

**NOTE FOR REMARKS**  
**Jeff Lyash**  
**OPG President and CEO**  
**Ontario Energy Network Luncheon**  
**Dec. 7, 2015**  
(Abridged version)

***Opening***

Thank you Gord and members of the OEN board.

I'm honoured by the invitation to address my first OEN luncheon.

It's also one of my first opportunities to meet members of the broader Ontario energy sector.

So thank you for the warm welcome.

It's indicative of how I've been treated since arriving in Toronto this summer.

Before I begin my remarks in earnest, I want to set the context by playing [a short commercial](#) you may have seen on TV during the Blue Jays pennant drive.

It's about the future and about cleaner air and I think it's a really good intro to what I want to say about the challenge facing OPG, Ontario, Canada, the world and the value of investing in the Darlington Nuclear Generating Station.

***Clean Power - Ontario's Competitive Advantage***

While conducting research for this campaign, we were surprised to learn that most people didn't know OPG had stopped burning coal.

And no one knew it was North America's single largest action to combat climate change - equivalent to removing seven million cars from the road.

OPG is very proud of this fact and we want you to be proud too.

Jurisdictions around the world are struggling to address climate change and greenhouse gas emissions while we have almost entirely de-carbonized our generation portfolio.

Ontario competes with some of those jurisdictions, like our neighbour states in the Great Lakes Basin.

If real greenhouse gas reductions are to be a priority, they have a lot of work to do to catch up to this province because of our low-carbon electrical generation system.

To continue to move forward domestically on further reductions, other sectors here in Ontario must also catch up.

Ontario's electricity sector represents less than 7 per cent of total greenhouse gas emissions.

The transportation sector is 35 per cent.

Industry is 28 per cent.

And building heat is about 19 per cent.

As these sectors work to reduce their carbon intensity, there will be more dependence on clean electricity and we must be positioned to support this transition.

That means a de-carbonized electricity system is not just an environmental achievement....

Clean power is the foundation for competitiveness – particularly on the cusp of carbon pricing.

Clean power is the foundation for progress.

Clean power paves the way for a cleaner transportation sector and the electrification of the cars and trains.

And home-made clean power drives home-made innovation and supports industries beyond the energy sector in communities across the province.

The long-term value to Ontario of a carbon-free generation portfolio is enormous.

### ***The Case for Darlington Refurbishment***

Turning to Darlington my message today is this:

Refurbishing Darlington is an investment in Ontario. In clean air. In jobs. In innovation. In lower energy prices.

In our future. And in our way of life.

But it's a big job that must be done right....

On schedule, on budget, at the level of quality that world-class nuclear plants require, and safely.

This means:

- A leadership team relentlessly focused on delivering results;
- A work force committed to excellence in project execution;
- A set of home grown suppliers and partners that understand the importance of this effort to Ontarians;
- It also means reporting openly on our progress and having rigorous third party and government oversight validate this progress.

It's an advantage that we're starting with a top performing plant.

Darlington is the best performing Candu plant in the world and one of the best of any reactor design, with the strongest safety and regulatory ratings.

For more than 45 years, our nuclear fleet has been Ontario's clean power workhorse providing base load electricity 24/7/365 days a year.

Darlington powers one in every five homes and businesses and does so cost-effectively and with virtually no greenhouse gas emissions.

Refurbishing it will be one of the largest nuclear projects of its kind in the world.

Its completion timeline spans 15 years -- from 2010, when the project was confirmed in the Long Term Energy Plan -- to 2025, when the station is expected to be finished.

It will take 30 million hours of field work alone.

And a total investment of \$12.8 billion (that includes interest and escalation).

So what's the yield from this investment?

The Conference Board of Canada crunched the numbers and determined the refurbishment would generate \$14.9 billion in economic benefits to Ontario.

An average of 8,800 jobs annually between 2010 and 2023.

An \$8.5 billion increase to household revenues.

About \$5.4 billion in revenues for all three levels of government.

\$94 million in exports.

And, over its extended 30-plus-year operating life, Darlington will contribute approximately \$50 billion in additional economic benefits.

That doesn't include the low cost of electricity after refurbishment; a cost that will be predictable and stable for another generation.

Nuclear power is one of the lowest cost power sources in Ontario's electricity portfolio.

According to the Ontario Energy Board, it ranked second in terms of electricity production cost in 2014 at 6 cents/kWh, which is slightly higher than hydroelectric at 4.8 cents/kWh.

We estimate that after refurbishment, the cost of Darlington's power will be less than the other sources considered and will help maintain OPG's position as the low-cost energy provider in Ontario.

We supply MWhrs at a 40 per cent discount to the rest of the market, helping us moderate electricity bills, and that is a role we plan to continue to serve.

Now, while many studies confirm refurbishing nuclear plants is the best option, some folks say we should look to neighbouring provinces for our power.

Importing power from Quebec or Manitoba would require construction of new dams and power stations, and perhaps more difficult would be constructing new transmission lines to reliably deliver the power where it's needed.

In this case Ontario ratepayers would be transferring billions of dollars to create jobs and generate tax revenues in other provinces rather than right here at home.

While we should evaluate this as an option, it should be done with our eyes wide open.

We could replace nuclear power with gas, but if we did it would be the equivalent of putting those seven million cars I mentioned earlier back on the road.

We would also be sending much of what Ontarians paid for that power outside Ontario to purchase fuel, most of it in the US.

The real cost of refurbishing and operating Darlington is not the fuel, it's paying people to do the work and run the plant.

Approximately 96 per cent of our suppliers are based in Ontario.

More than 50 companies from some 25 communities are directly engaged in the project.

These people live here and spend here.

The income generated by the refurbished plant stays here.

Realistically, there is no new source of cheap, clean power available for Ontario that can replace nuclear.

Renewables are and will remain an important part of our energy mix, but my view is that they're not in competition with nuclear.

OPG is Ontario's largest renewable energy provider. We operate a vast hydroelectric fleet and we're also bidding on solar installations.

Nuclear does not compete with renewable; it makes the effective incorporation of wind and solar into the system possible by providing a reliable foundation of base load power on which these intermittent sources can stand.

It's clear why refurbishing Darlington and Bruce truly is an investment in our province's future.

### ***Leave No Doubt***

As I've mentioned it's a big project and there is a lot at stake.

We know all eyes are on OPG to see if we can deliver.

Our plan is to successfully complete the refurbishment of the first Darlington Unit before Bruce begins their effort, and in so doing to set the standard for mega-project execution that others will strive to emulate.

I must tell you that before accepting this position I completed my own due diligence, focused primarily on OPG and Ontario's readiness to take on these projects.

Clearly I concluded that we can be successful, which is why I landed here.

Before joining, and continuing over the last several months, I've focused on eight critical foundational elements that my experience has taught me are key to successful mega-projects:

- Exhaustive preparation that positions us for success;
- Clear definition of and understanding of scope that builds confidence;
- Development of a comprehensive and detailed cost and schedule that can be used to exercise accountability as the project deploys; and
- Completion of underlying engineering so that the team can focus on executing the right work once.

With respect to these four success factors, OPG has done as good a job as I have seen in my career in laying the foundation for success.

We've put in years of detailed planning, including development of a state-of-the-art training facility that includes a full scale mockup of the reactor.

That facility has been used to benchmark task durations, test tooling and qualify every procedure to be used in refurbishing the reactor.

We've assembled the best team and partnered with top companies from across Ontario including SNC, AECOn, BWXT, GE, Alstom and others.

While no project can be successful without outstanding planning, a great plan is useless unless paired with equally strong execution. This includes the remaining four success factors:

- A leadership team, OPG and its suppliers and partners, that is experienced, energized, aligned and committed to the highest standards;
- Recognizing, and eliminating or mitigating risk. All will not go as planned, but we must be prepared to resolve emergent issues and impacts and to succeed regardless;
- Learning lessons from other refurbishments and mega-projects and drilling them into our execution in ways that will benefit both the Darlington and Bruce projects; and
- Implementing a robust oversight and assurance program that ensures problems are identified and resolved as quickly as possible and at the lowest possible level of the organization.

All of the elements to guarantee success are there...

Which is why I can stand here today and tell you OPG will get the job done well and get it done on time and on budget.

### ***Closing***

We're doing all of this because we know we won't get a second chance to do a project of this scope – and neither will others in the Canadian nuclear industry.

We have to get it right the *first* time.

OPG is a \$40 billion company and the refurbishment is a \$12.8 billion investment.

That's one third of our value invested in a single project.

Nobody is more aware of the importance of this project than we are.

I've been on the job for roughly three and half months.

And I've had people ask me how you handle the pressure of taking on such a big job.

So I'm going to close by quoting coach Mike Babcock.

*Confidence is the key to handling pressure.*

*Having previous experience.*

*Having learned from falling short.*

*Having built on success.*

*Having a track record over many opportunities gives you the feeling you're going to deliver...*

*The feeling you're going to get the job done.*

OPG's Stanley Cup is finishing the Darlington refurbishment safely, on time and on budget.

I'm confident we will.

And I'm confident Ontario will be the better for it.

Thank you.