

Notes for Remarks
To the Timmins Chamber of Commerce

Ontario's Electricity Market

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Thank you very much for that introduction. I'm very pleased to be here with you today in "the city with a heart of gold." I grew up in South Porcupine, actually at the Dome mine property, and I realize every time I return that a piece of my heart will always be here too. Timmins has changed a lot in 30 years. It has grown into a full service and vibrant city... thanks, no doubt, to the good work of the Chamber and the businesses that are part of it. After all this time it's nice for me to still see some familiar faces, including my old schoolmate and now your Mayor, Tommy Lachren.

Electricity is something we all use every day at home, at work, and at play. The electricity system has been around for a long time now... but there are some pretty dramatic changes taking place. That's one of the reasons I'm here today. The decisions being made about today's electricity grid involve everyone, not just those of us that work for electricity companies.

I want to share with you a bit about what the IESO does to keep the lights on, how the industry is changing, and how you can play a part in making those changes work for you.

Ontarians count on having a reliable source of electricity. At the Independent Electricity System Operator it's our job to deliver that. We don't do it alone. The generators, the transmission companies, distributors, and the systems outside Ontario to which we are connected play a role. Our job is to knit all of those pieces together so there is always a safe and reliable supply of electricity.

The IESO does not actually own any generation or transmission assets. We are a not-for-profit organization, commercially independent from generators and transmitters. But from our control centre, we continuously monitor frequency, voltage and power flows across the province and we direct the operation of all the parties that make up the grid to ensure there is enough supply to meet demand. If you think of all the generators, transmitters and distributors as players in an orchestra, we're like the conductor of the orchestra. We need to keep everyone playing together because if we get out of tune, bad things can happen.

In fact, you may have first heard about us during the blackout of 2003, which, I will remind you, did not start in Ontario. It started in Ohio and over the course of about 12 seconds spread through Michigan, Ontario and New York, leaving 50 million people without power. We were the agency responsible for directing the restoration of the grid in Ontario.

Timmins had its power restored very quickly compared to some parts of the province, one of the benefits of the flexible hydro facilities here in Northern Ontario.

At the IESO, we also manage the wholesale electricity market, matching offers for supply with demand to set the price. Electricity generators submit offers into the market by indicating how much electricity they can produce, and at what price.

We forecast the provincial demand for electricity and select the lowest-priced offers required to meet the demand. We then tell the generators when to run and for how long. The price of the last (or highest priced) generator that runs sets the market price.

Since 2002, when the market opened, the price of electricity has been determined by the forces of supply and demand in Ontario's wholesale electricity market. This means the price for electricity changes hourly, fluctuating according to how high or low the demand is and how much and what type of generation is available.

As you would expect, electricity prices are higher when demand is high. Take a day like September 3, a relatively normal day. The price in the wee hours of the morning was 1.3 cents per kilowatt-hour. Later in the afternoon it rose to over 10 cents per kilowatt-hour. Why is that? Because as demand climbs, more expensive forms of generation are needed to meet that rising demand. While nuclear and hydroelectric facilities are expensive to build, they are not so expensive to operate. Coal and gas, on the other hand, run more during the day and their fuel is much higher priced.

Peaks for demand and price generally occur in the late afternoon or early evening. In this example, the peak price is more than eight times the lowest price at night. This is not always the case. But prices at night and on weekends are, on average, 35 per cent lower than weekday prices.

There are many businesses that shift a process to cheaper times of the day, plan their equipment maintenance for the most expensive times of the day, or reduce their electricity use if there are price spikes by dimming lighting in commercial buildings and stores for example.

Simply put...changing your consumption patterns, and reducing your electricity consumption at times when the market price is high, can cut costs considerably. This type of 'customer demand response to price' offers more opportunities than just simply conservation. Reducing your electricity usage can result in significant benefits to your bill, to the reliability of the electricity grid, and to the environment. We all have a role to play in managing our use by thinking about when we use electricity, not just how much we use.

One of the most important initiatives to encourage consumers in Ontario to manage their electricity consumption and costs is the Government of Ontario's Smart Meter Initiative. Smart meters measure consumption each hour rather than just at the end of the month like your old meter did.

Ontario's distribution companies have made considerable progress to date. Over 1.5 million smart meters have already been installed in homes across Ontario out of the 4.5 million that will be installed by the end of 2010. In Timmins and surrounding communities Hydro One has installed approximately 10,000 smart meters.

Earlier this year, Newmarket Hydro and Milton Hydro were the first local distribution companies to begin producing time-of-use bills.

As this program rolls out over the next few years, households will be charged different prices for different times of the day. There will be three price periods in a day: on-peak, mid-peak and off-peak. Using electricity will be much like long distance rates: it will be cheaper at night and on the weekends.

Any actions that we can take to lower overall demand at peak times can help to offset the cost of building new electricity infrastructure.

The Smart Meter Initiative is part of a much larger plan for Ontario's electricity system.

As Ontario's demand for electricity grows so does our awareness that it comes at the expense of the environment. Recognizing this, the government has made a commitment to shut down all of Ontario's coal-fired generation by 2014. That's 6,400 megawatts which currently accounts for about 18 per cent of Ontario's generation. So how do we meet the future needs of Ontario's homes and businesses reliably, economically, and sustainably?

To answer those questions the Government of Ontario directed an agency called the Ontario Power Authority to come up with a 20-year plan for our electricity system. The Government was pretty specific about some elements of that plan.

At the heart of the plan are very aggressive targets for conservation. In fact, conservation is being pursued more aggressively than I've ever seen in my career.

I recently read in the paper about the success the City of Timmins has had with their energy management plan. They've been smart about their approach, prioritizing the work by addressing their five most energy-intensive buildings first. The savings they are seeing have exceeded their expectations and I congratulate the City for its foresight and leadership. Imagine

the savings if all 445 municipalities in Ontario improved their lighting, heating and cooling, and other systems like Timmins has.

A second major component of the plan is the development of renewable energy like wind, water and biomass.

Wind is one of the newest sources of generation in the province. We have gone from almost zero megawatts a few years ago to over 500 megawatts today, which is the size of a large coal unit. And much more is planned. As a system operator we are learning about some of wind's unique characteristics – that it can operate more frequently and produce more power in the winter than in the summer. And although it's an environmentally friendly source of generation, it can create a lot of controversy in communities where the wind turbines are being installed. Northern Ontario is one of the areas of the province with substantial potential for wind development. However, it is a long way from the big load centres in southern Ontario and transmission enhancements will be required for that potential to be realized.

Hydroelectric power has always played an important role in our history – it was the first major power source in the province and it is clean, reliable and flexible. That's why Ontario Power Generation is re-developing three small hydroelectric generating stations on the Upper Mattagami River. When completed in a year and a half, 35 MW will be injected directly into the local distribution system in Timmins. OPG is also looking into a much larger redevelopment on the lower Mattagami that would add a significant amount of new hydro capability.

The province has also decided that nuclear generation will continue to provide about half the electricity consumed in the province, as it does today. Earlier this year the Government issued a request for proposals for a new nuclear plant to be built at the site of the existing Darlington nuclear station with a decision expected in the first half of next year.

This is an ambitious plan. The Ontario Power Authority recently filed its Integrated Power System Plan with the provincial regulator for review and approval. This is the first long-term plan for Ontario's power system in over a decade. In all, roughly 15,000 megawatts of new or refurbished resources are planned. That's almost 50 per cent of our system.

The plan includes generation projects, transmission enhancements and conservation efforts estimated to cost roughly \$60 billion over the next 20 years.

A number of the elements of the long-term plan are already underway. In the near term the reliability outlook in Ontario is very positive. Over the next 18 months, more than 5,000 megawatts of new supply (about 20 per cent of the total) will be added, half of which is already under construction or in the commissioning stage. This includes gas-fired generation in Toronto, Brampton and Sarnia as well as refurbished nuclear units at the Bruce Power development.

Along with this new supply, transmission system improvements are still a priority. Without a robust transmission infrastructure, this new supply will not reach end-use consumers. I was pleased to see that approval has just been granted for Hydro One to build a new 180-kilometre transmission line from the Bruce to Milton. This will allow more electricity to reach the populated areas of Ontario. There is a lot of potential for wind generation in the Bruce area that can't be built because the existing transmission system out of the area can't handle it.

And so, the system is in good shape for the next few years, and there is a plan for the future. So are these the only things that will impact our industry? My guess is no.

You only need to look at the transportation sector, and in particular the increasing focus on the electric car, to realize how our sector can be impacted.

Electric cars are on the way. General Motors will be introducing their Chevy Volt in 2010. They recently announced that Windsor will be one of their first test markets.

Electric cars can store energy... that's something we, as system operators, have never had access to on a large scale. Without storage, we have to make sure there's enough transmission and generation capacity to meet the highest levels of demand. But if smart electric cars charge up at night, when demand is lower, we can make much better use of our electrical infrastructure.

Electric cars could even send this energy back to the grid during system peak to help maintain reliability. So in theory, you wouldn't need to build a single new power plant to accommodate significant numbers of electric cars.

Some of the U.S. estimates are astounding ... the Department of Energy estimates that in terms of energy capability, the U.S. grid could, right now, support roughly three-quarters of today's cars, pick-up trucks, SUVs and light duty vehicles. This would add roughly a quarter of total US consumption. That's six Ontarios. That's 6.5 million barrels of oil each day that cars wouldn't use. And that's a mighty attractive proposition. No wonder Barack Obama is promising to put a million electric cars on the road by 2015 and John McCain wants to offer \$5,000 tax credits for each electric vehicle purchase.

Ontario, in many ways, is well positioned. For example, we have a growing supply of off-peak generation, mainly nuclear and hydro that run 24/7 and can be used to displace other fuels, like gas. We are installing smart meters to measure consumption hourly. We have a well developed automotive and communications industry. In fact GM and OPG have just begun a partnership in Durham Region where GM is a big manufacturer.

But there are challenges. How do you track and bill a mobile customer who can also be a mobile generator? How do you monitor and perhaps manage the charging and withdrawal rates? How

do you modify the distribution and transmission capability to accommodate these mobile power sources?

Innovation will raise new questions that will require innovative answers. And Ontario needs to be at the forefront.

So in conclusion, let me sum up what I've talked about today. The supply in Ontario is in good shape for the near future with over 5,000 megawatts of generation coming on-line in the next 18 months. This rate of progress will need to continue, however, as we move closer to 2014 when the coal plants are planned to close.

The electricity market and the introduction of smart meters will provide homes and businesses with an incentive to manage when they use electricity and how much they use.

At the IESO we will stay focused on meeting consumers' needs by continuing to ensure reliability while integrating new types of renewable generation and innovative technologies.

We're on the verge of some major advancements in the electricity industry and it's an exciting time. How we in the industry, and how you the consumer, respond to these changes – changes like new technologies, variable prices, smart meters, environmentally-driven actions – will have a big impact on Ontario's future.

Thank you very much. I look forward to your questions.