

# POWER NEWS

WINTER 2015

Connecting the people who power Ontario



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There's no such thing as being too prepared.

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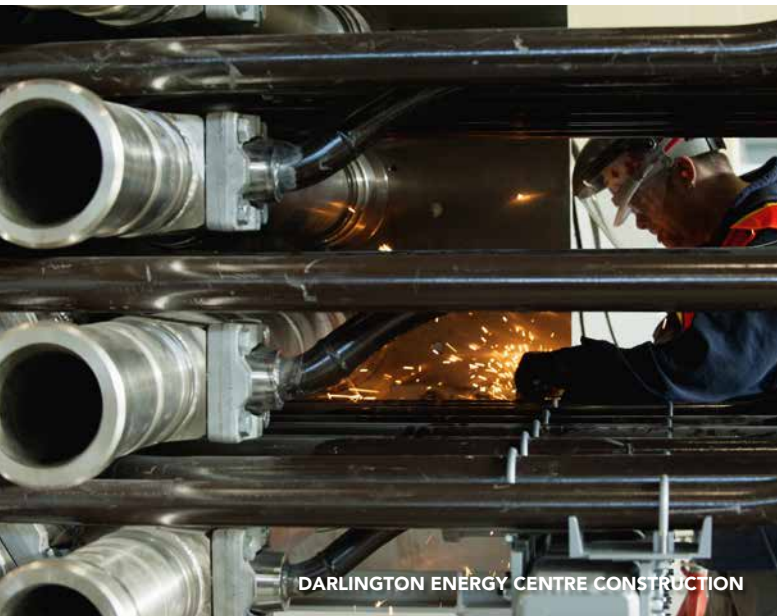
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Cover photo: The temporary diesel power compressors at the Darlington nuclear station, used for pressurizing the vacuum building (shown in the background of the photo) and containment during the positive pressure test. Read more about the Darlington vacuum building outage on page 7.



# DARLINGTON REFURBISHMENT TO PROVIDE MAJOR BOOST TO ECONOMY AND ENVIRONMENT



Refurbishing the Darlington Nuclear station will have a significant positive impact on Ontario's economy, according to a recent report released by the Conference Board of Canada.

The independent study states OPG's \$12.8 billion investment to refurbish Darlington will:

- Boost Ontario's Gross Domestic Product by \$14.9 billion;
- Increase jobs in Ontario by an average of 8,800 per year over the duration of the project;
- Raise Ontario's household income by an average of \$502 million per year (or by a total of \$8.5 billion); and
- Increase combined federal, provincial, and municipal revenues by \$5.4 billion.

"This report supports what OPG has been advocating; an investment in refurbishment is a smart investment in Ontario," said Dietmar Reiner, Senior Vice President of Nuclear Projects.

Darlington Nuclear has been operating since the early 1990s. At this stage, its CANDU reactors require a major refurbishment to replace critical components.

Darlington generates about 20 per cent of the electricity consumed in Ontario. This power is 99.7 per cent free of greenhouse gas emissions.

Refurbishment is expected to provide another 30 years of clean, reliable power and predictable, stable prices for customers.

Detailed planning will wrap up by the end of the year, to prepare for work on the first unit to begin in 2016.

## DARLINGTON RE-LICENSING

OPG appeared before the Canadian Nuclear Safety Commission (CNSC) commissioners in early November to present Darlington's 13-year licence renewal application. OPG has requested a licence term to cover the time period of the refurbishment and the life extension work at Darlington to Dec. 2028.

The longer licence would be consistent with international practice, and would recognize Darlington's world-class performance to date and the many programs we have in place to ensure performance is maintained at a high standard.



JEFF LYASH MEETS EMPLOYEES AT THUNDER BAY GS

## JEFF LYASH: EARLY REFLECTIONS

This issue of *PowerNews* profiles Clifford Fielder, a 50-year OPG employee who shares his perspective on how safety has evolved over the last half century. Although my time with OPG is considerably shorter, I'd like to share my thoughts on what I've observed to be two of the company's best attributes – safety and relationships.

**For me, the safety of our employees, neighbours and the environment takes priority over everything we do.**

So I'm especially proud OPG has such a robust safety culture, where every employee, from the shop floor to the executive office, is expected to be a safety leader.

This commitment earned us the recent Canadian Electricity Association President's Award for

employee safety excellence. And it's a good foundation for the significant mandate before us: the Darlington refurbishment, the Peter Sutherland Sr. hydroelectric development, potential new solar projects, the continued operation of Pickering, and running our fleet of clean power stations across the province. Safety excellence must go hand in hand with performance excellence and delivering projects on time and on budget. Based on what I've seen so far, I'm confident it will.

The other attribute, which really stands out for me, and sets this company apart, is the importance of relationships. Relationships matter to OPG. It's an open, transparent company that makes the effort to stay in touch with people, share information and listen. I learned this while speaking with many community leaders and partners at our various sites, including twenty First Nation Chiefs.



PAT OAKES, JEFF LYASH AND TOM MITCHELL FROM OPG WITH CHIEF WILFRED KING, COUNCILLOR HUGH KING, AND COUNCILLOR KEN KING OF GULL BAY FIRST NATION, AT THE COMMUNITY CELEBRATION OF THE GULL BAY APOLOGY.



JEFF LYASH, OPG PRESIDENT AND CEO AND BOB CHIARELLI, MINISTER OF ENERGY AT THE ONTARIO LEGISLATURE

*"The province – meaning every resident of Ontario – is our shareholder and we're accountable to them for every aspect of our operations."*

Like safety, the onus on fostering relationships is part of OPG's culture.

The province – meaning every resident of Ontario – is our shareholder and we're accountable to them for every aspect of our operations. OPG takes this responsibility very seriously.

We also believe a good company is more than just an efficient operator. A good company is one that gives back to help build stronger, healthier communities. I am very proud of the generosity of our employees and pensioners. Along with donating their time and effort, the people of OPG contributed \$1.4 million in 2015 to charitable organizations and initiatives across the province.

On a personal note, I want to say how much I've enjoyed my first five months with OPG and as a new resident of Ontario. My wife Tracy and I have been welcomed with open arms and we're truly grateful. We wish you and your loved ones all the best for the holiday season and a healthy, happy new year ahead.

Jeff Lyash  
President and CEO



# NORTHEAST HYDRO PARTNERSHIP CREATING JOBS AND CLEAN POWER

A hydroelectric project 30 years in the making is now underway in northeastern Ontario. OPG and Coral Rapids Power (wholly owned by Taykwa Tagamou Nation [TTN]) have partnered to build a 28-megawatt station approximately 90 km north of Smooth Rock Falls.

The \$300 million project is expected to employ 220 workers at its peak and be completed in 2018. Once in service, the 2-unit, 28-megawatt station will provide clean, reliable power for up to 25,000 homes.

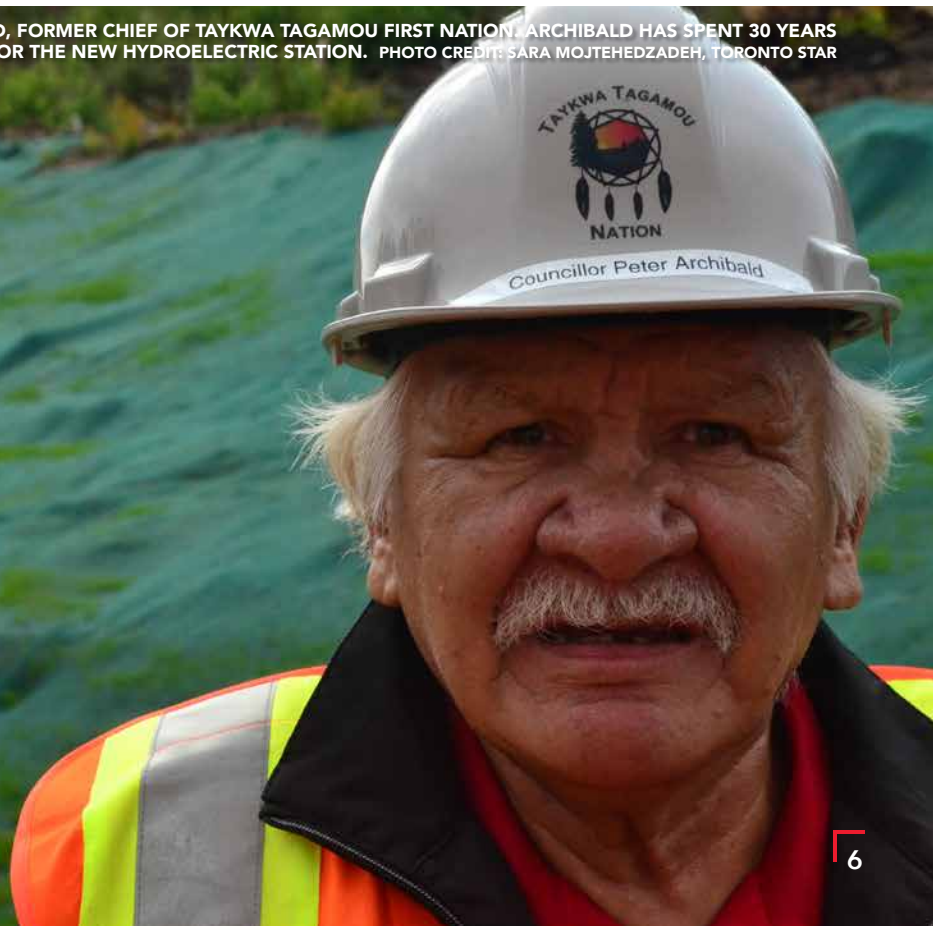
Named after a respected community elder, the Peter Sutherland Sr. generating station will use a portion of the water flowing down New Post Creek to generate electricity by transporting water about 600 metres to the power house on the Abitibi River.

"We are excited to partner with OPG which has a proven track record of working with First Nation communities," said TTN Chief Dwight Sutherland. "This clean power development will provide immediate and lasting economic opportunities for the people of Taykwa Tagamou Nation."

"Our partnership is about more than just megawatts," said Mike Martelli, Senior Vice President, Hydro Thermal Operations. "It's also about creating skilled jobs and ongoing revenue that will benefit this community for years to come."

This new station will join OPG's clean energy portfolio, which includes other successful joint ventures with First Nations. In early 2015, OPG and the Moose Cree First Nation celebrated the completion of the Lower Mattagami Hydroelectric Project, northern Ontario's largest hydroelectric project in 50 years.

PETER ARCHIBALD, FORMER CHIEF OF TAYKWA TAGAMOU FIRST NATION. ARCHIBALD HAS SPENT 30 YEARS ADVOCATING FOR THE NEW HYDROELECTRIC STATION. PHOTO CREDIT: SARA MOJTEHEDZADEH, TORONTO STAR





DARLINGTON VACUUM BUILDING OUTAGE FIRE WATER PUMP TESTING

## OPG'S LARGEST PROJECT OF 2015 SUCCESSFULLY WRAPS UP

A battalion of pipefitters, electricians, carpenters, millwrights, boiler makers, maintenance staff and contractors safely completed 11,650 tasks to wrap up OPG's largest project of 2015 – the Darlington Vacuum Building Outage (VBO). On the safety front, we successfully executed this massive project safely and event free.

As part of the station's operating licence, the VBO is performed once every 12 years to ensure continued reliability of the vacuum building. The extensive outage involved years of detailed planning and required the safe shutdown of all four Darlington reactors.

OPG executed Darlington's VBO six years ahead of schedule to ensure the station is available during the upcoming multi-year refurbishment.

"The success of the VBO demonstrates our ability to manage large-scale projects safely and

on schedule," said Glenn Jager, OPG's Chief Nuclear Officer. "This is an important milestone for Darlington and for the entire company as we move closer to the execution phase of the refurbishment. We are taking the time to review lessons learned, specifically how we used our contingency time. We'll then apply our findings to the refurbishment project."

The vacuum building is a 71-metre high cylindrical concrete structure connected to the reactor buildings by a pressure relief duct and is a unique safety feature of the CANDU® system. It's constantly maintained at negative atmospheric pressure.

That means any release of radioactive steam from the pressurized systems would be sucked into the vacuum building and condensed into water, rather than escape to the environment outside the station.



# SALUTING ONE OF OUR BUSIEST BIODIVERSITY EDUCATION PARTNERS

From Cornwall to Cochrane to Kenora to Kincardine, OPG's operations touch all corners of the province. For OPG, being a part of a community means supporting local organizations and initiatives that help keep our communities strong and healthy.

OPG has teamed up with groups like Earth Rangers, Rouge Park, LEAF (Local Enhancement and Appreciation of Forests), Ontario Nature, and Bruce Trail to promote biodiversity through education and family focused events.

Another OPG partner is the Toronto Wildlife Centre (TWC). Since 1993, TWC has become Canada's busiest wildlife centre, rescuing and rehabilitating thousands of sick, injured and orphaned wild animals. Its wildlife hotline receives approximately 30,000 calls per year from members of the public and animal organizations, mostly from the Greater Toronto Area and Durham Region.

From education and outreach, to wildlife rescue and rehabilitation, TWC is at the front lines of biodiversity protection. This includes caring for thousands of animals every year, including many species at risk.

"We couldn't exist without the support of our dedicated volunteers, generous donors and corporate partners like OPG," says TWC Executive Director and Founder, Nathalie Karvonen. "OPG's support is especially critical to our outreach and education efforts."

Currently located in north Toronto's Downsview Park, the TWC is preparing to fundraise for its move to Rouge Park.

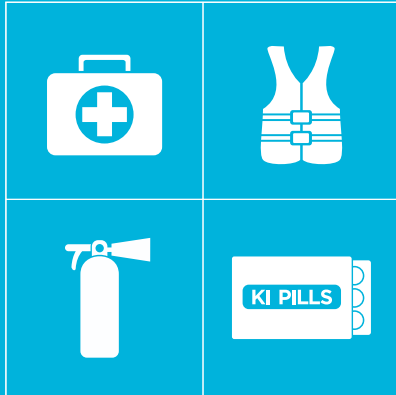
To learn more about OPG's biodiversity activities and partnerships, visit the [\*biodiversity page on opg.com\*](https://www.opg.com/biodiversity).

THE TWC RESCUES AND REHABILITATES WILD ANIMALS LIKE THIS NORTHERN SAW-WHET OWL, ONE OF FOUR WHO GOT A SECOND CHANCE AT LIFE AT TWC.





# PUBLIC SAFETY CAMPAIGN HIGHLIGHTS IMPORTANCE OF PREPARATION



**There's no such thing as being too prepared.**

There's no such thing as being too prepared. That call to action became the theme of a recent nuclear public safety campaign to distribute potassium iodide (KI) pills in Durham Region.

Led by Ontario's Office of the Fire Marshall and Emergency Management, with support from OPG, the Region of Durham and the City of Toronto, more than 200,000 homes, businesses and institutions located within 10 kilometres of the Pickering and Darlington nuclear stations received KI pills. They are part of a new requirement by the Canadian Nuclear Safety Commission (CNSC), the federal agency that regulates the safe operation of nuclear stations.

"Distributing this many KI pills over such a large area required significant coordination and planning," said Steve Lesiuta, OPG's Director of Emergency Management and Fire Protection.

A public education component of the campaign was critical, and had to be established well before the KI pills landed in mailboxes. This involved various tactics to help the public understand the new safety standard, and included public meetings, letters to each home and business, posters across the region, ads and many meetings with municipal officials, advisory committees and news media, to name just a few organizations.

"We had to communicate with a diverse population – from dairy farms in Clarington to high-rise apartment buildings in Scarborough," said Kevin Powers, OPG's Director of Nuclear Communications. "By gathering public input in advance, we created a campaign that addressed their top concerns and helped answer their questions."

## WHAT ARE KI PILLS?

In the very unlikely event of a nuclear emergency and a release of radioactive iodine to the public, KI pills help block the intake, helping to prevent the development of thyroid cancer. KI pills are most effective if taken just before or soon after exposure to radioactive iodine.

### Why were they distributed this fall?

KI pills were distributed as a proactive measure, at the request of the CNSC, Canada's nuclear safety regulator. Keeping KI pills in the home is similar to keeping a fire extinguisher. You don't expect to use it, but it's better to be prepared.

Find more information at [preparetobesafe.ca](https://preparetobesafe.ca)



## OUR PEOPLE: CLIFFORD FIELDER

Clifford Fielder, a Mechanical Supervisor in Northeast Operations, is now OPG's longest-serving current employee. From the harsh, rugged beauty of the Bruce Peninsula to the protected pine groves of Abitibi Canyon, his 50 years of experience across the province has lent him a unique look at the evolution of Ontario's power supply.

It all started in 1965, at the secluded Abitibi hydro colony. Fielder transferred there after taking a job as a pipe welder at Kipling GS. "Life in the canyon is a fond memory," he recalls. "Most people who worked there were like family members. It's a very strong bond."

Fielder transferred to the Bruce Heavy Water Plant in 1973, where he worked as a mechanical maintainer and assessor. He later transferred to Kapuskasing as a mechanical supervisor, and then to the Dymond Service Centre in New Liskeard, where he continues to work. The 50-year journey lends Fielder a unique perspective.

"I saw things change like you wouldn't believe," he says. "It's quite a thing to witness."

In particular, Fielder noticed an increased focus on worker safety and the environment. Today, OPG mitigates its environmental footprint and sustains a robust biodiversity program, and safety is a fundamental pillar of the company's operations.

"I love the care and safety aspect that's developed," Fielder says. "We were always careful, of course. But now, we strive for zero accidents. Nobody wants to lose a finger, let alone something more serious."

Fielder has witnessed several poignant milestones, including the introduction of nuclear generation in the early 70's. "I've seen a lot, but it's not a bad thing," he says. "I've had a great experience. I love going to work, and I love the people I work with."

### EMPLOYEE SPOTLIGHT CLIFFORD FIELDER

**POSITION:** Mechanical Supervisor

**WORK LOCATION:** Northeast Operations  
– Dymond Service Centre in New Liskeard

**YEARS OF SERVICE:** 50

**FAVOURITE SPOT TO VISIT IN ONTARIO:**  
Abitibi Canyon, where Fielder started with OPG. "I periodically go back to Abitibi Canyon and I'm always pleased to go. It's a place dear to my heart," Fielder says.

**WHAT'S YOUR AVERAGE COMMUTE TIME:**  
13 to 15 minutes

**EARLY BIRD OR NIGHT OWL:** Early bird.  
"I go to bed early and I don't mind getting up early when there are things to do."



# OPG ACHIEVES SOLID THIRD QUARTER RESULTS

Quarterly earnings were \$85 million as OPG successfully executed the Vacuum Building Outage (VBO) at Darlington.

Income before extraordinary gain declined from \$119 million in the third quarter of 2014 mainly a result of lower nuclear generation and higher operations, maintenance and administration (OM&A) expenses reflecting the Darlington VBO.

Income before extraordinary gain for the first nine months of 2015 of \$517 million improved from income of \$478 million for the same period in 2014. The increase was primarily due to higher sales prices for OPG's regulated facilities, and income from the new hydroelectric units on the Lower Mattagami River and the converted Atikokan and Thunder Bay biomass generating stations.

"I am encouraged by our good financial results to date and I'm especially pleased with the excellent reliability of Pickering Nuclear station," said

President and CEO Jeff Lyash. "I'm also impressed with our consistently strong hydro and thermal performance."

Lyash added, "Most importantly, OPG continues to provide electricity at almost half the price of other generators."

Total electricity generated in the third quarter of 2015 of 19.1 terawatt hours (TWh) was comparable to generation of 21.0 TWh for the same quarter in 2014. The marginal decrease was mainly attributed to the Darlington VBO and lower water flows in eastern Ontario. During the first nine months of 2015, total generation was 61.2 TWh, compared to 61.3 TWh in 2014.

For the nine months ended Sept. 30, 2015, the nuclear capability factor was 83.7 per cent reflecting a decrease in unplanned outage days. The availability of OPG's hydroelectric stations for the same time period remained above 90 per cent.

## YEAR-TO-DATE SEPTEMBER 30 RESULTS

