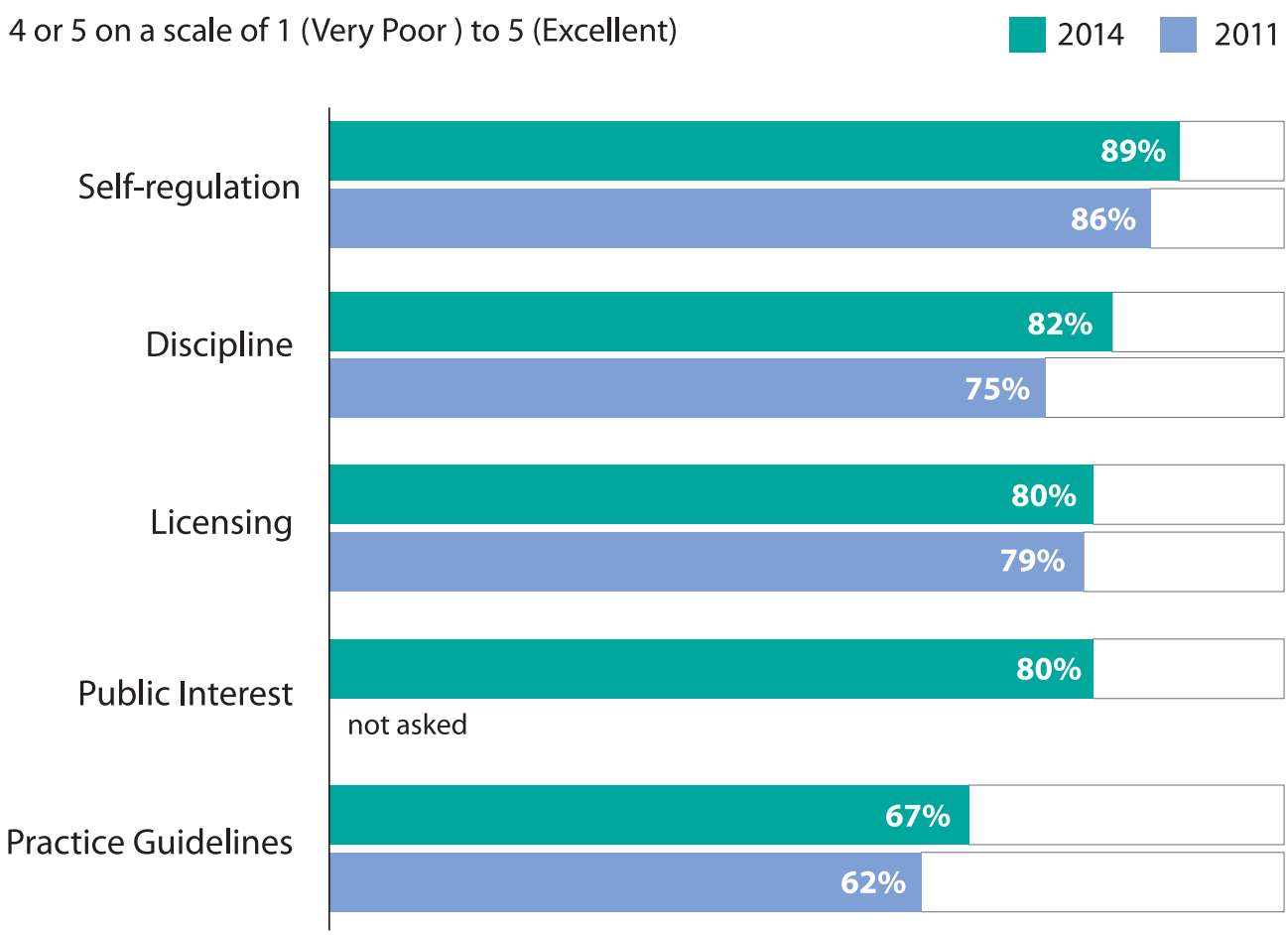
Interestingly, the public's perception of the professions is significantly higher than Members' *impressions* of the public's perception. While 71 per cent of surveyed members of the public said Professional Engineers have the same or greater credibility as other professionals do, such as doctors or accountants, only 64 per cent of P.Eng.s said the same. For Professional Geoscientists, 62 per cent of Albertans surveyed said they have the same or greater credibility as the other professionals, but only 36 per cent of P.Geo.s said the same.

Impressions of prestige are lower than credibility for both designations. Roughly two-thirds of Albertans regard Professional Engineers with the same or greater level of prestige as other professionals, while this drops to half for Professional Geoscientists.

Half of Albertans agree that Professional Engineers are recognized leaders in the community, the survey suggests, compared with 38 per cent for Professional Geoscientists — which is up from an averaged percentage for the professions of 30.5 per cent in 2011. About half of Albertans know that the professions are regulated in a way similar to doctors and accountants, through provincial legislation.

MEMBER SURVEY

How would you rate APEGA's performance on each of the following roles or activites?



Public perceptions of APEGA are also positive, although familiarity with what we do is limited.

Overall, 43 per cent of Albertans are aware of APEGA, the results suggest. Twelve per cent of those surveyed knew, unaided, that we administer the provincial legislation governing the engineering and geoscience professions.

When asked, 31 per cent said they had heard of APEGA. This is consistent with 2011, but it's up 10 percentage points from 2006. Compared to other member-based organizations, it's a high level of awareness.

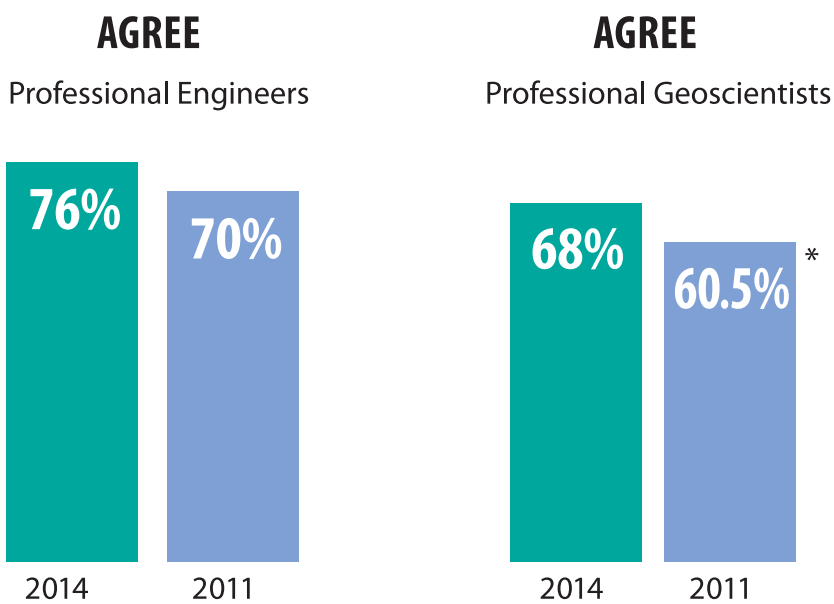
Public familiarity with APEGA's overall role remains low. Only 35 per cent of those surveyed said there were familiar with our role, although this is improving. In 2011 the percentage was 30 per cent; in 2006 it was 23 per cent.

When members of the public were asked what they think APEGA's role is, the top two reasons given were to regulate engineers or geoscientists, at 29 per cent, and to establish or maintain professional standards, at 25 per cent.

Albertans are also becoming more familiar with APEGA's brand. Recall of our logo was at 46 per cent, which is an increase of 13 percentage points from 2011. Part of that may be due to a public advertising campaign, which included newspaper, television, and billboard ads showing how Professionals in Engineering and Geoscience help enhance the public's quality of life. One in 10 members of the public surveyed recalled seeing one or more of the ads, and the majority agreed that we should continue the public awareness campaign.

PUBLIC SURVEY

APEGA Professionals Provide Benefits to Albertans



**In 2011, Professional Geoscientists were categorized as Professional Geologists and Professional Geoscientists. This percentage is an average of the percentages from the two designations*

While progress has been made in many areas, there's limited opportunity to decrease negative public perceptions about the professions — because they're already extremely low. The challenge is to move "neutral" and "don't know" responses to positives.

RESEARCH PROJECT METHODOLOGY

Member Survey

- 7,518 APEGA Members completed the email survey, a 15 per cent response rate from those we reached.
- Overall, the results are considered accurate to within plus-or-minus 1.1 percentage points, 19 times out of 20.
- Data were collected between November 18 and December 1, 2014.
- All APEGA Members who had earlier agreed to receive our emails were invited to participate — 49,495 email invitations were successfully delivered.
- Final data were weighted to ensure the sample's composition reflected that of the actual APEGA membership.
- Several new questions were added to the 2014 survey. Because of this, the median interview length was 24 minutes — considerably longer than 15 minutes in 2011. The length will be evaluated before future surveys are conducted.

Public Survey

- The online survey gathered results from a representative sample of 801 adult Albertans.
- Overall, the results are considered accurate to within plus-or-minus 3.5 percentage points, 19 times out of 20.
- Data were collected between November 17 and 25, 2014.
- Using the *2011 Census of Canada*, final data were weighted to ensure that the sample's regional, age, and gender distribution reflected that of the actual Alberta population aged 18 years or older.

Review Advances to Fall Consultations

APEGA's review of the *Engineering and Geoscience Professions Act (EGP Act)* is gaining momentum. Round one of our legislative review consultations wrapped up in June with excellent feedback from about 1,300 Members, Permits Holders, and other stakeholders.

It's a great start, but there's much more to come. If you want a say in how your professions will be governed in the future and haven't been involved yet, now is the time. If you've already been involved, please don't stop now.

Our second round of consultations kicks off in October. It will delve into some important areas like the size of disciplinary fines and the publication of names of Members who have been disciplined.

ROUND ONE BACKGROUND

It's clear that Members and Permit Holders take their professional responsibilities seriously.

More than 1,000 people participated in our face-to-face consultation sessions, generating a great deal of thought-provoking discussion. Another 278 shared their thoughts via an online survey. Feedback was also gathered through email, at Branch and other meetings, and at sessions held by our champions collaborative. The collaborative is a group of engineering and geoscience professionals — volunteers who are engaging Members and Permit Holders in the legislative renewal process.

We expanded the dialogue by reaching out to other engineering and geoscience self-regulatory organizations across Canada and to self-regulating organizations of other professions in Alberta.

HAVE YOUR SAY

APEGA is hosting fall Member consultations in Calgary and Edmonton. Participation is free. Members may claim APEGA CPD credits. Register at apegalegislativereview.ca.

Calgary Fall Legislative Review Consultations
Courtyard by Marriott, Calgary Airport

October 28, 7:30 a.m. to 10 a.m.,

October 28, 2 p.m. to 4:30 p.m.

October 28, 6 p.m. to 8:30 p.m.

October 29, 7:30 a.m. to 10 a.m.

Edmo**nton Fall Legislative Review Consultations**
Double Tree by Hilton

November, 7:30 a.m. to 10 a.m.

November 12, 2 p.m. to 4:30 p.m.

November 12, 6 p.m. to 8:30 p.m.

WHY REVIEW THE ACT?

The *EGP Act* is the provincial legislation that defines your responsibilities and obligations as a Professional Member and provides the framework for APEGA to regulate the practices of engineering and geoscience in Alberta. But the Act hasn't had a major update in more than 30 years. Changes are needed to ensure that the legislation continues to serve the public interest and reflect modern business practices.

We're working to develop simpler, more robust legislation to regulate our professions in Alberta. In the spring of 2018, we'll propose recommendations to the Government of Alberta for its consideration.

The review is taking place in three phases, starting with the *EGP Act* itself. Proposed revisions to the Act will be presented to the membership at APEGA's 2016 Annual General Meeting.

This will be followed by a review of the *General Regulations* and then a review of the bylaws. Recommendations in these areas will be brought forward at AGMs in 2017 and 2019 respectively.

APEGA's legislative review team has identified about 200 opportunities for legislative renewal. That's why input from stakeholders is so critical to the process. It will inform and influence our recommendations to the government.

We're committed to reporting what we hear throughout the consultations. Feedback from round one, including verbatim comments, has been compiled into a detailed report, *We're Listening: Spring 2015 Consultation Summary*, which is available online. Six topics were explored this spring, relating to the Member-in-Training, Licensee, Professional Licensee, and Student membership

categories, as well as issues surrounding APEGA's authority to delegate and *Alberta Building Code* exemptions.

Fall sessions will build on the success of our spring consultations. We're focusing on proposed changes to the legislation that will improve regulatory efficiencies and help us better protect the public interest. Topics up for discussion include:

- modernizing the investigative process by:
  - ✓ compelling witnesses and documents
  - ✓ giving decision-making authority to investigation panels
  - ✓ extending the time that complaints against former Members can be accepted
- increasing the amounts of fines and penalties
- improving the enforcement and recovery of fines and penalties
- appealing registration decisions
- making public names and orders
- formalizing mobility of discipline orders
- establishing the Registrar's authority to:
  - ✓ initiate investigations
  - ✓ suspend or place interim conditions on registrations
  - ✓ assess a Member's capacity to practise

Three sessions are planned for Calgary and Edmonton in late October and early November. If you can't attend, you can still take part in the fall consultations — once again, we'll use an online survey to gather input, and you can always send comments to legislative-review@apega.ca. To help you better understand the proposed changes, we'll post information on the legislative review website in early October.

STAY INFORMED, PROVIDE INPUT

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

Following the round two consultations, a third round will be held in early 2016, when we'll be looking at:

- the Practice Review Board
- exemptions under the Act
- organizational structure and accountability
- statutory board size and structure
- documentation and authentication
- professional liability insurance

The legislative review is a complex and lengthy process, and it's a key priority in APEGA's strategic plan. As the largest professional self-regulator in Alberta, we're committed to serving the public by demonstrating leadership in this important endeavour.

APEGA's Registrar Reflects on Two Years of Professional Growth and Organizational Change

Privileged to lead. Driven to deliver. For Carol Moen, P.Eng., those six words have been her guiding mantra since she joined APEGA staff as Registrar just less than two years ago. "I feel privileged to be Registrar, but I am also driven to ensure that the Regulatory portfolio I have responsibility for meets or ideally exceeds expectations," she explains.

Leading the Regulatory Group and learning in fine detail the nuances of self-regulation have been an amazing journey of discovery, says Ms. Moen, the second-in-command to the CEO.

"It was surprising for me that, after a very satisfying, 25-plus-year engineering career in industry, I didn't have a better appreciation for the broadness and complexity of APEGA's regulatory scope," she says. "My focus was to learn the portfolio and satisfy myself that APEGA is fulfilling our obligations."

Ms. Moen arrived at a critical time in the Association's history, with APEGA in the midst of a major organizational restructuring. Her many years of industry experience helped her tackle many tough challenges head-on, including a huge increase in membership applications, processing time challenges across the regulatory portfolios, and a backlog of appeals of decisions by APEGA statutory boards and committees.

"In business, you always have to do things better, faster, cheaper, safer, more environmentally sound. The bar is always moving up. You need to understand what's expected of you and how you're doing against that. If you don't manage those expectations or needs well, you go out of business," she says. "I brought that sort of perspective to the table — the desire to

"Regulatory team members come from different business, professional, and technical backgrounds. There's a broad diversity of education, background, culture, age, and gender. It all adds up to an incredible diversity of perspective, and they're applying that in their roles across all the Regulatory portfolios."

CAROL MOEN, P.ENG.
Registrar

APEGA'S REGULATORY TEAM . . . diverse and effective

figure out what we need to do as a self-regulatory organization. Then we deliver on that."

She systematically worked through all APEGA's Regulatory Group portfolios — Registration first, then Appeals, Compliance, Examinations, and Investigations. More recently, she began focusing on Discipline and Professional Practice.

With an eye to improving overall efficiencies and effectiveness, several enhancements have been implemented that have fundamentally changed the way the departments operate. This includes more consistent processes, policies, and procedures.

"Just as the bar rises for business, the bar rises for the professions and the bar rises for APEGA. We need to continue doing our job better and better," she says.

Well before she started working for APEGA, Ms. Moen was proud to be a professional governed by a self-regulatory body.

"Now, I've been able to positively influence that governance," she says. "It's exciting for me to help modernize the roles, expectations, and execution of APEGA as a body. And it is great to be giving back to the profession that's been so good to me throughout my career."

HOW WELL ARE WE DOING?

It's one thing to implement change; it's another to show that it's working. A top priority for Ms. Moen has been the implementation of key performance indicators (KPIs) to help Regulatory departments measure how well they're doing, moving forward.

Measuring efficiency and effectiveness can be challenging, although numbers show

Applicant Experience Keeps Getting Better

In measurable ways, the application and registration process is becoming a better experience for potential APEGA Members. In our Registration Department, we have improved our tools and our service, increased our staff allotment, and tackled problem areas brought to light by the more than doubling of the annual application volume over the last decade.

The improved experience begins — at the beginning. Not long ago, a potential Member could expect to wait weeks before hearing from APEGA, after pressing the electronic send button on a new application. That's not the story today. Every new application received in the last several months has been responded to in fewer than five business days. Some responses arrive the same day.

When applicants follow up by phoning or emailing APEGA, they can also expect quicker service. Two full-time staff members now field phone calls from applicants, along with email comments and questions. An on-going backlog in emails has been eliminated. Before, an applicant might have waited a week or two for a response. Now, responses are usually sent within 48 hours. Online chat response might even be in APEGA's future.

Because application tools have improved, applicant problems have been reduced. Among the big changes in this area are the work experience record and its reference requirement. The record is now web based and mobile friendly, and that includes reference gathering — a common source of delays in the past.

Before, it might take weeks or even months for references to respond. Now, because the system is simple and convenient, references often respond the same day. Between meetings, for example, a reference can respond on a smartphone. Effective responses from references, in particular those who are Professional Members, are critical to the decision-making process for licensing applicants. References truly do put the self in self-regulation, when they help us in this process.

As well as being web based and mobile friendly, the work experience record itself is more structured and easier to understand. There's less chance an applicant will fill it out incorrectly, which decreases the cycles of clarification and correction that add time to the process.

Our online tools are continuing to get more and more stable and reliable. There's less likelihood of hang-ups or freezes during the process, and it's simpler to resume an application. In the past, some applicants didn't realize their application process had begun — so they started a new one, which created confusion on both ends.

It all leads to the final stage in the approval of an application: reviews by admissions staff members and the APEGA Board of Examiners. We've been working hard there, as well. In fact, reviews of applications are up 60 per cent in the first eight months of 2015 over the same period in 2014.

Becoming an APEGA Professional Member is a huge step in a person's career. We've reacted to processing problems and shortfalls, and we're confident that the applicant experience will continue to improve as we continue to build better processes and tools. In fact, we expect to rollout a whole new online application system in 2016.

CONTINUED FROM PREVIOUS PAGE ››

hard results. And the successes are beginning to be revealed in the Regulatory Group. One reason is the evolution of the Regulatory Group's leadership team. A considerable number of new faces have joined the seasoned voices already at the table.

"We went looking for the best and most qualified people, and we've ended up with a pretty diverse organization," says Ms. Moen. "Regulatory team members come from different business, professional, and technical backgrounds. There's a broad diversity of education, background, culture, age, and gender. It all adds up to an incredible diversity of perspective, and they're applying that in their roles across all the Regulatory portfolios."

This reflects well on APEGA as a regulatory body. "I really feel it's very important that we, to some degree, can represent the demographic of the professions we're governing," notes Ms. Moen.

OPEN AND ACCESSIBLE

As Registrar, Ms. Moen believes strongly that she and the Regulatory leaders need to be accessible to APEGA Members and the public. She's spent a lot of time over the past two years talking directly with Members, applicants, and members of the public who want to share their thoughts and opinions on the direction APEGA is taking.

"I want them to have confidence in me. I want them to understand my motivation, my professionalism, and my desire for APEGA as a self-regulatory body," she says. "We regulate with the intention of protecting public interest, but also with the intention of improving the professions. So for us to improve the professions, we need to have that interface. That's absolutely, very, very important to me."

Ms. Moen emphasized that Members can expect through 2016 to start to see more on the KPIs that are being implemented across the Regulatory portfolios. "This is self-regulation, after all, and all Members play a role and should have a fundamental understanding of APEGA's performance."

Appeals Backlog Erased

As of September 1, four new appeals of APEGA decisions had been filed in 2015. That suggests it's a typical year as far as incoming volume goes. Here's what isn't typical, however: For the first time in many years, the APEGA Appeal Board and APEGA staff aren't managing and administering a backlog as well as incoming appeals.

The year 2014 opened with a pre-existing inventory of 10 appeals. All of them have been cleared. Every appeal that's currently on the books APEGA received this year.

Included in the new appeals management system are key performance indicators (KPIs). What isn't measured can't be improved, so we're measuring more and making the process accountable — that's the philosophy the APEGA Regulatory Group is instituting in all of its portfolios.

Why does appeals progress matter? Appeals impact the lives and careers of our Members and the public. The more timely we are in dealing with appeals, the less disruption and uncertainty there is for all parties.

Appeal results are also very informative for APEGA itself. They sometimes act as a bit of an audit on other regulatory processes and ultimately drive valuable changes. A recent example includes the need to document consistent and thorough decisions across the regulatory portfolios, to ensure quality decisions and enhanced understanding by those who receive them. If people have a good understanding of why we made a regulatory decision, they are less likely to request a review through appeal.

Compliance Efforts Refocused to Better Protect APEGA Titles

The value of an APEGA licence stems largely from the regulation of Professional Members. An often misunderstood part of our regulatory work, however, actually looks at the actions of non-Members.

Only Members and Permit Holders are allowed to use protected terms like engineer and geoscientist in ways that imply that they practise. When unlicensed individuals and companies practise or even suggest that they practise, they may end up eroding public trust. In fact, they are not serving the public interest and may even be posing public safety risks.

Enter the APEGA Compliance Department. Its job is to investigate and enforce right-to-title and right-to-practice provisions of the *Engineering and Geoscience Professions Act*.

We rely on several major sources of information about potential compliance violations. These are:

- APEGA Members
- the public
- other APEGA departments
- searches of directories and publications like the *Alberta Gazette*
- the Out of Province Campaign. Administered by Engineers Canada, this campaign alerts engineering regulatory associations that Professional Engineers from elsewhere in Canada are moving into their province or territory — because sometimes engineers start practising or calling themselves P.Eng.s before their transfer is complete

Like all Regulatory Group departments, Compliance has been going through process changes to close old files and become more efficient and accountable. For the first part of 2015, the focus was on training and orienting new staff, creating handbooks, and drafting new policies. The Enforcement Review Committee, made up of volunteering professionals, works with staff to bring those in violation into compliance. Through an updated orientation process, we've made sure that these volunteers have a clear understanding of their regulatory role.

Now, the focus is on files. In a typical year, we open about 350 compliance cases and close about the same number, while also maintaining active cases. By the end of August 2015, we had opened 238 cases and closed 204 for the year. A total of 120 active cases were on the books.

The department predicts that by the end of the year it will meet its target of opening 350 cases, closing about the same.

One way we're closing files sooner is by contacting violators by phone or email, right away. Often, a conversation ends the problem quickly — there's a simple fix like changing an employee's title, or there's been an honest misunderstanding of the rules. Before, the process began with a formal letter, and those who received one weren't always quick to respond.

We're also looking at ways to find out about more potential violations. These will include more external searches and compliance communications focused on Members and Permit Holders.

Investigative Capacity Grows

Complaints against Members have increased on pace with our growth in professional membership, and APEGA has added staff horsepower to better meet the demand. Since we hired our first professional investigator in September 2013, three others have joined the team, the most recent having started in September. Three of the four are former police officers, and one was an investigator for new home warranty claims.

Their expertise is used to help APEGA's Investigative Committee lead more thorough investigations and write more consistent, detailed reports on findings, which is speeding up processing times. The Investigative Committee is made up of Professional Members who review evidence for each case and make the ultimate decision about whether a complaint advances to the APEGA discipline process.

While the number of complaints remains small relative to the size of the membership, the number has been increasing. In 2013, the number of complaints increased 42 per cent to 61. There was another increase in 2014, when there were 66 complaints in total. By the end of August this year, there were already 50 complaints filed for the year.

It's too early to show significant improvement in results, because many of the changes in the department have just begun. Professional investigators are speeding up the processing of new files. And they're working to close some older, more complex files that date back several years. While processing times will always vary depending on the complexity of each case, the team's target is to process all new complaints, including investigative results, within an average time of 180 days.

Also of note: the Investigative Committee is now sharing more detailed decision reports with complainants and Members under investigation, outlining in detail the reasons for its recommendations. The hope is that this will improve the parties' understanding of the factors that were considered, and ultimately reduce the number of appeals that are filed.

The Discipline File

- APEGA has reprimanded a Responsible Member and his employer, a Permit Holding company, for giving unverified and inaccurate advice to clients about meeting regulatory requirements. The company's "poor document management," combined with the Professional Engineer's "inadequate supervision of subordinates and lack of adherence" to a document policy, contributed to the incidents of unprofessional conduct, says an APEGA Recommended Discipline Order (RDO).

  APEGA found that the unverified advice to two different clients "tends to harm the standing of the profession generally." The advice and related incidents violated Rule of Conduct No. 5 of the APEGA *Code of Ethics*: "Professional engineers and geoscientists shall uphold and enhance the honour, dignity and reputation of their professions and thus the ability of the professions to serve the public interest."

  An RDO includes facts, findings, and penalties agreed to by the investigated party or parties. It has the same force and effect as a decision of an APEGA Discipline Hearing, but it doesn't require the time and expense of holding one.

  In one complaint, the client was an Alberta municipality. The company was under contract to perform design and construction management services for the rehabilitation of a storm sewer outfall. Before construction began, the company was required to notify Alberta Environment and Sustainable Resource Development (AESRD) about the project and obtain regulatory approvals.

  The company told the client that all that AESRD required was notification and that the company had provided that. Construction began. But AESRD, it turned out, had no record of notification. The company itself had no record of a *Water Act* application or approval, or a Public Lands Temporary Authorization, both of which were also required before construction began.

  In the second complaint, the company was under contract with a developer for civil engineering design services in the construction of a new hotel and restaurant in the same municipality. The company forwarded a document entitled Development Permit to the developer, but it wasn't a valid permit and was apparently a draft. The municipality by then had notified the developer that no development permit had been applied for or granted.

  In both cases, the municipality was the complainant.

  The RDO ordered that details of the matter be published in *The PEG* without names.

  Visit apega.ca to read the full RDO.

- Don Perera, P.Eng., has entered into a voluntary undertaking with APEGA to request the cancellation of his registration as a Professional Member.

  At the time he entered into his voluntary undertaking, Mr. Perera was the subject of two discipline charges under the *Engineering and Geoscience Professions Act* relating to allegations that Mr. Perera had engaged in unprofessional conduct arising from his ownership of a building project. The charges alleged that Mr. Perera failed to engage, seek, or follow geotechnical engineering advice related to that building project.

  By his undertaking, while not admitting to the charges in question, Mr. Perera has agreed to request the cancellation of his registration as a Professional Member of APEGA; that he will not apply for registration or reinstatement with APEGA; and that he will not hold himself out as a Member of APEGA in any manner. In the event that Mr. Perera does not comply with the terms of his undertaking, APEGA has reserved the right to proceed with the prosecution of the two charges through referral to a disciplinary hearing.

  Visit apega.ca to read the voluntary undertaking.

The Power of a GOOD INCENTIVE

His C-Leg prosthesis has been improving people's lives ever since it hit the marketplace in the 1990s. Kelly James, P.Eng., has continued inventing orthotic equipment — although without the federal Scientific Research & Experimental Development Program, he probably would have retired years ago

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

He'd like to retire, but Kelly James, P.Eng., just can't come up with anything that turns off his inventor's switch. Since the arrival of his revolutionary prosthetic leg in the early 1990s — the first to use a computer chip to control a leg's hydraulics — the applied scientist has continued to invent life-changing orthotic equipment for people with physical disabilities.

His first invention, the C-Leg, was funded by medical grants when he was a researcher at the University of Alberta. But since striking out in 2004 to start his own firm, Biomech Engineering Ltd., he's had to bankroll his projects to shift them from the development stage to the marketplace. Fortunately for him, tax credits from the federal Scientific Research & Experimental Development Program (SR&ED) have been there to help him turn ideas into wonderful realities.

"The SR&ED program pays me to use my brain," explains Mr. James, a mechanical engineer. "It's a cheque at the end of the year that I get for developing prototypes of my new ideas."

"If the program wasn't around, I probably wouldn't continue doing this," he says. "But it makes me solidify my engineering tasks, document, and really think about a project."

SR&ED is Canada's largest tax incentive program aimed at encouraging business research and development. Administered by the Canada Revenue Agency (CRA), it provides more than $3 billion in incentives each year to about 20,000 claimants — from small businesses like Biomech Engineering to major corporations.

For many companies, an SR&ED refund is a big part of annual budgets.

"A lot of companies rely on the program to reinvest that money and continue their R&D work," notes Calgary-based Jesus Vela-Estrada, P.Eng., PhD. He's an SR&ED Manager at Grant Thornton, an accounting and business advisory firm that helps companies — including engineering and geoscience firms — navigate the SR&ED claim process.

"In today's business environment, it's important that all applicable incentive plans are accessed to help fund ongoing research and development," says Dr. Vela-Estrada. Still, many companies aren't taking advantage of the program, even though they're eligible. "Some companies may think they're too busy to apply. Others simply don't know about it. There's a large range of reasons why they don't file claims."

The program is structured to favour start-ups and small to medium-sized, Canadian-controlled private corporations (CCPCs) — ones that conduct R&D into new, improved, or technologically advanced products, processes, devices, and materials. Statistics from 2014 show that about 75 per cent of claims were from small to medium-sized CCPCs, Dr. Vela-Estrada says.

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THE SR&ED UMBRELLA

Eligible projects fall under:

- experimental technological advancements to create or improve materials, devices, products, or processes
- applied or basic research to advance scientific knowledge, with or without a specific practical application in view
- qualifying support work such as engineering, design, operations research, mathematical analysis, computer programming, data collection, testing, and psychological research

Non-eligible activities include marketing and sales, routine testing, research in social sciences or humanities, commercial production, style changes, routine data collection, and petroleum or natural gas exploration or drilling.

"It takes quite a bit of due diligence to make sure your project follows the rules. You have to prove you have a technological challenge, a way to overcome the technological challenge, and a way to test the solution."

KELLY JAMES, P.ENG.
Biomech Engineering Ltd.

The work performed isn't necessarily in a lab or on a shop floor. An eligible project may literally be right in front of your eyes, on your computer. A qualifying computer simulation might test new methods to improve the accuracy of results, for example, or perhaps develop processes or techniques that are safer, more economical, and more environmentally friendly than existing ones.

WHAT CAN YOU CLAIM?

Companies are allowed to deduct SR&ED expenditures from their income for tax purposes — things like salaries, contracts, and materials — while the investment tax credit (ITC) can be used to reduce their actual income tax. Amounts depend on the company's ownership and size.

Generally, small CCPCs can claim an ITC of 35 per cent on qualified SR&ED expenditures up to an expenditure limit of $3 million. That amount is reduced if the taxable income is more than $500,000 and taxable capital more than $10 million for the tax year preceding the claim year. The ITC goes down to 15 per cent on qualified expenditures over the expenditure limit. For other corporations, individuals, and trusts, the ITC is 15 per cent of qualified expenditures.

Most provinces add support to the SR&ED program. In Alberta, the government piggybacks on the federal program by providing an additional 10 per cent investment tax credit to corporations, to a maximum of $400,000.

It is complicated, so businesses often hire consultants to help them review, prepare, or manage claims. Mr. James, for example, got help from Grant Thornton because he wanted to make the

process easier and increase the odds of success.

"It could save companies time if they consult with someone who has knowledge of the program. It all depends on their resources and how comfortable they are in applying. Some apply but have been discouraged because the process can be difficult," notes Dr. Vela-Estrada.

Prior to joining Grant Thornton, Dr. Vela-Estrada spent 20 years doing engineering research, often helping prepare SR&ED claims. He also worked for CRA as a research and technology advisor, reviewing SR&ED claims from a technical perspective.

For companies interested in applying for SR&ED tax credits, he has some tips to make the process smoother. To start, he recommends that businesses implement best practices to increase the odds of a successful application, such as:

- appoint a key individual to manage their SR&ED program
- develop a list of hints to identify possible SR&ED in the organization
- create a list of projects with SR&ED potential at the beginning of each fiscal year and continually validate it — especially with someone who has deep knowledge of the program
- create internal mechanisms to capture technical and financial information and records for potential projects
- check with key personnel throughout the year for new projects, the progress of ongoing projects, and record-keeping updates
- instill an SR&ED culture in the organization

It's also important to provide strong supporting evidence for a claim; otherwise, it will likely be rejected. Don't wait until a project is complete to start compiling documentation.

"The key is to recognize SR&ED eligibility at the earliest possible time and have the technical and financial mechanisms in place to track and document it," says Dr. Vela-Estrada. Documentation can include but isn't limited to:

- planning documents
- technical drawings
- project records
- records of trial runs
- progress reports
- project meeting minutes

If a claim is selected for review, the CRA will send a research and technology advisor and financial reviewer to the business for a site visit, and there might be requests for further information.

"It takes quite a bit of due diligence to make sure your project follows the rules," says Mr. James, the Biomech engineer. "You have to prove you have a technological challenge, a way to overcome the technological challenge, and a way to test the solution."

With help from a consultant, he plans to make another claim for his latest technological marvel. It's still under wraps in his workshop, but he will say that it's another mobility device, this time for recreational purposes. "It's something the market hasn't seen yet, and it promises to improve quality of life for people with spinal cord injuries," he says. "It's going to be cool. It might even be a showstopper."

A MIND FOR ORTHOTICS
The Scientific Research & Experimental Development Program has given Kelly James, P.Eng., the incentive — both financial and motivational — to keep turing ideas into practical devices. In the 1990s, he designed the revolutionary C-Leg prosthetic (shown here) while working at the University of Alberta. His latest mobility aid is top secret for now.
-photo by Corinne Lutter

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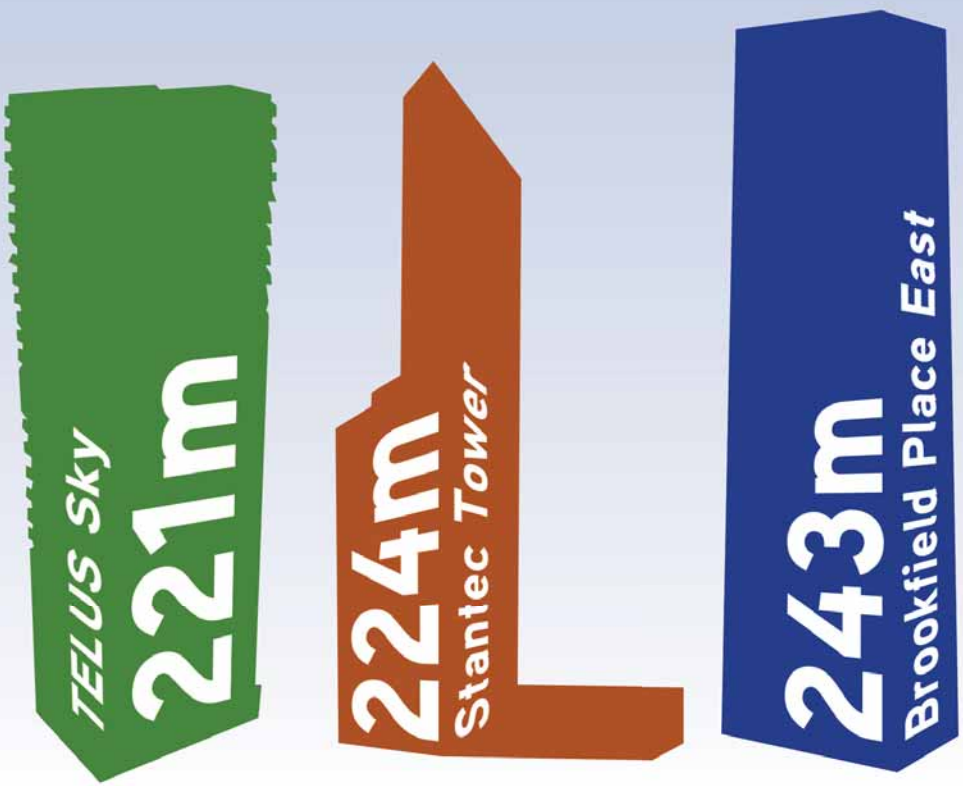


BY **CORINNE LUTTER**
Member & Internal Communications Coordinator

High rises are pushing downtown skylines to new heights in Alberta's two biggest cities.

In Calgary, the 247-metre-tall Brookfield Place East will soon become the city's tallest building. Brookfield will eclipse the Bow, which opened in 2012 and, at 236 metres, is currently the tallest building in Western Canada. Rounding out Calgary's tallest top three will be the new TELUS Sky high rise, coming in at 221 metres.

Edmonton, too, is growing upwards. The closure of the City Centre Airport means height restrictions have been lifted, allowing new developments to soar. Stantec Tower is the first building to reflect the restriction change. At 224 metres, it will be the city's tallest building, shooting past the 149-metre EPCOR Tower, built in 2011, and the 146-metre Manulife Place, built in 1983.

TELUS Sky and Stantec Tower will blend residential space into the office and retail mix, helping generate more commerce and create a greater sense of community in their downtowns.

Calgary — Brookfield Place East

"The building is going to be quite sophisticated looking. It will be quite stunning in its appearance on the skyline."

JAN SUCHARDA
President and CEO
Brookfield Office Properties

Height: 56 storeys, 243 metres

Size: 1.4 million square feet

Cost: $900 million

Location: Downtown Calgary, between First Street and Second Street and Sixth Avenue and Seventh Avenue SW

Status: Under construction

Usage: Office and retail

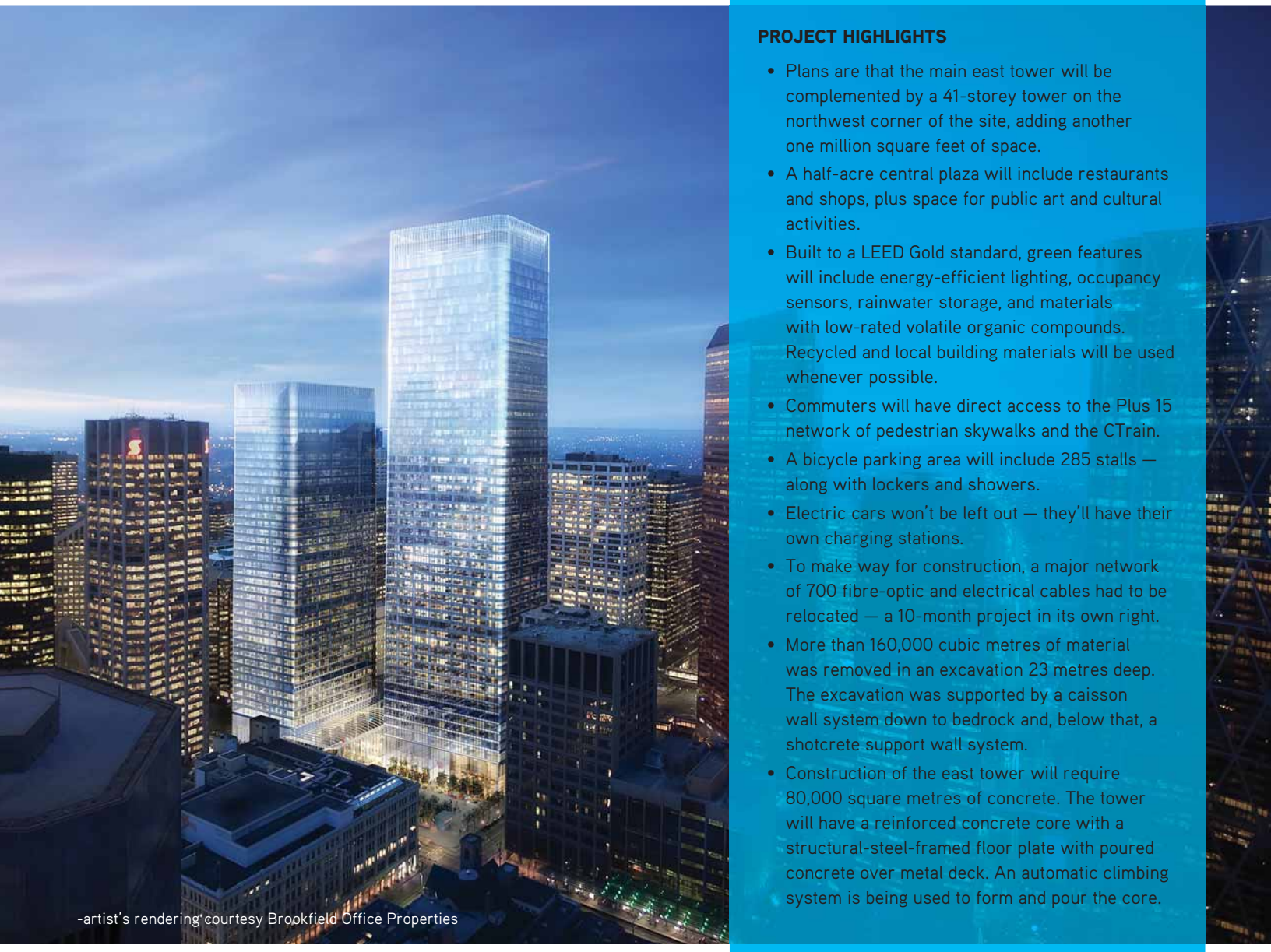
Anchor tenant: Cenovus Energy Inc. will occupy one million square feet

Developer: Brookfield Office Properties

Architects: FKA Architecture & Interiors; DIALOG

Structural engineers: Entuitive Corporation

Completion: Fall 2017



-artist's rendering courtesy Brookfield Office Properties

PROJECT HIGHLIGHTS

- Plans are that the main east tower will be complemented by a 41-storey tower on the northwest corner of the site, adding another one million square feet of space.
- A half-acre central plaza will include restaurants and shops, plus space for public art and cultural activities.
- Built to a LEED Gold standard, green features will include energy-efficient lighting, occupancy sensors, rainwater storage, and materials with low-rated volatile organic compounds. Recycled and local building materials will be used whenever possible.
- Commuters will have direct access to the Plus 15 network of pedestrian skywalks and the CTrain.
- A bicycle parking area will include 285 stalls — along with lockers and showers.
- Electric cars won't be left out — they'll have their own charging stations.
- To make way for construction, a major network of 700 fibre-optic and electrical cables had to be relocated — a 10-month project in its own right.
- More than 160,000 cubic metres of material was removed in an excavation 23 metres deep. The excavation was supported by a caisson wall system down to bedrock and, below that, a shotcrete support wall system.
- Construction of the east tower will require 80,000 square metres of concrete. The tower will have a reinforced concrete core with a structural-steel-framed floor plate with poured concrete over metal deck. An automatic climbing system is being used to form and pour the core.

Calgary — TELUS Sky

Height: 59 storeys, 221 metres

Size: 750,000 square feet

Cost: $440 million

Location: 100th Street and Seventh Avenue SW

Status: Under construction

Usage: Office, retail, and residential

Anchor tenant: TELUS will occupy 155,000 square feet

Developer: Westbank Developments Corp.

Architects: Bjarke Ingles Group and DIALOG

Structural engineers: Glotman Simpson

Completion: Fall 2017

PROJECT HIGHLIGHTS

- This will be Calgary's first building constructed to the current LEED Platinum standard.
- TELUS Sky will use about 35 per cent less energy than similar office environments — resulting in a carbon dioxide cut of more than 395,000 kilograms annually. That's the same as planting 158,000 trees a year. Even so, the goal is to increase the reduction to 80 per cent.
- Triple-pane windows will reduce noise and solar heat gain, and result in smaller energy bills.
- Waste heat from TELUS's data centre will help heat the building and its water.
- A stormwater management system will recycle rain water for toilets and outdoor irrigation.
- Students from Calgary's Royal Conservatory will fill the lobby with music on a handmade, high-end piano.
- A 5,500-square-foot public gallery will exhibit the work of local artists.
- A nine-storey atrium — complete with a soaring green planter wall and a spiral staircase — will connect the lobby to upper floors.
- Commuters who cycle to work will be able to use secured bike parking, showers, and lockers.
- Included are 326 residential units over 29 floors.

-artist's rendering courtesy Westbank Projects Corp.

"Fusing the elements of artistry, technological innovation, and sustainability together under one roof will make this one of the most culturally, socially, and economically impactful buildings in Calgary."

IAN GILLESPIE
President, Westbank Developments Corp.

Edmonton — Stantec Tower

Height: 62 storeys, 224 metres

Size: One million square feet

Cost: $500 million

Location: 102nd Street and 103rd Avenue

Status: Under construction

Usage: Office, retail, and residential

Anchor tenant: Stantec will occupy 450,000 square feet

Developer: Katz Group and WAM Development Group

Architects: Stantec

Structural engineers: Stantec

Completion: Summer 2018

PROJECT HIGHLIGHTS

- Soon to be Edmonton's tallest building, Stantec Tower is part of a $2.5-billion mega-development. Ice District, as the area is now named, will include the new Rogers Place arena, other office and residential towers, and a major hotel.
- The building's height could still grow. The developer says it may still add what is calls an "iconic cap" to the top, and two more office floors.
- Stantec will consolidate the workplaces of more than 1,700 Edmonton employees in the tower.
- At street level, the lobby will open onto a 50,000-square-foot public plaza for activities and events.
- The top of the tower will be lit in colours that change to match special occasions.
- The tower's energy efficient design is targeting LEED Gold certification. Stantec notes that its design team "is working to combine the structure and light to transmit the energy of the vibrant plaza upwards, creating a distinctive landmark for Edmonton's skyline."
- Included are 320 residential units over 33 floors

-artist's rendering courtesy Stantec

"This new building will revolutionize the downtown landscape in Edmonton and will set expectations for future buildings in the city."

DARREN DURSTLING
President and CEO
WAM Development Group

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The work will be created and built over the course of a year by an interdisciplinary team, which must include at least one professional engineer.

The annual program will start and end with a week in residence at The Banff Centre for project development and refinement. The successful team will be supported with access to workshop facilities in Calgary over the winter.

The Banff Centre
inspiring creativity

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Beakerhead.com/programs/big-bang-residency-program/

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North American premiere of Net Blow-Up by Numen/For Use.
Photo: Neil Zeller Photography

The Energy of Children

With the help of APEGA professionals, a project at a Calgary charter school is helping build a more sustainable tomorrow. Students learn about the social, economic, and environmental challenges in energy choices — and they're already changing their school and neighbourhood. Just imagine what they will accomplish as adults

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

It's not every day that Grade 4 students get to talk to a provincial cabinet minister about weighty topics like energy policy and climate change. But that's what happened earlier this year when a minister dropped by to chat with a group of nine- and 10-year-olds at Westmount Charter School in northwest Calgary.

"There were some pretty hard-hitting questions aimed at him, too," recalls Christine Avey, a teacher at the school for gifted children.

The cabinet member was one of 17 energy experts from 24 industry and government organizations who visited Westmount last school year to help students better understand the complexities and challenges of energy sustainability. It was all part of a novel project, People for Energy and Environmental Literacy (PEEL), which gives students a broad perspective on the social, economic, and environmental ramifications of society's energy choices.

Professional Engineers and Professional Geoscientists were represented in the presenter lineup, among them parent volunteer Paula McGarrigle, P.Eng. Her daughter, Ailish Olien, was one of the children in Ms. Avey's class.

Together, Ms. McGarrigle and Ms. Avey came up with the concept for PEEL. Their focus was sustainability — but their lesson plan went well beyond the basic reduce, reuse, and recycle model often taught in elementary schools. Besides teaching students about the impacts of climate change and the role of government in setting energy policy, presenters helped students explore topics like renewable and conventional energy, water and energy conservation, and sustainable design. Hands-on activities taught them how to read their home utility bills, how to figure out their carbon footprints, how carbon capture and storage technology works, and more.

From knowledge came action, with students making positive environmental changes at their school, in their homes, and in the community.

"Energy and sustainability are complex topics, but they represent critical challenges for this generation," says Ms. McGarrigle, a renewable energy consultant with Solas Energy. "It's important to have that dialogue with students, so that they're literate and fluent in the language and can be part of the conversation. Climate change is probably the single largest issue that they will have to combat in their lifetimes."

Working with the students over several months, she was overwhelmed by their interest and passion. "I know that for a lot of adults, this stuff is really boring or too complicated, and they tune out. But the kids were just absorbing everything," says Ms. McGarrigle.

Ms. Avey agrees. "There were times you could hear a pin drop, the kids were so enthralled by the presentations." That's in a room of about 40 students from two Grade 4 classes at Westmount. Students from teacher Cayley Webber's class also took part.

Many of the students were intrigued to learn about renewable energy technology like solar panels and wind turbines. "I'm excited, because there are businesses and companies that do use clean and renewable energy," says one of them, Arianna Hu. "It just needs to be built on, to make a better community, a world full of clean energy. It makes me think that anything is possible in this modern world, and we can use that to save the environment."

Adds classmate Ben Gibson: "I think people should have hope, because there is remarkable technology that can make an advance in the future and help us change the current reality of energy usage in Alberta."

FUTURE ENERGY
A tour of TransAlta's Summerview Wind Farm near Pincher Creek in southern Alberta gives this student of Westmount Charter School — and others — a face-to-turbine experience. Students got to go inside a turbine to see how it tracks the wind and learn about how much energy it produces.
-photo by Cayley Webber

CATCH SOME RAYS — CATCH SOME RAIN

Tim Weis, P.Eng., PhD, formerly with the Canadian Wind Energy Association, visited Westmount to help students better understand wind turbine technology. He taught them about the components of wind turbines, explained how they're built and why they're so big, and talked about the benefits and challenges of wind power. Students also got to assemble a model turbine and take it outside, seeing firsthand how wind creates power.

"I wanted to let the students know that there will be real job options for them in renewable energy when they're grown up and that there is a lot of hope in clean energy, to counterbalance some of the negative things we hear about in the news or even at school, particularly about fossil fuels," says Dr. Weis.

Dave Kelly, P.Eng., the CEO of Skyfire Energy CEO, brought solar panels to the school so students could see how they work. He started off his presentation by asking students what electricity is — and was impressed by the answers,

"One kid put up his hand and started talking about nucleus and valence electrons," he says with a laugh. "It was rewarding to see the enthusiasm, intelligence, and thoughtfulness of this Grade 4 class."

Mr. Kelly's presentation covered Alberta's microgeneration policy and how the solar export market works. The entrepreneur also let students know that the solar radiation falling on the province is actually Alberta's largest known energy reserve. "I wanted them to learn that it's possible in Alberta for solar to be part of the energy mix — to help them think about where their energy comes from, and think about ways they can reduce their energy use."

Other presenters explained geothermal energy and hydropower to the students — expected topics in any conversation about energy and sustainability. Less discussed, perhaps, is what Dean Jones, P.Geoph., had to say.

Mr. Jones, Principal Investigator, Architectural Ecology, with SAIT Polytechnic's Green Building Technology Access Centre, spoke about rainwater collection systems. He had students build their own rainwater harvesting systems for miniature model homes, using straws, plastic cups of various sizes, and other small parts. "Then we came around with jugs of water, acting as the thunderstorms, and poured water on the tops of their houses to see how much water they could collect in their systems," says Mr. Jones.

He also taught them about green roofs and other ecological ways to bring nature back into built environments. "It was a great opportunity to connect with children — our future. It's great to expose them to progressive topics, which they may end up applying in their lives."

CREATE A PLAN, DEFEND A PLAN

As part of the climate change lessons taught by Ms. McGarrigle, students played the Stabilization Wedges Game — modified for Alberta and a Grade 4 context. The game is a product of the Carbon Mitigation Initiative of Princeton University. Working in groups, students were tasked with creating and defending 35-year climate change action plans. They were given 13 options for reducing greenhouse gas emissions but could choose only six per plan.

"The kids had to explain why they choose their strategies and how

stakeholders would respond to the policies and plans they put together," says Ms. McGarrigle. Each wedge represented an emission reduction of 20 megatonnes of greenhouse gases, for a total reduction of 120 megatonnes. This would keep Alberta's greenhouse gas emissions at a constant level. "It was fascinating to hear the dialogue of each of the groups as they argued why one strategy should be chosen over another, and how they came to a consensus," she says.

Once the initial, educational phase of the PEEL project wrapped up, students were encouraged to use what they had learned to effect change at school, in their homes, and in their communities. "They learned that what they do has an impact, and that they have a choice to do something," says Ms. McGarrigle.

ENERGY AUDITORS ON THE PROWL

To start, students put on their energy detective hats and conducted an energy audit of their school. Some of their findings: lights left on in empty rooms, monitors left on overnight, projectors plugged in and using phantom power. They also looked for other wasteful situations, like leaking taps in bathrooms.

On Earth Day, the initial audit now complete, students launched Turn It Off, a movement to encourage fellow students to be more energy aware. A follow-up audit found considerable improvement. And although they weren't asked to, students started encouraging their parents to make changes in their lives — by switching to energy-efficient light bulbs, for example, and shutting off their cars instead of letting them idle.

For the last phase of PEEL, students celebrated what they learned with the community. An eco-fair in June featured organic food trucks, demonstrations, and displays of student projects.

"These kids now have a literacy and understanding of energy and sustainability. They have an entry-point to tackle this incredibly complex topic. They can enter the conversation," says Ms. Avey. "They are going to be the policymakers of the future, and they realize now the power they have to make an impact."

PEEL has already expanded to other grades at Westmount, and plans are afoot to spread it further. PEEL's founders have talked with Green Learning Canada — which provides classroom teaching tools — about how to make the programming available to other Canadian schools. PEEL supporters would also like to see concepts from the project incorporated into the Alberta school curriculum.

"More and more schools are starting to look at sustainability as a key aspect that we need to equip our students with. If you reach them in Grade 4, they can start to understand these concepts and build off of them," notes Ms. McGarrigle.

PROFESSIONAL CONTRIBUTION APPRECIATED

As a teacher, Ms. Avey is thankful for the support of the APEGA Members who visited her classroom. They shared specialized content that goes beyond what teachers normally know. "I would love it if more professionals shared their knowledge."

PEEL's success has also been recognized by the Alberta Emerald Foundation, which annually awards outstanding environmental achievements. PEEL was a finalist in the education category, this year.

"Westmount Charter School engaged their students through the PEEL program and was able to present impressive and inspiring results," says Emerald Foundation spokesman Gregory Caswell. "Our finalists and recipients are often selected for their ability to encourage others to follow in their footsteps. The PEEL program is adaptable to other schools, and as such, will have a positive impact on our youth and the well-being of our environment."

Positive impact indeed. Take it from the students themselves.

"I thought it was just like a perfect world before I took this class. And now I know that we're doing a lot of bad stuff in the world, and we need to change our actions," notes Rachael King.

Adds Alison Roslinski: "We are the next generation. If we don't learn, we can't improve. So the first step is learning."

Inspiring Tomorrow's Innovators — Today

Do you remember what triggered your decision to become an engineer or geoscientist? Maybe your journey began with a passion for the outdoors that blossomed into a love of all things rock and Earth. Perhaps tinkering with a computer unleased a fascination with electrical and software engineering. Or did the rumble of an engine or the beauty of a great solution always bring a smile to your face?

The difference between a good vocation and a great one is passion. It's with this in mind that APEGA Outreach has renewed its focus and vision. We're improving the way we connect students across Alberta with exciting careers — ones that are personally rewarding and have local and global impact.

Research shows that for today's students, making a difference is more important than a prestigious title or even a large paycheque. Students seek careers in fulfilling fields they can be passionate about.

Many APEGA Members can confirm that making a difference is common in Professional Engineering and Professional Geoscience. Opportunities to improve lives are virtually endless. Students will build a better future for themselves and others when they combine a desire for change with the skills and abilities of engineers and geoscientists, and employ the power of collaboration in diverse teams.

That's why APEGA has begun championing a message of innovation, creativity, and diversity in our outreach initiatives.

THE DISCOVERY PROCESS

Playing video games with friends around the world. Sharing selfies instantly. Using a composite hockey stick for a harder slapshot. In these and thousands of other ways, students' lives are influenced and enriched by the APEGA professions.

After we explain that Professional Engineers helped design Calgary's iconic Peace Bridge or create the technology to stream songs wirelessly to smartphones, we always get a reaction like this: "Whoa, cool! I had no idea!"

These reactions force us to look at what we do. Why didn't students have an idea? Are there better ways to create awareness of this exciting world?

We believe that there are many students out there who are passionate about the fields of engineering and geoscience. Some of them just haven't realized it yet.

A recent study from Let's Talk Science, a national charitable organization dedicated to youth development, revealed that 72 per cent of Canadian teenagers surveyed think that science is fun. Yet only 22 per cent expressed a strong interest in pursuing science at a post-secondary level.

Students are already excited about science, technology, engineering, and math. Our job is to highlight the opportunities available to them after they graduate from high school, along with how they can turn their interests and hobbies into careers.

For those students in post-secondary schools already, we need to remind them that being a successful Professional Engineer or Professional Geoscientist doesn't just mean getting good grades. It also means:

- building a better future for everyone
- contributing to their communities
- furthering the professions

CREATIVITY AND INNOVATION

Professional Members often point out that there is rarely just one way to meet a challenge. Exploring options and considering a variety of perspectives in a collaborative environment is critical to creating something memorable and exciting. And as fulfilling as success is, the journey is equally so.

APEGA Outreach is structuring events and initiatives around this concept of collaboration and creativity, knowing that the best engineers and geoscientists will not be those who immediately have what they believe are the right answers. Rather, the best engineers and geoscientists will be those with the skills, abilities, and mindsets to work collaboratively.

What do these words and terms have in common?
They didn't exist 20 years ago — and engineering played a role in creating them.

- Internet
- Google
- Podcast
- Hashtag
- Tweet
- 3D Printing
- Self-driving car
- Touch screen
- WiFi
- Smartphone
- App
- GPS
- Selfie

Students participating in APEGA Outreach are learning that innovation is a mentality. Regardless of the project, we pair students with mentors who will teach them how to succeed and work in teams. By tackling challenges alongside female and male Professional Engineers and Professional Geoscientists, students learn firsthand how they, like their mentors, can have an impact in the APEGA professions.

The freedom to experiment and potentially fail is critical. APEGA Outreach teams up with professionals to guide and mentor students, but ultimately our goal is not to give right and wrong answers. Rather, we want to unearth passions for:

- engineering and geoscience
- the process of discovery
- turning ideas into useful things that improve lives

PUTTING IT ALL INTO PRACTICE

APEGA's new approach to outreach will be reflected in changes that Members, educators, and students see in the 2016 APEGA Science Olympics. APEGA prides itself on providing a fun yet challenging atmosphere for students in grades 1 to 12 to put their skills to the test while learning to work as a team. Some changes were already incorporated in 2015, so the reputation of the APEGA Science Olympics for spurring students towards creative thinking will only grow.

Significant changes are being made to the way the science olympics will be judged in 2016. In the past, there have been two factors that determine the final ranking of a team: its ability and the ability of the other teams. If a team wanted to win gold, its members would need to create not only an incredible project but also one that was better than all the rest.

Certainly, competition will be a big part of their futures. But at this stage, we think there's a better message to send students. We don't want our outreach participants fearing that they'll be overshadowed. We want them to focus on developing the best projects they possibly can — while also being able to appreciate

MEDALS AND SUCCESS
This array of APEGA Science Olympics medals symbolizes success. Starting next year, the medals will be awarded in a threshold-based system.

the ingenuity of the other projects on display from schools throughout their regions.

Here's how it will work. In 2016, we will be implementing a new, threshold-based system of determining gold, silver, and bronze achievement. Similar to the grading that takes place in most schools, students who achieve a certain score or higher will receive gold medals. Lower ranges will apply for silver and bronze medals.

We're also building mentorship into the APEGA Science Olympics. In years past, each team of five students would be monitored by a sponsoring teacher at their school. Outside help for take-home projects was discouraged, however, at the risk of creating unfair advantages. This was helpful in ensuring a fair, competitive environment, but it wasn't helpful in:

- teaching students about using the knowledge of others to expand their own
- developing and testing a hypothesis
- giving students exposure to the processes professionals go through when tackling challenges

In 2016, APEGA is going to open the door for Science Olympics teams to work with engineering or geoscience mentors on their take-home projects. This will allow students to ask questions and better understand how to tackle the challenges in front of them. Mentors won't be there to complete projects for students but to guide them as they wrestle with the different ways to approach an issue, working together as a team and taking advantage of the unique perspective everybody brings to the table.

APEGA is employing a similar strategy in post-secondary outreach. In the past, we have organized events for students that promote networking, soft skills building, and more. This year, APEGA has assembled teams of enthusiastic undergrads and graduates to work together. These participants will work collaboratively to develop programs and organize outreach initiatives that benefit students and get them engaged with the professions.

In the same spirit as the APEGA Science Olympics, we're using teamwork to create practical events that help students transition into the workforce.

THE FUTURE IS BRIGHT

The APEGA Science Olympics and student liaison groups are only part of the work APEGA does every year to promote engineering and geoscience to students across Alberta. Over the past decade, APEGA Outreach has connected with hundreds of thousands of students all over the province. But our work isn't done.

Many of the challenges our country and world will face in the next 20 to 50 years are ones that can only be taken on by creative, intelligent men and women with the right skills and innovative mindsets. Some of those individuals are in elementary, junior high, or senior high school right now. They'll be building a better future in a decade or two, and we want to make sure they know that.

APEGA's Benefits Focus on Enriching the Member Experience

APEGA strives to keep our portfolio of benefits valuable and appropriate. With that in mind, our offerings recently underwent an extensive review and evaluation. We did this to determine which existing and potential benefits add value to the lives of APEGA Members.

Discounts are great. But we wanted to make sure that we're offering benefits that Members actually need. Also, quality of benefits matters more than quantity, so you'll notice that there are fewer providers than there used to be.

The motto of the Member Services Group, which administers the benefits program, is: Enriching the Member Experience. We want to do that for the professional and personal sides of Members' lives, so those are the criteria we're using to select the benefits we offer.

Here's an example. Large Permit Holders that employ APEGA Members often carry weight in negotiating their own discounts. They also offer in-house services and benefits to their employees. Small and medium-sized businesses don't have the same strengths in employee numbers and budgets. For this reason, APEGA has made it a priority to find benefits that specifically strengthen and provide advantages to small and medium-sized enterprises.

The result is that APEGA Members can now receive five to 15 per cent off of printing and document management services in Alberta. Discounts are also available on corporate training seminars, diversity and inclusion consulting, and more.

We know that a strengthened and supported membership means a better quality of life for APEGA Members and, ultimately, a strengthened Alberta economy. APEGA is dedicated to empowering our Members by providing them with benefits of great value.

HOW ARE WE DOING?

Reviewing and evaluation are not a one-off process. We are committed to consistently ensuring our providers offer real value.

We welcome your feedback on our list of providers. If you want to review them, logos and brief descriptions of what they offer appear on the opposite page.

We would also like to hear about your experiences — good and bad — with our providers, to help us ensure that they're delivering the quality that you expect and deserve and that we aim for. Email us at memberbenefits@apega.ca with your questions and feedback.

AN ARROW ON WHEELS
APEGA bases its selection of Member benefits on professional and personal value. A provider that meets the criteria is this one — Red Arrow, which offers comfortable and convenient travel on a number of Alberta routes.

HOW TO ACCESS BENEFITS

Information on all Member benefits and how to redeem them can now be found in the Member Self-Service Centre, accessible from the homepage of apega.ca. Within the Member Self-Service Centre you'll also find information provided by the providers themselves.

You can also email memberbenefits@apega.ca with your inquiry and Member number, or you can call us at 1-800-661-7020.

MEMBER BENEFITS

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

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

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

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IN MEMORIAM

The Association received notice of the deaths of the following Members between May 1 and July 31, 2015.

Life Members

BAHAN, Alfred Nick, P.Geol.
BORROUGHS, Gordon H., P.Eng.
CALDWELL, Charles Keith, P.Geol.
CAMPBELL, Alan Denton, P.Eng.
COOK, Eugene Thompson, P.Eng.
DEWAR, Donald Johnston, P.Eng.
DEWIS, Marshall Woodworth, P.Eng.
DIETRICH, John Joseph, P.Eng.
GHOSH, Nirmal Gopal, P.Eng.
JARRETT, Bertram Benjamin, P.Geol.
KISS, Andrew I., P.Eng.
MADGE, Donald, P.Eng.
MAYNE, Robert Earle, P.Eng.
MCKENZIE, Bruce Gordon, P.Eng.
MORRIS, Richard L., P.Eng.
MURRAY, James Frederick Ian, P.Eng.
ROBERTSON, Gordon Arthur, P.Geol.
SCOTT, John David, P.Eng.
SERRA, John William, P.Eng.
SHARP, Kenneth George, P.Eng.
SPINNEY, Alden Clarke, P.Eng.
WALL, John Hallett, P.Geol.
WILKIE, Kenneth Grosvenor, P.Geol.

Professional Members

BHATTI, Khalid M, P.Geol.
BILOUS, Dean Michael, P.Geol.
CHOMYC, Ronald Lawrence, P.Eng.
DAY, Robert Leonard, P.Eng.
KAMINSKI, Stan, P.Eng.
KAZOLEAS, Christopher Vernon, P.Eng.
MACZALA, Helen, P.Eng.
MAH, Donald J., P.Eng.
MAHONEY, Roger John, P.Geoph.
NEWBERT, Judith Diane, P.Eng.
NUTTALL, Norman James, P.Eng.
PROPP, Murray Edward, P.Eng.
SEHTI, Manboad, P.Eng.
WALL, James Stephen, P.Eng.
YAN, Wei, P.Eng.

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TRAINING 2015

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Codes and Standards Training Institute (CASTI) is recognized as an approved educational institute for providing the required knowledge for qualification of Welding Engineers under CSA W47.1 clause 6.4.3.

Along with professional and experience requirements, each welding engineer shall also demonstrate knowledge of the fundamental properties of steel, welding fundamentals, welding metallurgy, welding procedures and practice, and welding codes and standards.

The above knowledge may be demonstrated by completing both CASTI courses listed below and receive a minimum mark of 70% on each final exam. These courses are approved by the Canadian Welding Bureau to satisfy the knowledge requirements of a CSA W47.1 Welding Engineer.

1. CASTI's Welding Fundamentals course; and

2. CASTI's ASME Section IX - Welding Codes and Metallurgy for Carbon/Alloy Steels course

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Welding Fundamentals *For Engineers, Inspectors, and Experienced Tradesman* **Covers Alberta Welding Examiner Paper 1 & 3 and CSA W47.1**	September 8-11 Edmonton
CSA Z662 Sour Service *Introduction to Oilfield Steam Distribution in Pipelines*	September 17-18 Calgary
API 570 *Piping Inspector Exam Preparation for October 2015* **Exam application deadline is August 21, 2015**	September 21-26 Edmonton
API 650 *Welded Tanks for Oil Storage* **Limited Seating - Early Registration Recommended**	September 29-October 2 Edmonton
API 653 *Aboveground Storage Tank Inspector Exam Preparation* **Exam application deadline is September 11, 2015**	October 5-10 Edmonton
ASME Section VIII, Division 1 *Code Design Requirements*	October 13-16 Calgary
ASME B31.3 *Introduction to Process Piping Design and Canadian Regulations* **Limited Seats Remaining - Early Registration Recommended**	October 27-30 Calgary
ASME B31.3 *Materials, Fabrication, Inspection, and Testing Requirements*	October 27-30 Edmonton
API RP 571 *Damage Mechanisms of Fixed Equipment in Refining* **Optional Exam Preparation for August 2015**	November 3-6 Calgary
CSA W178.2 Level 2 *Exam Preparation including 2 Code Exam* **Approved for Shorten Welding Inspection Exam**	November 9-14 Edmonton
ASME Section IX *Welding Codes and Metallurgy for Carbon/Alloy Steels* **Covers Alberta Welding Examiner Paper 2 & 4 and CSA W47.1**	November 24-27 Calgary
API 510 *Pressure Vessel Inspector Exam Preparation for January 2016* **Exam application deadline is November 20, 2015**	December 7-12 Edmonton
API 579-1/ASME FFS-1 *Fitness-For-Service*	January 5-8, 2016 Edmonton
API 570 *Piping Inspector Exam Preparation for February 2016* **Exam application deadline is December 18, 2015**	January 11-16, 2016 Edmonton

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