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**Check against Delivery**

Good afternoon. Thanks for the kind introduction and for inviting me back again this year.

Over American Thanksgiving I reflected on what I might say, and as is appropriate for the season, I began to consider how fortunate I am in my personal life, and more to the point in my professional life.

I love being an engineer -- engineers focus on solving important problems.

I love being a leader -- leaders influence the direction of their company and the way people think about the issues that shape the future.

I love working in the energy industry -- the energy industry makes people's lives better today and, we're creating the energy future in which our grandchildren will live.

I love being an engineer and a leader in the energy industry here in Ontario.

The changes in Ontario over the last 10 years have been dramatic, and the opportunity before us is significant

So as we close out 2017, I thought I'd share some thoughts on what we as energy industry leaders have achieved and some of the challenges we face together.

The industry has seen tremendous change in just the last three years:

- LDCs and the gas sector have experienced a number of mergers and acquisitions, beginning what will likely be a long process of consolidation.
- Hydro One completed its IPO and has started taking actions to grow the company.
- The Ontario Energy Board is evolving its regulatory framework -- as an example OPG's recent rate case moves us to incentive based rates that put clear priority on lowering the total cost of generation. Rosemarie Leclair outlined additional steps the OEB is taking in her remarks to the OEN in October.

- We have a provincial Climate Change Plan, which sets carbon emission targets and a cap and trade regime.
- The Fair Hydro Plan was introduced to lower customer bills by shifting the cost of some programs to the taxpayer, and by spreading the cost of historic system investments over an extended timeline.

**Given the significant amount of change, let's reflect on our position today.**

Because OPG is a generating company, the portion of the value chain that I tend to focus on is power production.

But I must take a minute to acknowledge that investment in Ontario's transmission and distribution system, by companies like Hydro One, Toronto Hydro, Electra and others, have resulted in a system that's delivering outstanding levels of safety and reliability.

Although certainly not without cost and controversy, through OPG's retirement of its coal-fired generation we've significantly reduced carbon emissions.

You've heard this before but it's worth repeating and celebrating, particularly given what's happening around the world.

As Toronto native Terence Green said, "Canada is a very interesting place, even if Canadians don't think so."

Closing our coal generation stations in Ontario has virtually eliminated smog days and remains North America's largest single climate change action.

By replacing coal with nuclear and natural gas, supplemented by renewables, Ontario has been able to make dramatic progress in cleaning up its electricity sector. Let me highlight just how far we've come.

Between 2005 and 2015, greenhouse gas emissions from Ontario electricity generation decreased 83 per cent.

In contrast, the accomplishments in other jurisdictions often held up as leading the way in green initiatives seem pale. Over that same period Germany has managed just a 14 per cent reduction and California actually increased by 30 per cent.

But percentages can be misleading so let me just share the data on electricity carbon intensity for these three jurisdictions, the miles per gallon equivalent if you will.

In 2015, Germany's intensity was 560 g/KWh; California was 260 g/KWh; Ontario was just 40 g/KWh. And Ontario maintained that average through 2016 -- if it is not obvious lower is better.

Even if we dispatch our existing gas fired combined cycle fleet to fill the void that will be created by the retirement of Pickering mid next decade, our electricity carbon intensity will remain among the lowest in the world.

The underlying price of electricity in these locations is also notable: Germany – 45 cents/KWh; California – 24 cents/KWh; and Ontario – 16 cents/KWh.

That is not to say that 16 cents/KWh here in Ontario is a number to be proud of. It is my view that, had we taken a better approach, we could have achieved these carbon results for less, and we must do better at controlling cost as we move into the future. I think few would disagree.

We should recognize that the Ontario electricity sector, properly levered, could be a significant strategic advantage for the province.

Even with this progress, as energy leaders we face one of this generation's greatest challenges...

As is true around the globe, growing prosperity, increasing GDP, is key to improving the lives of Ontarians.

Even with aggressive conservation and energy efficiency measures, growing GDP will require more affordable end-use energy, and a large share of this end-use energy will be electricity.

As a matter of fact, electricity use has grown faster than total energy use for more than a century and I expect that this trend will accelerate.

At the same time, reducing economy-wide emissions of GHGs must be front and center.

Therein lies the great challenge -- growing prosperity while dramatically decreasing GHG emissions.

So how do we deliver the increasing amounts of affordable energy Ontarians will need for a prosperous future, while driving GHG emissions down to levels not seen since before the second industrial revolution?

This is both a critically important and difficult problem. The kind of problem that leaders in this industry should see as worth solving, especially because efficient electrification will play a significant role.

Despite what some might want to believe, no single technology or approach can lead us to success.

It's not a choice between alternatives like conservation, wind, solar, natural gas, hydro, nuclear, energy storage, smart grids or the long list of other technologies that we all pursue.

And prematurely retiring our Ontario-based assets and importing a perceived solution from Quebec or Manitoba will not solve the problem either.

The answer lies in leveraging a diverse portfolio of all these resources, and constantly adding new technologies to that portfolio to produce low GHG intensity electricity and then using that electricity to reduce economy-wide emissions through efficient electrification.

### **We need to position ourselves for the future**

To that end we have a 20-year road map for our sector outlined in the Province's recently released Long Term Energy Plan.

I know that the LTEP is an imperfect document. It includes something for each of us to love and to hate. But many jurisdictions around the world don't have a long-term energy plan at all so, I believe it's worth highlighting.

The LTEP reaffirms support for nuclear power -- the source of 62 per cent of Ontario's annual electricity consumption.

This includes refurbishing the four units at Darlington, six units at Bruce and the continued operation of Pickering Nuclear through 2024.

With a strong focus on customers the LTEP builds on the sector's successful de-carbonization and shifts the focus to how we can leverage this strength to meet future challenges.

### **On that point, efficient electrification is emerging as a path to a cost-effective low-carbon future.**

Canada's 2030 Climate Change target is a 37 per cent reduction below 1990 levels. Our estimate is that Canada last saw that amount of GHG emissions in the early 1960s.

Since then population has more than doubled.

Vehicle registrations have more than quadrupled.

The GDP has increased from \$45 billion to \$1.53 trillion.

Realizing the 2030 target will require efficient electrification and Ontario's electricity system will be critical to this effort.

Efficient electrification means using less energy and natural resources to produce the next unit of GDP through structural change and efficiency efforts.

It means matching the shape of load and supply to better utilize resources. Deploying large scale energy storage and diverse demand response capabilities and incentives are examples how we can turn the eight TWhrs of spill we will experience this year into something more productive.

It means using electricity to displace higher carbon intensity end-use energy sources in other sectors of the economy. As Anthony Haines indicated last month decarbonizing mobility is a huge opportunity.

And it means increasing the amount of low carbon intensity energy we produce, including continuing to develop our inherent hydroelectric resources, and preserving and expanding our strong nuclear generation assets.

### **Focusing on our customers**

This is all certainly a challenge, but perhaps our most urgent focus should be on connecting differently with our customers.

As an industry I think most of you would agree that we have not been as successful as we should have been in focusing on delivering the lowest long-term cost solution to achieve a well understood set of safety, reliability, environmental, and economic development policy objectives.

We also have not engaged our customers, Ontarians, in a way that gives them a real sense of the value of our product, a value that is rapidly changing in its attributes.

We allowed electricity rates to rise to the point of widespread public outcry, turning the perceived value gap into the Grand Canyon.

Beyond simple price, this perception gap isn't unique to Ontario. Forbes Magazine recently compared the positive brand recognition and market cap of social media companies with energy companies like Duke Energy.

In 2015, Duke had a market cap of \$52 billion and employed 30,000. Facebook's market cap was \$337 billion, but it employed only 12,000.

Forbes points out that, "These companies don't actually produce anything...the biggest media companies on the planet create no actual content. Uber, the world's largest taxi company,

owns no cars. Alibaba, the most valuable retailer on Earth, keeps no stock. And the world's largest hotel and guestroom provider, Airbnb, owns no property."

And I love this line: "Those who trade in apps and ads are in the minor leagues of job creation compared to those who've harnessed the atom."

I'm not criticizing these companies; they're important. I am merely illustrating the extent of the perception problem we face.

So how do we narrow this value gap that we helped create? How do we do better? I believe it is by reconnecting with our customers.

Let's take a lesson from history. Sir Adam Beck, one of the founders of this industry had a simple, coherent message. People understood his value proposition -- that electricity could significantly benefit their lives.

That's because Beck took the time to show them. In the early 1900s, he travelled across Ontario in his famous "Hydro Circus," introducing rural folks to a host of labor-saving devices -- everything from electric stoves and washing machines to milking machines and power saws.

For the next 50 years Hydro made sure electricity was seen as a positive and productive force in people's lives; building a massive generating and delivery system and making the hydro a point of Canadian pride.

Along the way it changed the system from 25 to 60Hz. This involved going door-to-door across Ontario and changing or replacing the motors of millions of household appliances.

I'm not suggesting Mayo Schmidt, Brian Bentz, Rosemarie Leclair and I rent a van and drive around the province replacing heating systems, installing electric vehicle chargers and explaining electricity bills. Although I think we would have a good time, and would certainly learn some things.

In Ontario, where customers are concerned about electricity rates, we have to show them that we get it... that we care... and that we're willing to do something about it.

Customers want an industry that sees things from their perspective. They want us to engage with them and be accountable for our decisions. They want us to recognize they are more than ratepayers; they are individual customers with unique needs and issues.

I would suggest that collectively we turn our attention to engaging our customers and closing the perceived value gap.

One way OPG is working on this is to engage First Nation's communities in a dramatically different way, as partners.

On our three most recent hydroelectric development projects, First Nations communities not only gained skills training and jobs, as equity partners they secured a long term source of revenue for their people. We are continuing down this path, currently partnering with Six Nations to build a solar project at our former Nanticoke coal site.

We've also adopted a "Made in Ontario" focus to ensure that we maximize the benefit of electricity generation for Ontarians. This is best illustrated by the nuclear refurbishments, the largest infrastructure projects in Canada.

At Darlington more than 180 companies from communities across Ontario are directly engaged. About 96 per cent of the project's spend is with Ontario based businesses.

As a result, Darlington's refurbishment together with its additional 30 years of operation, will boost Ontario's GDP by almost \$90 billion and create an average of 14,200 new jobs per year over the same period. The Bruce effort has similar positive impact.

Many of these companies are not just manufacturing parts or providing services, they are creating new ideas and innovations that will allow them to reach new markets around the world.

OPG is committed to achieving on-time, on-budget success at Darlington and all of our projects.

The refurbishment of Darlington Unit 2 is 40 per cent complete, our safety and quality performance is strong, and we remain on schedule and budget.

We can't ask people to pay more for electricity if we can't deliver on time and control our own cost

We are executing initiatives focused on applying technology that will help us raise production and decrease spend to produce a lower total generation cost over the long-term.

Many of you are headed down a similar path. The Market Renewal effort led by Peter Gregg and his team at the IESO, properly done and with all our support can have a significant impact.

The OEB efforts to improve the effectiveness of the rate setting process will play an important part in gaining sector efficiency and building stakeholder confidence.

Recent input regarding business community views on the guiding principles for the sector, like those put forward by the Toronto Regional Board of Trade will help make the dialogue more robust.

I think we've made a good start, but the question we should all consider is how do we collectively reach the customers that rely on us to deliver the energy they need, at a price they can afford and with a value they understand?

How do we make the "hydro" a point of pride again, rather than an issue?

Well, I don't have a complete answer. But I believe it requires a concerted, consistent effort, across every level of our business.

It means keeping the customer top-of-mind. Being open, transparent, honest and humble about our shortcomings.

Controlling our costs and setting the same expectations for all of our business partners and suppliers.

It means working collaboratively to share best practices and innovations that lead to better outcomes.

So as an industry, what better time to get aligned around this common goal.

## **Closing**

I'm going to wrap up by reading something by Gordon Donaldson, a Toronto journalist and history writer.

It's from a 1981 publication called ***Sausages, Schnitzels & Public Power - A Brief History of Ontario Hydro's First 75 Years.***

Here's how it starts...

*"The Walper House in Kitchener was known throughout Southern Ontario for its generous German meals and reasonable prices. You got your money's worth.*

*The twenty-five small businessmen and municipal representatives who met there on June 9, 1902 got that and more.*

*For two dollars a head they had an all-day meeting, with lunch and a paid speaker from Toronto.*

*There they launched a crusade to capture the magic force of electricity from its private owners and make it serve the common man.*

*They did not look like crusaders as they left the hotel replete with sausages and schnitzel. But they burned with religious fervor for the new cause of cheap public power.*

Doesn't this sound like the best OEN luncheon ever? Including the part about the paid speaker.

I'm not suggesting we overthrow private enterprise.

But imagine if we all left here today with the same passion and purpose to do something good for the people of Ontario and our customers.

Indulge me while I read just a little further:

*“On October 11, 1910, Beck staged his first ceremonial switch-on of hydroelectricity in Kitchener, where it all began.*

*Horse-drawn buggies and a few automobiles brought farmers and notables from miles around.*

*Premier James Whitney came from Toronto by special train. Beck, not to be outdone, took another train.*

*Hilda Rumpel, a little girl dressed in her best party dress, brought the Premier a switch – The Switch – on a velvet cushion.*

*Graciously, or perhaps cautiously, remembering that 110,000 volts and the might of the Niagara was somewhere behind it along the line, the Premier allowed Beck to press it.*

*Suddenly a festival of lights glowed in the stadium and in the street outside bulbs spelled out the message “For the People.”*

Thousands of people cheered wildly as that sign flickered to life. They must have thought - what a time to be alive. I kind of feel the same way today.

Because if we agree that doing better for our customers is our common purpose, I believe we can make great things happen.

Well, as I said at the outset unlike last month's speaker I don't have combustion engines to blow up here on stage as a grand finale.

But I would like to share two videos from our new public communications campaign I think you'll enjoy.