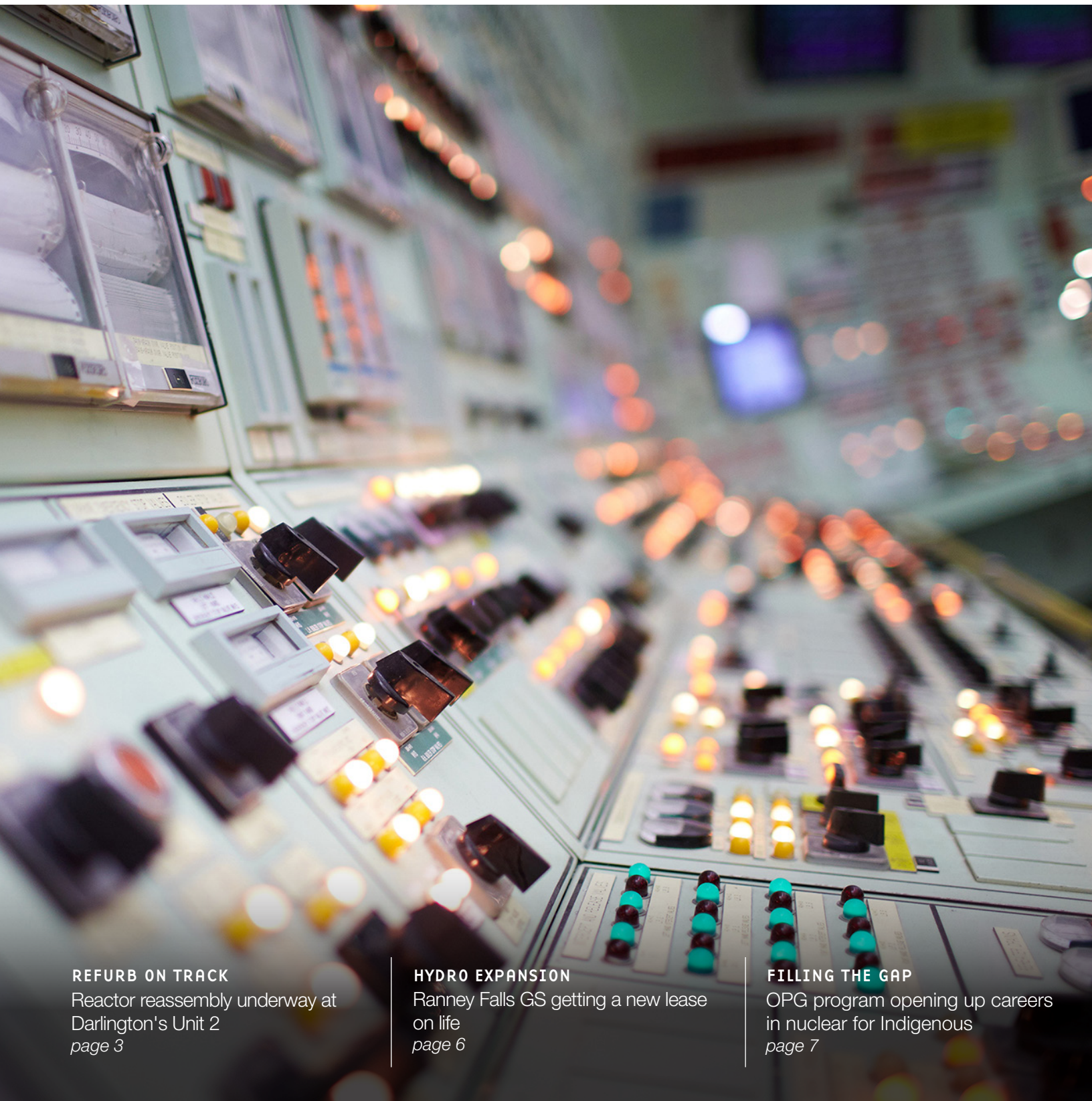


POWER NEWS

FALL 2018

Connecting the people who power Ontario



REFURB ON TRACK

Reactor reassembly underway at
Darlington's Unit 2
page 3

HYDRO EXPANSION

Ranney Falls GS getting a new lease
on life
page 6

FILLING THE GAP

OPG program opening up careers
in nuclear for Indigenous
page 7



IN THIS ISSUE

REBUILD OF DARLINGTON'S UNIT 2 NOW UNDERWAY

page 3

OUR PEOPLE: KARISSA PALINKA

page 4

**OPG, NYPA CELEBRATE 60-YEAR
CLEAN POWER PARTNERSHIP**

page 5

**RANNEY FALLS GS A FLURRY OF ACTIVITY AS EXPANSION WORK
CONTINUES**

page 6

ION HELPS INDIGENOUS PEOPLE BUILD A CAREER IN NUCLEAR

page 7

YOUTH CREATE POWER AT ELEPHANT THOUGHTS SCIENCE CAMP

page 8

FUTURE DOG GUIDE PUPPY LEARNING ON THE JOB AT OPG

page 9

PIPING PLOVERS FLAPPING BACK TO LIFE

page 10

**OPG REPORTS Q2 RESULTS, ENTERS AGREEMENT TO ACQUIRE
EAGLE CREEK**

page 11

Mailing Address :

Ontario Power Generation
700 University Avenue, H19
Toronto, ON M5G 1X6

Email :

powernews@opg.com

Website :

www.opg.com

*On The Cover: A view of the control room simulator at
Pickering Nuclear Generating Station*



CALANDRIA TUBES ARE INSPECTED AT THE DARLINGTON ENERGY COMPLEX

REBUILD OF DARLINGTON'S UNIT 2 NOW UNDERWAY

The reassembly of the Unit 2 reactor at Darlington Nuclear Generating Station (GS) is now underway nearly two years after OPG and its project partners began the Darlington Refurbishment.

"We're now past the half-way mark on our Unit 2 refurbishment schedule," said Dietmar Reiner, OPG's Senior Vice President of Nuclear Projects. "We've completed all the work necessary to take the reactor apart and have started rebuilding it with new and refurbished components, all of which are being cleaned and inspected prior to installation."

Staff are now busy installing 480 new calandria tubes, which provide passage through the reactor's tank, or calandria vessel, for the fuel channel assemblies. The project team is also refurbishing the steam turbines, which turn the generator to make electricity. For the first time in Darlington's history, the turbine blades were removed and inspected then carefully hoisted back into place.

While refurbishment on Unit 2 progresses, planning is underway for Unit 3, the next unit to be overhauled. Canada's largest clean energy project remains on schedule and on budget.

To educate the public on the project's progress, OPG will hold an Open House at the Darlington Energy Complex, located at 1855 Energy Drive in Courtice, Ont., on Saturday, Oct. 27, from 10 a.m. to 4 p.m. Visitors will have the opportunity to learn more about the refurbishment and meet the skilled professionals behind the project.

PICKERING TO OPERATE UNTIL 2024

In August, the Canadian Nuclear Safety Commission granted OPG a 10-year licence for Pickering Nuclear GS, which will allow the station to operate until the end of 2024, followed by safe storage activities, such as removal of fuel and water. "This decision affirms Pickering's importance as a provider of clean, low-cost and reliable baseload power for the province," said Jeff Lyash, OPG President and CEO. Operating Pickering to 2024 will reduce greenhouse gas emissions by about 17 million tonnes and provide jobs for about 7,500 people.

OUR PEOPLE: KARISSA PALINKA

Karissa Palinka knew she wanted to do something technical and hands-on with her life, but she also wanted to hold true to her values.

From an environmental standpoint, she wasn't interested in the other energy companies recruiting heavily at her Queen's University campus two years ago. Then she found out about OPG and nuclear energy, and it seemed to be the perfect fit.

"I wanted to do something that wasn't so destructive to the environment," said Palinka, who graduated with a degree in chemical engineering at Queen's. "I could really support clean energy and I liked nuclear because it's quite technical. So I applied to OPG's training program and I've been happy ever since."

At an engineering career fair at her university, Palinka signed up for OPG's graduate engineering trainee program and was accepted in 2016. It was her first full-time job out of school.

She soon embarked on a journey that included classroom instruction and a rotation through positions at OPG's Pickering and Darlington nuclear stations. For the past two years, she has also been taking courses at the University of Ontario Institute of Technology, working toward a diploma in nuclear technology.

Palinka now works as an environmental qualification specialist at Pickering Nuclear GS. In her job, Palinka ensures equipment that serves a safety function is being maintained and replaced at regular intervals.

Despite having a non-nuclear educational background, the young professional says she has adapted quickly thanks to OPG's training program. Outside of her job, Palinka advocates for nuclear power and encourages other young women to enter the industry through her role as a chair on the Durham chapter of the North American Young Generation in Nuclear.

"I've really learned a lot both about the science behind the process and the scale of the industrial application," she said. "As an engineer who loves science it's really exciting and stimulating work."



KARISSA PALINKA

EMPLOYEE SPOTLIGHT KARISSA PALINKA

POSITION:

Environmental Qualification Specialist

WORK LOCATION:

Pickering Nuclear GS

YEARS OF SERVICE: Two

FAVOURITE PLACE TO VISIT IN ONTARIO:

Kingston

FAVOURITE BOOK:

Les Misérables by Victor Hugo

FAVOURITE WEEKEND ACTIVITY:

Travelling, trying new recipes, cycling and running

OPG, NYPA CELEBRATE 60-YEAR CLEAN POWER PARTNERSHIP

On the sprawling Moses-Saunders Power Dam, representatives from OPG and the New York Power Authority (NYPA) came together to officially celebrate the shared hydroelectric generating facility's 60th anniversary.

The commemoration of the decades-long partnership between OPG and NYPA took place Aug. 24 in front of the marble International Friendship Monument located at the centre of the one-kilometre-long dam, which straddles the border between Canada and the U.S. on the St. Lawrence River.

"For decades, we have worked with our U.S. counterpart to generate clean power from the St. Lawrence River in a safe and environmentally conscious manner," said Jeff Lyash, OPG President and CEO. "Our continued cooperation on this river is a testament to the trust and friendship that is shared between OPG and NYPA."

The unique partnership goes back to 1954 when construction on the St. Lawrence Power Project commenced. The 1,045-megawatt (MW) R.H. Saunders Generating Station (GS) in Cornwall on the Canadian side and the 912 MW Franklin D. Roosevelt Power Project in Massena, NY, cost \$600 million to build. These costs were jointly shared by OPG's predecessor, the Hydro-Electric Power Commission of Ontario, and NYPA.

On July 1, 1958, the 16-unit R.H. Saunders GS opened for business with the push of a button and the explosion of a cofferdam four kilometres upstream of the powerhouse. A year later, on June 27, 1959, the International Friendship Monument was unveiled in a ceremony attended by Queen Elizabeth and Prince Philip from the Canadian side and Vice President Richard Nixon from the U.S. side.

Since the dam went into service, OPG and NYPA have worked closely under a Joint Works Agreement to share the water, maintenance practices, safety experiences, and common operational costs and duties, all while producing power independently at two separate generating stations.

During the celebration on Aug. 24, OPG and NYPA re-signed the Joint Works Agreement to secure 15 more years of cross-border collaboration. The continued partnership will ensure future generations of Ontarians will benefit from low-cost, clean and renewable hydroelectric power.

"I feel a special bond, a special connection, because it's really one plant. There is no air gap between their plant and our plant," said Gil Quiniones, NYPA President and CEO. "That is the kind of relationship we have with OPG. It's something that I instantly feel when I go and meet our friends at OPG."



R.H. SAUNDERS GS CELEBRATES 60 YEARS OF CLEAN POWER



A VIEW OF THE CONSTRUCTION AT RANNEY FALLS GS

RANNEY FALLS GS A FLURRY OF ACTIVITY AS EXPANSION WORK CONTINUES

OPG's Ranney Falls Generating Station (GS) is getting a new lease on life and it's hard not to notice.

Peering down from the nearby Ranney Gorge Suspension Bridge, eager onlookers recently watched the flurry of activity taking place as OPG's latest hydro rebuild takes shape.

OPG is replacing the station's G3 unit – a defunct 0.8 megawatt (MW) unit from 1926 affectionately known as "The Pup" – to improve the available hydroelectric potential at site. The unit will be housed in a new powerhouse and the total station capacity will double from 10 to 20 MW. That will generate enough electricity to supply up to 10,000 more homes with clean, renewable power.

The new powerhouse will sit adjacent to the existing main powerhouse building, which houses the two original 4.8 MW units that were commissioned in 1922 and are still going strong. The station is nestled along the Trent River just south of Campbellford.

Diggers, cranes, and cement trucks are currently hard at work as critical components like the powerhouse and tailrace expansion near completion 30 metres underground. The project also includes an expanded forebay to accommodate the power the station will generate,

and the construction of a 170 cubic metres per second spillway tunnel.

Construction began in March 2017 but it's been years in the making to ensure the surrounding environment, which includes a seniors' residence and endangered northern map turtles, is properly cared for.

"It's a massive project and a long-term collaborative undertaking with community stakeholders," said Project Manager Iskander Boulos. "We're grateful to have such cooperative relationships – whether it's OPG employees, the contractors, Parks Canada or senior residents...we're all one team working together."

Installation of the new station equipment, which is undergoing final testing and inspection, will begin this fall. The G3 unit is scheduled to be in service in December 2019.

The "Pup" will remain standing as an homage to its historic role in the community, and the new powerhouse will have the same rose-coloured exterior as the existing powerhouse for Units 1 and 2.

"We want to maintain the heritage of these buildings and the aesthetic feel of the community," said Boulos. "This approach allows us to preserve the past while building for the future."

ION HELPS INDIGENOUS PEOPLE BUILD A CAREER IN NUCLEAR

Ben Shaughnessy heard about the need for skilled tradespeople in the nuclear industry and knew he couldn't pass up the opportunity.

The millwright apprentice from Curve Lake First Nation is now working on the Darlington Refurbishment project after being contracted by OPG through the company's new Indigenous Opportunities in Nuclear (ION) program.

The ION program works with Kagita Mikam, an Indigenous employment and training agency, to recruit and place skilled and qualified members from Indigenous communities across Ontario in jobs within the fast-growing nuclear industry, including at OPG, union halls and vendor partner organizations. Funding for the program is provided by the Electrical Power Systems Construction Association.

"Deciding to work in nuclear was a big step for me," said Shaughnessy, who applied after his dad informed him about the ION program. "There's a lot to learn, and it was a little intimidating at first. But now, after learning about nuclear and how seriously safety is taken on site, I'm really comfortable. The plant's a great place to work."

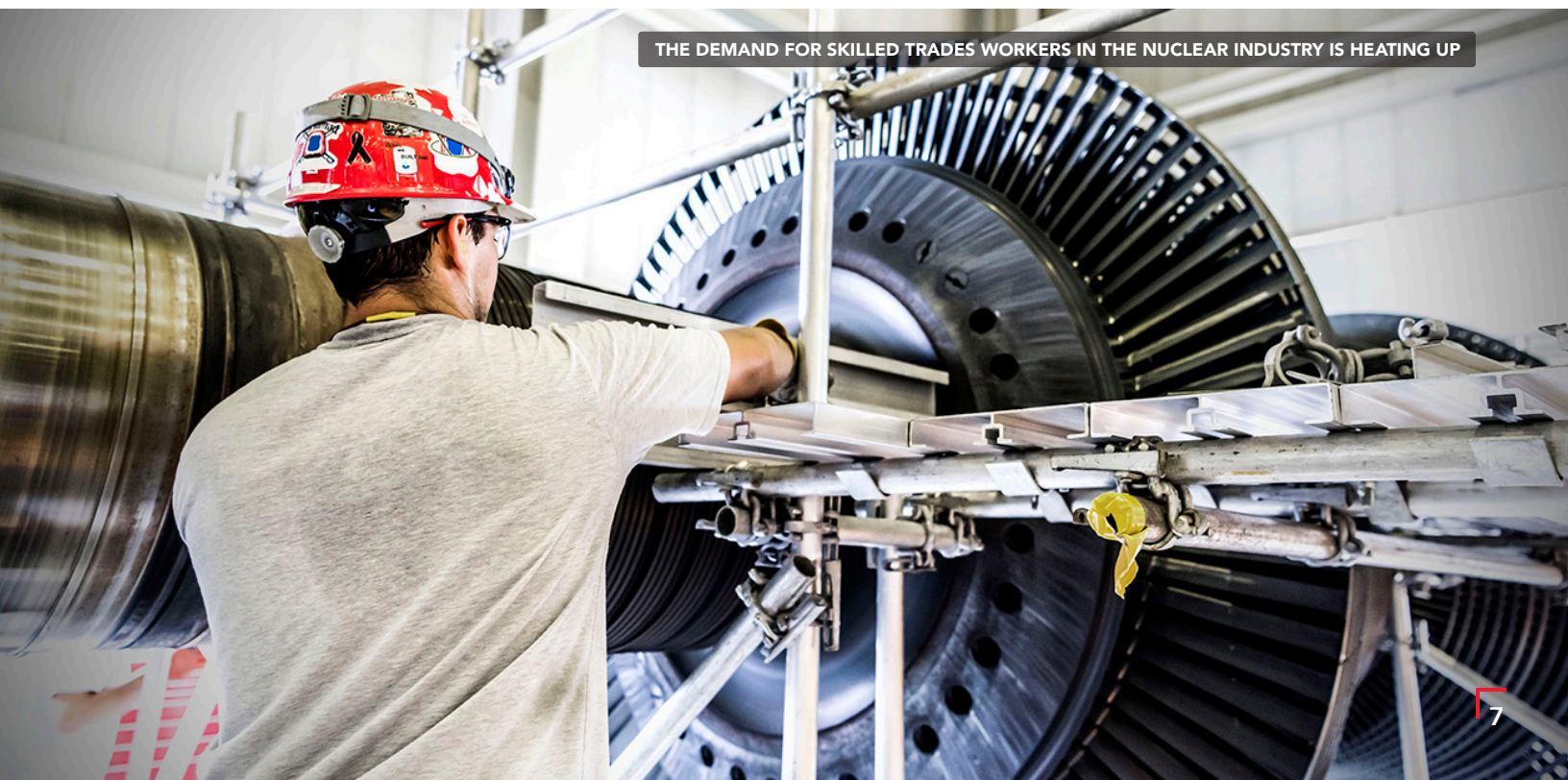
By 2021, when OPG is half-way through the Darlington Refurbishment project, the demand for tradespeople like Shaughnessy will reach its peak. OPG established ION, among other capacity-building initiatives, to help ensure the project and the nuclear industry is supported by highly qualified workers.

Established in 1991, Kagita Mikam works with members from its five partner first nations, which include Wahta Mohawks, Curve Lake, Hiawatha, Mohawks of the Bay of Quinte, and Algonquins of Pikwakanagan, as well as Indigenous members across Ontario to provide training and employment.

OPG is working with the agency to place 10 Indigenous employees a year within OPG or in other areas of the nuclear industry over the next two years. The in-depth ION application process includes security clearance and additional training in nuclear professionalism.

"It's refreshing to work with a large corporation that is making changes internally to hire more Indigenous people," said Ainsley Leween, Executive Director for Kagita Mikam. "We have many qualified members interested in entering the trades who are dedicated workers and work well with their hands."

THE DEMAND FOR SKILLED TRADES WORKERS IN THE NUCLEAR INDUSTRY IS HEATING UP





ELEPHANT THOUGHTS ENCOURAGES LEARNING IN SCIENCE AND TECHNOLOGY

YOUTH CREATE POWER AT ELEPHANT THOUGHTS SCIENCE CAMP

At the Mattagami First Nation near Timmins, students on summer break enjoyed a hands-on lesson in how OPG creates its power.

Gathered around a model generator kit they snapped together, the students ranging in age from four to 13 looked on intently as they spun a small wheel that moved three other gears to power a small battery. They smiled as a small light bulb lit up bright red in response.

The demonstration, which aimed to show how water creates electricity at a hydro station, was just one of the many lessons taught at the week-long "electricity" science camp operated by Elephant Thoughts Educational Outreach, a registered charity and leader in Indigenous education.

Through its Corporate Citizenship Program, OPG helps fund Elephant Thoughts camps in communities near its operations. This year, OPG supported camps at Dalles First Nation in September, Grassy Narrows First Nation in July, and Mattagami in late July.

"Our goal is to inspire young people's interest in science through hands-on learning," said Janine Fleury, Program and Events Manager for Elephant

Thoughts. "The theme for the OPG camps is always energy based and the campers have a lot of fun learning about different types of electricity generation, like hydro, nuclear, wind, and thermal."

This includes solar, too, as the youth at Mattagami found out. During their summer camp, they kept busy building solar-powered model cars.

"It was a very cool experience and the campers learn about so many things," said Katelin Dzijacky, a Project Leader for OPG's Northeast Operations. She visited the Mattagami camp to talk about OPG's operations, water safety, and to encourage these young people to pursue their interest in science and engineering.

"I talked about my job as a woman in engineering and drove home the message that I need more girls to become engineers to keep me company," Dzijacky laughed.

Elephant Thoughts celebrates Indigenous culture while integrating both traditional and contemporary knowledge. It hosts science camps in communities across Canada, including northern Ontario, with the ultimate goals of empowering students and building science literacy. To learn more, visit www.elephantthoughts.com.

FUTURE DOG GUIDE PUPPY LEARNING ON THE JOB AT OPG

Decked out in a stylish green training jacket, Bronco has been busy learning on the job at OPG's head office in Toronto.

But this is no ordinary employee. Bronco is an intelligent and energetic four-month-old yellow Labrador Retriever and future Dog Guide.

The adorable puppy is part of the Lions Foundation of Canada Dog Guides program, a national charity that breeds, trains, and matches Dog Guides to assist Canadians with physical and medical disabilities, at no cost to qualified applicants.

Robert Machacek, a Real Time Markets Supervisor in OPG's Market Operations, and his wife Lucy D'Avella, an analyst in OPG's Regulatory Affairs department, applied to the foundation to become a foster family for a Dog Guide puppy following the loss of their own dog to cancer. From the age of seven weeks until approximately one year, Dog Guide puppies are placed with foster families who volunteer their time and love to prepare the puppy for their formal training.

"Fostering a future Dog Guide puppy is different than raising your own pet, and in many ways more demanding," said Machacek. "We are obliged by contract to abide by the guidelines provided by Dog Guides Canada regarding the care and initial training of the puppy."

One of those guidelines requires that Bronco not be left alone for more than three hours, which means he is often accompanying his foster parents on shopping errands and to work. During this crucial first year, Bronco is also attending puppy training classes and learning home obedience, socialization skills, and good manners to provide a solid foundation for the puppy's future as a Dog Guide.

Bronco visits the OPG office three to six times a month to help him become socialized and accustomed to public spaces. On these days, Bronco rises as early as 4:45 a.m. to accompany Machacek to his 6 a.m. day shift in the Portfolio Management Centre, which oversees participation of OPG's generation in the Ontario electricity market and trades bulk power in eastern North American



BRONCO WITH CHRIS GINTER, OPG'S CHIEF ADMINISTRATIVE OFFICER

markets. The puppy has become more comfortable in the office, and now happily sleeps through the night when he's with Machacek for his night shift.

When he is about a year old, Bronco will return to the Dog Guides Canada training school in Oakville where he will be screened for physical soundness and temperament before entering one of seven official training programs.

For Machacek and D'Avella, it will be tough to say goodbye.

"There will naturally be some strong emotions when he is recalled," Machacek said. "On the one hand, there is tremendous pride in knowing that he will go on to serve someone in need and do so in ways that no human can. On the other hand, we love this animal dearly and our home will not be the same without him."

PIPING PLOVERS FLAPPING BACK TO LIFE

Along the sandy beaches of Ontario's Great Lakes, a small and cute migratory shorebird is slowly making a comeback after a decades-long absence.

The endangered piping plover virtually disappeared from Ontario's shores in the 1970s as loss of beach habitat and human-related disturbance reduced the vulnerable species' numbers to just a handful of breeding pairs.

Then, in 2007, after a 30-year absence, a pair of piping plovers arrived and bred on Lake Huron's shore. Since then, their numbers have been slowly increasing thanks to the tireless work of volunteers, biologists and local stewardship groups. The birds are now nesting in larger numbers and on more beaches each year.

But more needs to be done to ensure these delicate little birds don't slip back to the brink of extinction in this province. To that end, OPG is supporting a new "Bring Back the Wild" campaign by Earth Rangers that will raise funds and awareness to help protect the piping plover.

Since 2012, OPG has been a proud supporter of Earth Rangers, whose presenters visit schools across the province to educate kids on issues of biodiversity and the environment. The partnership has played a critical role in inspiring more than 50,000 children to protect at-risk species across Ontario by raising over half a million dollars. By engaging the next generation in learning about and supporting conservation, OPG and Earth Rangers hope to contribute to species recovery in Ontario over the long-term.

For this latest campaign, funds raised by kids and their families will help Bird Studies Canada (BSC), a leading science-based bird conservation organization, to restore the piping plover's numbers and its coastal beach habitat across Ontario.

FAST FACTS

- Piping plovers eat mostly insects and small crustaceans found on the beach
- The birds nest exclusively on dry sandy or gravelly beaches just above the waves
- Groomed beaches eliminate hiding places, leaving plover eggs and chicks more vulnerable



PIPING PLOVER AND CHICK

"Many of the factors that caused the piping plover's original decline continue to threaten their recovery," said Tovah Barocas, Vice President, External Relations with Earth Rangers. "These threats are often human-related, including disturbance by beach goers, off-leash dogs, inappropriate beach management, and habitat degradation."

In addition to these factors, predators like sea gulls, attracted to garbage on the beaches, and severe weather events like flooding and storm surges continue to pose a threat to the birds.

BSC's efforts will focus on specific on-the-ground action and community engagement. This will include establishing fencing and signage to protect nests and chicks from trampling by unaware beach goers and their pets; providing shelter for young plovers; and recruiting and training more volunteers to be engaged stewards.

Beaches will also be actively surveyed for new nesting sites, with a focus on under-surveyed beaches like the Lake of the Woods in northwestern Ontario. BSC hopes to restore the plover population in Ontario back to historic levels of 50 to 100 breeding pairs. For more information on the campaign, visit www.earthrangers.com and www.birdscanada.org.

OPG REPORTS Q2 RESULTS, ENTERS AGREEMENT TO ACQUIRE EAGLE CREEK

OPG's net income attributable to the Shareholder for the second quarter was \$121 million compared to \$303 million for the same quarter in 2017 when the company sold its head office property. Excluding the gain from the head office sale, Q2's net income would be about \$101 million more compared to the same quarter last year. This increase reflects the impact of new regulated prices set by the Ontario Energy Board in December 2017 for OPG's nuclear and most of its hydroelectric generation.

Operationally, the company recorded a lower generation level of 17.2 terawatt hours (TWh) in Q2 compared to 18.0 TWh for the same quarter in 2017. Lower nuclear generation of 0.7 TWh was primarily due to a higher number of planned outage days in the second quarter at Pickering Nuclear Generating Station (GS). As a result, Pickering's unit capability factor for operating units was 71.3 per cent, compared to 84.2 per cent for the same quarter in 2017. At Darlington Nuclear GS, the unit capability factor increased to 67.4 per cent in Q2 compared to 64.6 per cent in the same quarter last year. OPG's regulated hydroelectric stations also saw a slight decline in generation of 0.6 TWh this past quarter, primarily due to lower water flows.

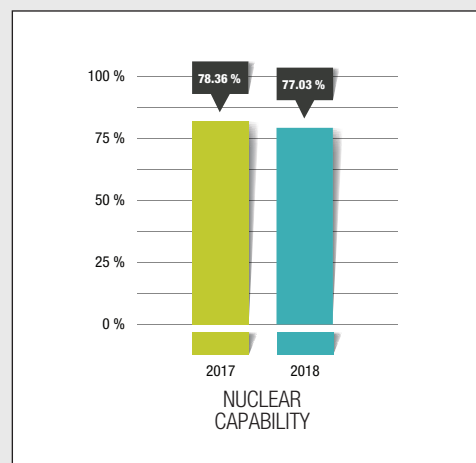
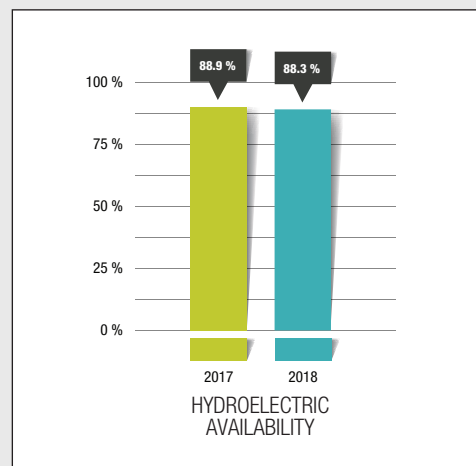
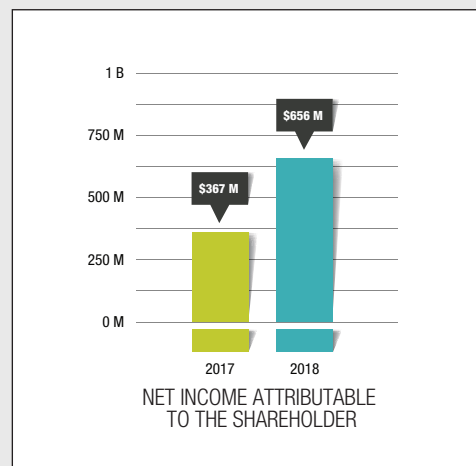
On the Darlington Refurbishment project, OPG completed removing existing reactor components at Darlington's Unit 2 in early May. Installation and reassembly of reactor components is now underway and the project remains on schedule and on budget.

In August, OPG entered into an agreement to purchase U.S.-based Eagle Creek Renewable Energy LLC, which owns and operates 63 hydroelectric facilities representing 216 megawatts (MW) of capacity across the U.S. It also has ownership interests equivalent to approximately 10 MW of capacity in 13 other hydroelectric facilities and two solar facilities in New England. The acquisition will be financed without the use of taxpayer funds and have no impact on Ontario's electricity customers.

Also in August, the Canadian Nuclear Safety Commission granted OPG a 10-year licence for Pickering Nuclear GS. The new licence will allow the company to operate the station until the end of 2024, followed by safe storage activities, such as de-fuelling and de-watering, between 2024 and 2028.

"We are pleased to report our second quarter results provided a strong return for our Shareholder, the Province of Ontario," said Jeff Lyash, OPG President and CEO. "We remain focused on continuing to be Ontario's lowest cost electricity producer and driving value from our public assets for Ontario."

YEAR-TO-DATE JUNE 30 RESULTS



STAY CLEAR



STAY SAFE

OF HYDRO DAMS AND STATIONS

opg.com



@opg



@opgpics

ONTARIO **POWER**
GENERATION