

Notes for Remarks
To APPrO

Co-ordination and Cohesion:
Is there a need to re-establish direction,
focus or drivers in the industry?

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With the recent US election finally drawing to an end, there's been a lot of talk about change. "Change We Can Believe In," the slogan from Barack Obama's campaign has now morphed into "Change Can Happen."

I was lucky enough to be in San Francisco on the night of the election, and decided to wander the streets to experience a little of that election buzz. I saw people chanting "Yes We Can." I saw people dancing in the street. I even found myself corralled in a group and singing the Star Spangled Banner. And in a great demonstration of American ingenuity, I saw a homeless person sitting with his cup of quarters and with a sign which read "Obama wants change... so do I."

We – Ontario's electricity sector – have not been strangers to change.

If we think back on what we've achieved over the last six years as an industry, it is really pretty amazing. In this short time, we've opened a market, moved to address our immediate reliability concerns, launched a 20-year supply plan and begun the process of rolling out one of the largest – and most sophisticated – smart metering infrastructures in the world. And of course, these are just a few examples.

As described in the IESO's soon to be released Ontario Reliability Outlook, completion of the coal phase out by the end of 2014 is on track to being achieved, provided we don't take our foot off the gas. [that wasn't a plug for gas; I could have just as easily said so long as we keep the wind in our sails]

For us to discuss what is driving the changes in our industry is timely – because as we clear one hurdle, we often see other challenges – often more difficult ones - ahead.

In my view, the most fundamental driver for our industry has and will continue to be environmental concerns – particularly climate change. And, coupled with the US desire for

energy security and concerns over oil prices, it will drive changes even faster than we've ever experienced before. It will propel us – all of us - to re-examine the way we do our business within a new paradigm.

You only have to open up NERC's recent Long-Term Reliability Assessment to see how the industry is positioning itself for a fundamental transformation. The key challenges it highlights:

- Wind variability;
- Expanding transmission to deal with remote renewables;
- A growing concentration of gas generation; and
- Demand response verification.

All of these are almost completely predicated on the actions being taken to achieve environmental goals.

And NERC has even supplemented their annual report with a special report on the reliability implications of climate change; the first time NERC has ever produced such a supplement.

Earlier this year, Google launched an initiative to demonstrate that renewable energy could be produced cheaper than coal. In September Google announced they were partnering with General Electric to deploy renewable energy and plug in vehicle related technology.

Just last week, Al Gore in a New York Times editorial renewed his call for action on climate change as the means to repower and rebuild America. His five point plan included:

- Large scale solar, wind and geothermal investment;
- A national smart grid;
- Quick conversion to plug-in hybrid vehicles;
- Building retrofits; and

- Pricing carbon.

In Ontario, as I see it, the environment is behind every major initiative within our sector; not exclusively of course. Reliability and economic considerations continue to be key factors, but they are being considered within the context of climate change imperatives. In fact, I am encouraged that the environment, energy and economic development seem to be being considered together as policy is developed.

And this is good. Because virtually nothing in our electricity system works in isolation. A change in one area has implications on the next. The coal-phase out – as an example - changes the role of the rest of the supply mix, which requires investment and changes in operability, which requires changes in the transmission capability, which requires more streamlined approvals process, and ultimately will require fundamental changes in the way we operate the system.

And of course, the changes ahead of us affect every segment of the industry. A future with diverse intermittent supply, active consumers, and increasing contribution from distributed generation, all of these progressively more connected with new information technology, will require all of us to rethink the way we do our business; whether you are a supplier, a large customer, an operator or a regulator; our business will need to evolve.

The Response

At the IESO, we've begun to discuss our own further evolution. Our job is to keep the lights on – and we use market mechanisms to do this in an efficient manner.

In this process of self-analysis, as it were, it's becoming clear that we need to make a real paradigm shift in the way we view things.

We need to look at markets from the perspective of how they can foster public policy goals relating to the environment, the economy and reliability. How they can encourage investment and innovation. I continue to believe market mechanisms provide us with the most efficient means to operate the system. They help provide clear signals to all participants in the electricity system about what's needed and rewards those who can meet those needs.

If structured appropriately, markets motivate the individual components to work in the best interest of the broader system – because it's also in their best interest.

We have seen real benefits of the market-based approach we launched several years ago.

The Ontario wholesale market has improved the efficiency of the electricity supply. Adjusted for fuel prices, the price of electricity, that is HOEP, has gone down between 2003 and 2007. And while economists could probably get into a really good debate about why this is so ... one factor I look at is the significant reduction in forced outages in the system. This represents 500 MW of additional capacity– without putting a shovel in the ground.

In a future characterized by new technology, distributed supply and active consumers, price will become the common thread that binds together all the diverse decisions by various parties. Improving the ability of market to provide effective price signals will be an important factor in achieving the provinces aggressive conservation targets.

And while we are mindful of the role contracts are playing the market – and the impact of the Global Adjustment and other non-market charges – we see an increasing pressure on the market to produce more efficient and more effective signals of the supply/demand balance.

Many comment that roughly 75 per cent of generation in the province is under some form of OPA or regulated contract. Yet 60 per cent of the electricity supplied in the province actually has some sort of incentive to respond to market prices. Many of the contracts are specifically

designed to preserve this incentive. As more OPA contracted supply comes on line it will be important to further encourage generators to respond to market signals.

As many of you know, we have been working with our stakeholders to improve our markets – whether it be through the launch of the Day Ahead Forecast Price, or our most recent decision to move forward with an Enhanced Day-Ahead Commitment process. But we also understand that enhancements to the market will also require some more fundamental changes.

In the next month, we will release the next Ontario Market Outlook, which posits some broader market evolution issues. Much like the ORO, the OMO points to issues on the horizon, and how markets will need to respond to those issues.

Issues such as:

- How do we amplify market signals in the face of growing Global Adjustment increases?
- Are there ways to make a uniform pricing model work to help address congestion issues?
- Can the market promote efficient investment in new generation?
- Are we doing enough to accommodate Demand Response?

When you receive the Ontario Market Outlook, I encourage taking some time to read it. In effect, we are releasing the OMO as a means to foster broader discussion of some of the key market, energy and reliability issues.

The New Paradigm

As our system becomes more distributed and as more customers begin to play an active role, there will be many more players than we have today.

We at the IESO are looking beyond our current 300 market participant universe – and we realize that centralized control won't make as much sense in a very busy, very diffuse electricity sector.

So instead of just dispatching supply until demand is met, we expect we will need to take a different approach to system operations.

In the future, the IESO will likely need to move toward a “dispatch to balance” model for system operations. Here's why:

- Increased reliance on renewables – particularly wind – creates a growing level of variability that we need to be able to accommodate.
- More and more of our electricity needs are going to be met with distributed generation – which again, will be largely renewable.
- Consumers will become a much more active force in the system – with price variability and demand response initiatives beginning to touch the residential level.
- And Smart Grids are becoming a reality – technologies are now available to provide system operators - not just us but transmission and distribution operators - with greater information and control over flows along the grid.

In this new paradigm, the IESO's job has some new complexities. While we will still work to match supply and demand every second of the day, we will let demand response, distributed generation and others do their thing.

Through pricing and through intelligent monitoring, the control room will be connecting more directly with every customer – and we will be able to better understand their behaviour. Our job will be to monitor their activity and step into dispatch for the remaining balance.

How do we do this?

To do this, we have to better understand the future technologies available to support our work. That's why the work of the Smart Grid Forum that I am part of is so important. It shows us the possibilities of managing the system better through information technologies.

A very simple – yet powerful – demonstration of how this new paradigm could emerge is through the broad scale roll out of electric plug-in vehicles. Imagine millions of motorists charging up their cars at night, taking advantage of lower overnight prices from clean energy. These same motorists may choose to off-set their peak energy use by selling energy back to the grid from their car batteries at peak hours.

This example represents the convergence of variable pricing, smart metering infrastructure and an engaged consumer base. And it represents a powerful example of electricity and transportation sector convergence, driven by environmental, economic and security concerns. Brought together successfully, we can incent consumers to work in their own interests to buy electricity at lower prices, but at the same time promote system reliability – and environmental sustainability.

So that is, in essence, how dispatch to balance could work. As long as consumers have the opportunity to respond to the needs of the system – which is communicated to them through market signals, enabled through new technologies – we will be well on our way to establishing that new paradigm.

And while our operation of the system may not follow the command and control model in the same way as in the past – our world as the system operator is changing and expanding and the demands being made on us – to listen, to accommodate and to act – are also growing.

And it's this kind of change that I think Minister Smitherman is looking for from all of us. The Minister has visited the System Control Centre and I concur with Colin that the Minister has learned this file quickly. He has already spurred change in his direction to the OPA on the IPSP. I think we'll see more because I think the Minister, like Obama, wants change ... and so do I.

Thank you