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Demonstrating Value to Electricity Ratepayers

**The Ontario Energy Network
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DEMONSTRATING VALUE TO ELECTRICITY RATEPAYERS

Good afternoon. It's a pleasure to speak again to the Ontario Energy Network (OEN). I made my first major public speech as CEO of Ontario Power Generation, here. That was over a year ago.

Since then, I've given speeches on a number of topics relating to OPG and our industry.

And while public speaking wasn't a required course at engineering school, I'm beginning to like giving speeches.

I like it because it's an opportunity for me to connect with people – and vice versa.

Lately, I've been focused on this subject of connections – especially as it applies to Ontario's electricity industry.

Our industry has a lot of good things going for it. Just read the recently released *Long-Term Energy Plan* (LTEP) and the vision for a massive renewal of our industry.

But there's one area that has me worried.

I believe our industry has become *dis*-connected from the very people we were meant to serve -- the ratepayers of Ontario.

Some of you heard me make this observation when I spoke last month to the Association of Power Producers of Ontario. I want to explore it further today, because it's an issue we cannot and must not ignore.

Ontario ratepayers have recently seen their electricity prices rise dramatically -- and will continue to see them rise for several years.

Ratepayers demand and deserve value for the prices they pay.

They want Ontario's electricity industry to perform at a high level of excellence.

They want our industry to be cost effective and efficient.

They want us to be reliable, open and accountable.

And they want us to see things from their perspective -- which boils down to reliable electricity that's fairly priced.

Right now, I'm not sure our industry is seen as delivering these things as well as we could.

A gap exists. We have to close it.

This task is important to our entire industry.

It's especially important to the nuclear side of the industry, given the large number of nuclear projects on the horizon.

The LTEP notes that over the next 10 to 15 years, 10,000 MW of existing nuclear capacity will have to be refurbished and modernized. This includes refurbishing all four reactors at OPG's Darlington nuclear station. It also includes the reactors at the Bruce nuclear complex, which OPG owns and leases to Bruce Power.

Much of this activity will take place from 2015-2025.

I call this period the "critical decade."

"Critical" because nuclear represents half of Ontario's electricity supply. We're talking about rebuilding a substantial portion of our nuclear energy infrastructure. It won't be done all at once, of course. It will be done in stages to minimize the impact on the electricity system, and to coordinate the needed resources. The scale and complexity of this work is enormous. The workforce...huge. The price tag...in the billions.

We have to get this right.

And by "right," I mean doing some very specific things.

Obviously, these refurbishments must be performed safely. That's table-stakes.

At OPG, we do not underestimate the rigor and discipline that will be required to refurbish nuclear units while continuing to operate adjacent reactors.

Sometimes I think people believe that Darlington is four nuclear stations. It's not. It's a single station with four integrated reactors. This is why the Darlington refurbishment will require a high degree of coordination. Or as I like to say: "nuclear choreography."

Reactor safety is an overriding priority for all nuclear operators, and it is a Board level policy at OPG. At OPG the single point of accountability for nuclear safety is our Chief Nuclear Officer, Wayne Robbins.

But refurbishments must go beyond safety.

To protect the ratepayer, they must be delivered at a reasonable cost.

They must be delivered on time and within a properly constructed, fully vetted budget. These are non-negotiable criteria.

If we stumble in any of these areas we jeopardize our credibility with Ontario ratepayers.

The track-record for nuclear projects over the past decade has not always been a strong one in this Province or in Canada.

I won't repeat the list. They have received more than their share of media coverage.

Let's just say that it seems the nuclear industry promises to deliver, yet we fall short.

The *Toronto Sun* ran an editorial a few weeks ago that stated, and I quote, that "nuclear cost overruns and delays are synonymous." -- That's certainly a painful conclusion to read in a nationally circulated newspaper.

This perception has to change. And for good reason

Nuclear energy is one of the great power sources in our society.

It does not directly emit greenhouse gases and can be a very cost effective way to lower the carbon footprint of our economy. In Ontario it can also be an effective hedge against future natural gas price volatility and the resulting electricity price fluctuations. I believe the LTEP rightly emphasizes the strength of supply diversification -- that is don't put "all the eggs in one basket."

Unfortunately, this impressive contribution is being jeopardized by a less than stellar record of project delivery.

We can't keep asking ratepayers to trust us on nuclear projects, and then produce results that undermine that trust.

It won't wash.

It's time to be realistic.

For OPG, that translates into one thing.

We have to successfully execute the Darlington refurbishment -- as this will be one of the largest engineering and construction projects for Canada's nuclear industry since our nuclear plants were built.

The stakes are high. Our critics will have a field day if we fail.

But let me tell you, there's a lot to learn from the history of project delivery in Canada. We're aware of this at OPG.

We are reviewing the lessons garnered from the history of large project development in this country. And we will incorporate these lessons into our plans.

For example, you have heard me in past speeches talk about Sir Adam Beck. He was a legend in his time, with numerous accomplishments to his credit. His vision of an open power grid still resonates with us. But even the great Adam Beck, grossly underestimated the cost of his most important project – the Queenston-Chippewa power plant in Niagara that today bears his name. The project ended in a public inquiry as a result.

We're aware of this at OPG. We're also aware of a man, whom I actually worked for at the beginning of my nuclear career 33 years ago.

His name was Hyman Rickover.

In the 1950's, he was the U.S. engineer most directly responsible for turning nuclear physics into applied nuclear engineering -- that is nuclear reactors.

The history of this accomplishment directly parallels the engineering marvel that the Chalk River team created in the CANDU reactor for Ontario and Canada.

Over the course of his career, Rickover was responsible for the design, construction, and safe operation of dozens of reactors.

I'd like to read to you two things he said that are relevant to any nuclear undertaking.

1. "Success teaches us nothing: only failure teaches." and
2. "It is necessary for us to learn from others' mistakes. You will not live long enough to make them all yourself."

These examples illustrate the importance of knowing about, and learning from, mistakes. This forms a big part of our approach to projects at OPG.

On that basis, I am promising today that we are going to get Darlington right. And we are going to deliver.

These may sound like "famous last words" in light of the industry's track-record.

But I am standing by my statement, and here's why.

First, over the past several years OPG has been focused on managing large projects...and knowing how to learn from mistakes.

I will admit that we mishandled the Pickering Unit 4 restart. It was serious. Executives were fired. The Board was replaced. That was more than seven years ago.

But if learning from your mistakes is the mark of true success – and I believe it is – then we learned an awful lot from Unit 4.

We became a different company. Performance driven. More commercially oriented. More focused on continual improvement.

As the “new OPG,” we applied the learnings from Unit 4 to our next big nuclear project, the Pickering Unit 1 return to service:

- 1.9 million hours of work
- 40,000 tasks, and
- almost 3,000 workers on site at its peak.

We brought that project in safely, meeting our schedule and cost commitments to our stakeholders.

Then we took what we learned there, and applied it to our next projects. With each project, we learned more and got better – about process, about sourcing, about risk identification, about risk mitigation, about scoping, engineering, timing, contracting strategies, you name it.

We were like sponges. We’ve ended up developing a tremendous appetite for absorbing everything we can to help us deliver a successful nuclear project.

It’s paid off for us. Over the past five years we’ve successfully completed two massive vacuum building outages and the safe storage of Units 2 and 3 at Pickering A.

With these achievements under our belt, we have the momentum, knowledge, and experience to tackle Darlington’s refurbishment.

And we’ll do it in a way that delivers real value to Ontario’s ratepayers.

Safely. On time. And on a fact-based budget.

Let me repeat those words: “On time” “On budget.”

Some people claim these words and the word “Darlington” don’t belong in the same sentence. They say that Darlington’s construction was so over budget and over schedule that it’s a “poster boy” for bad project management. Refurbishing the station, they argue, would be throwing good money after bad.

This is a myth that's been bugging me for years. It's time to clarify.

First, the project was subject to repeated political stops-and-starts which led to prolonged construction delays. It was also built at a time of double digit inflation, which increased costs substantially. Darlington's final price-tag was \$14.3-billion -- Of that, about \$6-billion went to pay for interest on money borrowed for construction.

Second, Darlington was built during the 1970's and 1980's when nuclear projects were started before engineering was complete. OPG has learned a tremendous amount since then.

Finally, those who argue against refurbishing Darlington forget that it produces nearly 20 per cent of the electricity used by the Province -- all of it virtually free of emissions contributing to smog or climate change. What's more, over the past two decades Darlington alone generated twice as much power as our two Niagara Falls hydro stations. I think these achievements may surprise some people.

Bottom line...Darlington is a top performing CANDU station and its economics are very good.

It is vital that we keep its contribution alive for future generations.

Refurbishment is the key to that goal.

But what's equally important is the planning behind the refurbishment.

And that's what I want to talk about now, because planning is the key to success at Darlington.

We're already well-immersed in the planning process -- years before we start turning wrenches.

We're doing an in-depth plant condition assessment to understand the project's full technical scope to avoid any surprises prior to construction.

We'll then use this information to develop a realistic, fact-based final cost and schedule estimate. This is important. Many companies falter in their estimates because they didn't invest enough time to precisely determine the scope of the work and the detailed work plans to execute the scope. Our refurbishment costs will be carefully planned ahead of time. They will not be open ended or left to chance.

We're also well along on the procurement side. Requests for Proposals (RFPs) are on the street for major engineering elements that require long-lead times. Once these are in place, contractors can provide accurate pricing which helps us develop accurate cost estimates.

In addition, we're benchmarking other nuclear companies to enhance our own project management skills -- component by component. We're taking only the best practitioners as our models.

We're carefully following CANDU refurbishments at Bruce Power, Point Lepreau and at Wolsong in South Korea.

And here's perhaps the most significant step we're taking. We're building a full-scale tooling and testing facility. It will contain a replica of a real-life nuclear reactor. No tool and no worker will be allowed to work on Darlington's refurbishment without being tested, trained and qualified in this facility.

And we're not just planning for success. We're also planning for the inevitable challenges.

We'll have cost and schedule contingency plans, and a comprehensive risk registry, to manage all major risks associated with the project.

We'll have an effective sequential refurbishment schedule that allows us to manage the tasks on one unit before starting that work on the next unit.

We're also setting up "gates" and "off ramps" -- to make sure all milestones have been completed at key stages of the project.

To cap it off, we're putting together a strong team of employees and contractors. Many are veterans of our other large-scale nuclear projects. They know what they're doing. And they're aligned to our goals.

Leading them is our executive vice president of nuclear refurbishment, Bill Robinson. I believe Bill is one of the best large scale nuclear project managers in the CANDU business. He successfully oversaw the restart of Pickering Unit 1; and, he managed the Pickering Safe Storage project. Bill will get the job done for the ratepayer. On time. On budget.

But he's not the only one accountable for this project.

I'm accountable. And so is my whole management team.

Now some of you may be thinking: "Yeah, we've heard this before."

And you'd be right.

CEO's say they're "accountable" all the time.

We're paid to be accountable. That's our job.

But that's cold comfort to the ratepayer if the project fails to meet its targets. So how do I assure you the Darlington refurbishment will succeed?

As I've been saying, "it's all in the planning."

First, by the time we start construction, we will have completed at minimum -- four full years of intense preparation.

Second, the reactor mock-up that we're building allows us to do a full dress rehearsal of the refurbishment before starting the real thing. This includes fuel channel replacement, feeder replacements – all the key stages of a refurbishment.

Third, we're establishing clear lines of responsibility.

I'm a big believer in responsibility. So was my nuclear mentor, Hyman Rickover. This is what he had to say about it...and I've never forgotten these words:

“Responsibility is a unique concept. You may share it with others, but your portion is not diminished. You may delegate it, but it is still with you. If it is rightly yours, no evasion, or ignorance, or passing the blame, can shift the burden to someone else. Unless you can point your finger at the person who is responsible when something goes wrong, then you have never had anyone really responsible.”

Without responsibility, you can never hold anyone accountable.

Which leads to the final assurance I want to give you – the assurance of corporate accountability.

The Darlington refurbishment will succeed not just because I'm accountable as CEO.

It will succeed because OPG is accountable as a company.

We have a culture of accountability that ensures OPG will deliver for the ratepayers.

Here are some examples:

1. Our nuclear business follows an accountability model that is a pattern for the industry. It's very simple: “Say it. Do it”.
2. We are accountable as the project manager for all our major capital undertakings. We do not sub-contract project management because we believe OPG is ultimately responsible. No one else. You won't hear us blaming others for a failure.
3. When we announce the final cost and schedule estimates for the Darlington project in 2014, we will also announce the names of all the key executives involved and what their responsibilities are – just like Rickover says. And they will be held accountable.
4. We're forming an independent oversight group that will report progress to our Board and how well we are meeting our deliverables.

5. We will also be reporting regularly to the public. We will reach out to all our stakeholders – critics included.

We're doing all this because we know that in addition to having a good track record...and in addition to having sound planning...we must hold ourselves accountable, and be held accountable.

And we will be.

This is what it means for me to “connect” with the ratepayer.

For more than 10 years, the letters “OPG” have stood for Ontario Power Generation.

But I believe “OPG” must also stand for something more.

We stand for “Operating for the Public Good.”

When OPG was launched in 1999, we were on a path to become a private company – with the established goal of being a leader in North American generation. Then we did a “U turn” in 2004.

As I said last year in my OEN speech, we are comfortable with being a public power company.

We are publicly owned, and our focus is on Ontario.

About 70 per cent of our generation (and much more of our operating cash flow) is price-regulated by an independent decision-making tribunal.

We are the only electricity generating utility in Ontario subject to this rigorous scrutiny.

We pride ourselves on becoming more timely and efficient in our operations.

And, we also take on projects that require a degree of patience, persistence, and technological implementation – such as biomass conversions -- that is perhaps not yet best suited to the private sector.

This in no way negates our commitment to cost efficiency and prudence, as befits a company operating under the Ontario Business Corporation Act. It simply underscores our parallel commitment to invest in infrastructure that helps meet the long-term needs of the people of Ontario.

Finally, we are -- and want to continue to be -- the high volume, cost effective, low emission enabler that serves as the backbone on which to renew and grow Ontario's electricity sector as outlined in the LTEP.

This is what being a publicly owned power company means to me.

It's important work.

And we have a unique and valuable role to play.

In this regard I am pleased to announce today the successful completion of the Upper Mattagami River Hydro Project.

Four new stations were delivered safely, on budget and five months ahead of plan, providing 44 MWs of clean hydropower to Ontario. The challenges we overcame in this project – and the learnings we gained -- are being directly applied to our larger 438 MW Lower Mattagami Project.

And I would like to take this opportunity to personally thank some people responsible for making Upper Mattagami a success. They include: John Murphy, OPG's Executive Vice President of Hydro; Carlo Crozzoli, our Vice President of Hydroelectric Development; Project Director, Dick Jessop and Project Manager, Ed Dobrowolski. They did a great job.

Experience. Planning. Accountability. These factors embody our commitment to the ratepayer.

They will assure our success in completing not only the Darlington refurbishment, but other projects like the Lower Mattagami, finishing the Niagara Tunnel, repowering our Atikokan and Thunder Bay thermal stations, and adding new nuclear to Ontario's generating portfolio.

What's more, they'll enable us to deliver projects on time – and at a reasonable cost that provides the best value for the ratepayer.

This is not rocket science. These are things any company can embrace. We all need to embrace them.

Ontario ratepayers are frustrated. They're alienated. They feel like they're not "in the loop." They want us to give them value. They want us to understand their concerns...They want us to listen and engage with them....

If we have the resolve and wisdom, we can, and will, give them what they want.

In the process, we will re-connect with the ratepayer and re-establish the bonds of trust and empathy that lately appear to have been somewhat strained.

This will significantly benefit all of us. Thank you.