

Notes for Remarks

To the Ontario Energy Network Luncheon

“The Changing Ontario Power System ...

We’re not in Kansas anymore”

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Thanks very much Gord. As Gord said, it has been a tradition for the IESO to kick off the luncheon series each year and I am pleased to be here at the start of 2008.

This time of year provides an opportunity to reflect on the year past and more importantly, on the challenges ahead this year and beyond. It is a good time to take stock of where we are, but more importantly where we are headed. That will be the focus of my remarks today.

In preparing for this speech I came across a quote from Winston Churchill. And while he was alluding to politicians in the quote ... I think a System Operator is just as appropriate.

Winston Churchill said that a politician ... or in this case a system operator ... needs the ability to foretell what is going to happen tomorrow, next week, next month, and next year and to have the ability afterwards to explain why it didn't happen.

I have absolutely no intention of reminding you what I predicted last year. That will avoid any explaining and I can focus my remarks on what will happen this year.

Current Situation

But before I get to what's ahead of us, let's look at where we are today.

From a supply perspective, we are in better shape than we were a few years ago. Despite losing 1,500 MW heading into last summer, we made it through without any interruptions thanks to strong performances from generators and transmitters and a little help from the weather. Our main concern was the supply to the Greater Toronto Area. The GTA is somewhat unique in that there is a huge amount of demand; about 40% of the provincial demand; but relatively little generation within it. In the next few months we will be engaging the industry in a review of the reliability criteria appropriate for Toronto and for other large urban centers as well.

The Portlands Energy Centre is expected to come into service in time for this summer and that will improve the picture in the Greater Toronto and downtown Toronto Areas. While reliability within the GTA is expected to be adequate for this summer, it will depend largely on three things: the availability of the Portlands energy, the availability of the Pickering units and the availability of the autotransformers that feed the GTA.

Our recent IESO Outlooks indicate a positive demand-supply picture for the province in the mid term.

More than 4,500 MW of new supply is expected to come into service over the next 18 months. That represents the largest amount of new supply ever scheduled to come into service in Ontario over such a short period of time.

Much of that new supply will be coming in to service over the latter part of the 18-month period which means we still have another summer to get through.

Bringing this new supply onto the grid, while welcome, is not a simple matter. For example, incorporating the gas fired generation in the Sarnia area has required substantial upgrading and reconfiguration of the Lambton Switchyard over a 20-month period.

This is work on in-service equipment that involves complex staging and coordination among ourselves, Hydro One and OPG. And each time that changes are made to the system, flow patterns, allowable transfer limits, short circuit levels, all have the potential to change and have to be carefully assessed. In our latest Ontario Reliability Outlook there are more than 40 major transmission projects listed to be undertaken over the next few years.

Wind generation

Much of the incoming infrastructure is also relatively new technology and will present unique challenges for us. Take for example wind.

2007 was the first full year for wind-power data and the results are encouraging. Wind contributed more than one TWH last year, more than double the contribution from the year before.

This isn't a large amount relative to our total demand of 150 TWH. But with 700 MW of wind scheduled to come into service over the next 18 months and more in the future, the contribution from wind is on the rise.

But the wind doesn't blow all the time, it's hard to predict, and often the wind decreases as load increases. So the system has to compensate for this. In the words of the California ISO explaining their experience with wind "wind needs a dance partner". And to use another quote from the colourful Duncan Hawthorne when referring to a nuclear unit, he said "the elephant can't dance". Well, Ontario is committed to a lot of nuclear units so we have to find other dance partners for our wind.

We have been working with wind generators and others here in Ontario to ensure there are enough partners to successfully integrate a significant amount of wind in the province.

Ontario isn't the only jurisdiction that is counting on wind to take on a bigger role in the future. Across two thirds of North America, in ISO operated markets, there are about 125,000 MW of wind generation in the ISO connection queues.

Incorporating large amounts of wind generation has been identified as a key challenge across North America. Integrated studies have been launched by the North American Reliability Corporation, by the 10 ISO's and on a regional basis.

Much of what I have been talking about so far is within our operating timelines of the next few years. But as we look beyond the mid-term, there is much more that needs to be done as identified in the Integrated Power System Plan filed by the OPA.

Coal shutdown, new and refurbished nuclear units and new major transmission facilities are all major initiatives over the next decade.

And as I and many others have said before ... making sure this significant amount of new infrastructure will be there when it is needed depends on timely approvals.

Agency Review Panel

With respect to that, I was pleased to see the recommendation from Agency Review Panel citing ways that the existing approvals process can be improved.

I was also pleased to see the Panel support the need for organizational stability in the sector, acknowledging that this is not the time for major restructuring.

While the Panel did suggest future redistribution of OPA functions, I agree with the Panel and the Minister that now is not the time. With the amount of planned infrastructure change, all of us in the sector need to keep our eye on the ball.

There are recommendations in the Panel's report that we can move on quickly, including our need to work with Hydro One to develop a uniform approach to connection assessments.

We are putting together a work plan and expect to improve the efficiency of this process during the next few months.

The Agency Review Panel also argued that now is not the time for major restructuring of the hybrid market that we operate under. Again, that's good news from my perspective.

I continue to believe in the value of competition in the electricity market, a view that is supported across this continent. Over two-thirds of North America operates under organized competitive markets.

I don't see this changing. As you may know, Joseph Kelliher has been reappointed to a five year term as Chairman of the U.S. Federal Energy Regulatory Commission. Competition is the law in the U.S. and Kelliher has said the question for FERC is not whether competition is sound policy but what FERC can do to make wholesale markets more competitive.

I see similarities here in Ontario. I think it is time to put aside any debate about the role of competition and stop thinking about going backwards. Concentrate on going forward and putting our energies into how we can make this market work better in Ontario.

And one way to make both this market and the power sector work more effectively is through increased involvement from the customer.

Smart Meter

And to that end, smart meters are the key to customers getting involved in managing their energy use.

The province's smart metering initiative will encourage involvement by the 4.5 million residential consumers in Ontario. To date, more than one million smart meters have been

installed in homes across the province. A number of LDCs should be commended for their exceptional efforts in getting so many smart meters installed so quickly. That includes Toronto, Horizon, Enersource, Ottawa, Newmarket, and Hydro One ... all of whom are represented here today.

As part of this initiative, the IESO is implementing a centralized data repository and I am pleased to report that Newmarket-Tay Hydro is in the process of issuing the first customer bills originating from the central data system. Newmarket CEO Paul Ferguson is with us today and I would like to congratulate you, Paul, on your efforts in moving this forward.

We'll be working throughout this year with the Ministry of Energy, with Distributors and with the EDA to manage the registration of the smart meters, communications to customers and the implementation of time of use rates.

By the way, how many people here have smart meters installed? Raise your hand.

Do you feel smarter? I know for some of you, that may be hard ... because you are so smart already.

But collectively, these smart meters are a necessary part and the key building block of a fundamental change that is taking place in our industry. A change that will make our industry much smarter overall.

Within a few short years, Ontario will likely be the largest jurisdiction in North America with time-of-use electricity rates for all residential consumers.

These consumers will be plugged into this system, understanding that their actions have a direct consequence on reliability, the environment and their energy bill.

But this is just the start. New technologies and new approaches all around us are changing the way that electricity is supplied ... delivered ... and consumed.

We are already seeing some of these changes here in Ontario. Small generators are being connected to the distribution system under standard offer programs. You and I, through programs like peak saver, are giving control of end use devices to distributors. And the smart meter, in addition to allowing time of use billing, is providing distributors with real-time information about customer use and supply status.

Others changes are further out but are on the horizon. New technologies are being developed and tested that will allow customer appliances to automatically respond to price or even to actual conditions on the power system while minimizing customer inconvenience. Plug in electric vehicles that can either draw or deliver electricity to and from the grid have the potential to turn consumers into self-generators. Communication between intelligent sensing and control devices that allow distribution outages to be repaired automatically are being investigated.

Ontario's energy industry is on a steep learning curve. To quote the immortal words of Dorothy in the Wizard of Oz: "I have a feeling we're not in Kansas anymore Toto."

Customers are going to become active participants in the energy sector ... something we need to encourage. Because as we look to meeting future reliability and environmental needs, we need to look beyond the historical generation and transmission solutions and examine what new technologies can enable.

Smart Grid

The industry term that is being used to describe this transformation of our business is a Smart Grid. This is a term you will no doubt hear more of. I know this because the conference

industry has picked it up and begun their barrage of advertising. It must be an idea whose time has come. The Smart Grid refers to a system that allows for flow of information in two directions: both into the house to thermostats, appliances and other devices, and from consumers back to the utility operators.

The goal of the Smart Grid is to use advanced, information-based technologies to increase grid efficiency, reliability and flexibility, and reduce the need for new generating, transmission and distribution facilities.

The Smart Grid involves adopting technology to make better use of the existing delivery infrastructure.

The improved application of technology can also help to aggregate actions at the distribution level to relieve congestion or respond to emergencies on the bulk power system.

I think back to the summer of 2005 and imagine how having a few hundred MWs of aggregated load at our disposal could have helped us deal with some of the high equipment loadings we were seeing in the GTA.

A recently completed year long demonstration project in the U.S. Northwest concluded that peak loads could be reduced by up to 15 per cent by giving residents digital tools to set temperature and price preferences. While that number is at the high end of the predictions I've seen, even a reduction of five per cent would amount to tens of thousands of MWs saved across North America.

The researchers also suggested that over a 20-year period, this could save \$70 billion on new infrastructure spending and avoid the need to build the equivalent of 30 large coal-fired plants. Here in Ontario, Milton Hydro, Bell Canada and Direct Energy have teamed up to run a similar demonstration of advanced technology applications.

In the U.S., President Bush last month signed a new Energy Bill that includes a number of initiatives to encourage research, development and deployment of Smart Grid Technologies.

The U.S. Department of Energy has an annual budget of \$100 million to spend on demonstration projects including programs looking at time of use and real time energy pricing. Federal funds will also be available providing 20 per cent for qualifying Smart Grid Investments.

The National Institute of Standards and Technology will lead the development of standards and protocols for the technology.

Here in Ontario, we are already heading down the Smart Grid road with smart meters as the foundation. But all of us need to begin to think about what more has to be done to take full advantage of the possibilities that additional smart grid technologies and applications can offer. And we all need to think about how our business needs to change to adapt to a future where electricity consumers are full participants.

I have initiated a review of what a Smart Grid means for the IESO as a system and market operator. With this technology on the horizon, there are a number of implications for us. For example what future human and technical capabilities will we need for things such as monitoring and controlling the system, managing the market and forecasting and assessing system capabilities? How should we interface with customers (or their devices), distributors, transmitters and aggregators and our neighbouring reliability coordinators?

Others in this room, particularly distributors are giving this lots of attention.

As our understanding increases, we need to work together to maximize the potential benefits that a smart grid presents to ourselves ... to the sector we work in ... and to the customers we serve.

Conclusion

In conclusion, let me emphasize that I am not so naive to think that all of the Ontario's needs can be met through smart technology and engaged consumers.

Ontario has big reliability needs and we need major sources of supply and major transmission facilities to help meet those needs. Gaining approval of the Integrated Power System Plan is an important step towards that.

But we have to also look in other directions ... downstream to the customer and the distribution system. Why do I say this?

Because there are savings to be had and the potential is substantial. All of our interests, whether reliability, carbon reduction or cost drive us to capture these savings.

And technology is enabling exciting new possibilities for customers to participate in new ways.

Our challenge is to create the environment that will allow innovation to flourish, to ensure our institutional structures don't create barriers and that market incentives are not distorted.

Many of us in this room can work together toward a future where the downstream side of our industry is just as active as the upstream side ... where the entire supply, delivery and consumption chain ... is truly integrated.

And with that I will end my time in the land of Oz, click my heels together and return to Ontario.

Thank you for your attention.