



Notes for Remarks:
Ontario Energy Network Luncheon
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Check Against Delivery

I'm delighted to once again be the lead speaker of the year for the Ontario Energy Network. It is an honour that the IESO President and CEO has enjoyed since 2003, and I'm really pleased to be able to carry this tradition into the new company.

Congratulations to Gunars Ceksters on taking David Reid's role as President of the Ontario Energy Network.

And it's great to see so many familiar faces here today -- thank you for coming out. I would also like to acknowledge a few members of the IESO Board of Directors -- our Chair, Jim Hinds, and fellow Board members:

- Margaret Kelch
- Cynthia Chaplin
- Murray Elston
- Bruce Lourie ...
- as well as Serge Imbrogno, the Deputy Minister of Energy.

The beginning of a new year gives us the opportunity to reset our perspective about the path ahead for the coming year. For the IESO, this is especially true, as we begin 2015 as a new organization.

Today, I want to talk about the opportunities of this new organization for all of us in the room and about some of our priorities ... priorities that I hope align with some of yours across the sector.

But I don't intend my remarks to be only IESO-centric. The sector continues to change at a remarkable pace, and I want to talk about that change and our need, not just to keep pace with change, but to innovate for the benefit of the customers we serve.

As you know, the OPA and IESO came together as of January 1.

As the new organization, we now oversee the real-time operation of Ontario's electricity system and market, long-term energy planning and procurement, and the promotion of a conservation culture in the province.

To meet these responsibilities, the IESO will be addressing a broad continuum of issues and needs, improving co-ordination across the company's various activities and enhancing our capabilities to serve Ontario's immediate and long-term needs.

While we are one organization, integration is still a work in progress. For example, we expect it to take another six to 12 months before all of the major IT systems and business processes of the two organizations are fully merged.

But I am confident that the merger will result in increased efficiency both inside the organization and across the sector.

By streamlining the support functions within the two companies, reducing overall staff, executive and Board numbers, we will be able to reduce our ongoing revenue requirement by \$5 million annually.

Across the sector, the combining of the functions will increase our ability to identify opportunities to help bend the cost curve for customers.

For example, I'm confident that bringing procurement contracts and markets together under one roof can drive real efficiencies that customers can benefit from – just as we've seen with renewables integration.

Yes, we recognize that the combining of the contract and market functions and responsibilities has raised some concerns from stakeholders. We are addressing the immediate priority of stakeholders around the separation of contract information from market and system operations. And we recognize that stakeholders may have other concerns -- we intend to work with them to address those concerns -- within our capability to do so.

But bringing these two functions into one organization allows for a more effective integration of the planning outlook with operational experience, and to bring those insights into our procurement planning, which should result in more efficient contracts and markets. It also means that when contemplating market rule changes, the IESO will better understand the potential impacts on existing contracts ... and as one organization, work with participants to manage those changes.

So as we move forward this year, we will build on the strengths of both organizations.

And we have strong foundations on which to build.

Conservation, our markets and procurement expertise, a clean low-carbon system -- the heavy lifting has been done and now we get to design, innovate and build on those

foundations – so the question is: where do we go from here and how can we shape future plans for the continuing benefit of the customers we serve.

But before looking forward, it's also worthwhile to take stock of where we are and the issues we are facing.

As I look back over the past decade, the one theme that has dominated speeches and conversations in this industry has been the change that has been occurring and our need to manage that change.

That's not likely to be any different over the next decade – so the work of the IESO in planning, procurement, conservation and operations needs to be informed by the best intelligence available on emerging trends and technologies and how they will change the sector.

Ontario's electricity sector will continue to evolve – whether that is on the supply side, the distribution or smart grid front, in the market, or with the agencies that serve Ontario's electricity customers.

On the supply side, the transition off coal is complete. Nuclear continues to provide the lion's share of the baseload needs, with gas and hydro contributing to meet both baseload and peak needs, and renewable sources like wind and solar offering both supply and flexibility.

In 2014, wind not only accounted for almost five percent of the total electricity production -- but wind dispatch also allowed us to avoid an estimated 18 nuclear shutdowns during surplus baseload conditions.

A year ago, I spoke to the falling price of solar panels and the explosive growth of this source of generation around the world. Worldwide data released shortly after those remarks indicated that installed solar capacity had increased by over 36 percent in the space of just one year. Here in Ontario, we expect to have over 2,000 MW of solar power connected to Ontario's system by 2016 – 85 percent of which will be embedded in our distribution systems.

Last year we successfully procured 34 MW of storage with 16 MW to come. Given the resource mix and the increasing contribution of variable resources like wind and solar, our system stands to benefit from the flexibility and multiple services that storage can

provide. The 50 MW, made up of a mix of storage technologies, will help us test different end uses and provide insight into how these technologies can be best integrated into our system.

Another significant change has been in the ability of customers to contribute to meeting system needs. The provincial government's Conservation First framework has set a savings target of 7 TWh from local distributors by 2020, with a total energy-savings target of 8.7 TWh. We have signed energy conservation agreements with all 75 LDCs, and we are now in the process of reviewing and signing off on the CDM plans that are being submitted. I would like to congratulate the LDCs for their efforts to date, and we look forward to working with them to help them achieve their targets.

We are also transitioning demand response into the market. This year is expected to be a pivotal one, with an RFP for pilot projects about to be launched and the first auction for demand side resources expected to occur later in the year.

On the market side, we are continuing to work with stakeholders to advance a capacity auction that would be designed for Ontario's needs. While we continue to enjoy a positive supply outlook in the near future, we expect to face new requirements before the decade is out. While our reliance on procurement initiatives has helped ensure reliability, we have the time and ability now to assess whether market-based approaches like a capacity auction can also provide economic solutions to meeting Ontario's needs. Our focus on pursuing market-based approaches will continue. As I mentioned at the APPrO conference, I see us looking to the flexibility of a market approach while at the same time relying on the assurance that contracts can provide.

Change is also occurring in the agency world. In addition to our merger, Ed Clark's report to government has outlined potential changes for Ontario Power Generation and Hydro One.

And our Energy Minister Bob Chiarelli has indicated a desire to change the way the provincial government engages in this file – policy guidance to be sure, but with less granularity than has been the case in recent years.

All of this change has the potential to significantly impact many of us in this room generators, customers, and the IESO. And perhaps most of all, the local distribution companies.

The issues that LDCs are facing seem to be dominating a number of conversations these days whenever anyone talks about the future shape of the electricity sector. Even over the holidays we saw John Spears' piece in the Star about the challenges facing LDCs.

I am not ready to start writing the LDC obituary. But I am concerned that in some quarters the changes that are coming are seen as an extension – albeit a challenging extension -- of “business as usual.” I’m not so sure about that.

Rather, at least from what I see, we need to do some serious thinking about how fast-evolving technologies and a more engaged consumer base will redefine our roles, our responsibilities and our relationships.

What technologies am I talking about that could be so disruptive?

The U.S. Department of Energy has talked about the possibility of the energy storage market expanding by 900 percent by the end of the decade. In July of last year, Tesla Motor Company formally announced its plans to partner with Panasonic to develop its new battery Gigafactory in order to further drive economies of scale and cost reduction. As recently as December, the Economist magazine was speculating that perhaps the most valuable use of these batteries will not be in Tesla's cars, but rather in conjunction with distributed solar generation. Already 1,000 residential electricity customers in California are in the midst of testing Tesla stationary battery packs in their homes, and other competitors are quickly entering the market.

There has been a lot of discussion about what might happen to the LDC if more and more customers begin to self-generate and store their own power. Over the past year, the U.S. Department of Energy's Berkley National Laboratories conducted perhaps the most comprehensive study yet on the effects of distributed solar penetration, developing a rigorous model of an investor- owned distribution utility. They modelled a variety of scenarios and came to some stark conclusions: Even a modest five percent penetration of solar power in a distribution system could erode return on equity by up to nine percent, and the numbers go up in a linear fashion: 10 percent penetration = 18 percent loss on return on equity. The Berkley study further found that regulatory measures such as Lost-Revenue Adjustment Mechanisms (LRAM) and revenue decoupling only solve the loss of return on equity at the expense of increased customer rates.

In contrast, look at the capabilities and opportunities for LDCs that flow from the bundle of technologies we call the Smart Grid. A recent article in Public Utilities Fortnightly points out the benefits of applying distributed, intelligent controls across a resource portfolio of distributed energy sources, storage and managed loads. Those controls can drive optimal performance, efficiency and cost – making each element of that portfolio a dynamic, manageable resource in the supply-load balancing act.

Flexible, reliable, and resilient – highly valued qualities – and being provided from the LDCs both to their customers and to the system.

Can we imagine our LDC business models evolving to take on the associated roles, responsibilities and relationships?

I look at examples like Brian Bentz’s microgrid demonstration project at Powerstream; Max Cananzi’s use of energy mapping at Horizon; programs in Sudbury, North Bay and Kingston to provide enhanced data, allowing consumers to better manage their energy use; Toronto Hydro’s DR pilot; innovative projects in Guelph, Ottawa, Cambridge, Milton and elsewhere. And we all enjoyed Anthony Haines OEN talk in December.

So yes -- I believe we have the vision to drive big change – although I am a little dubious about Anthony’s promotion of Tesla coils for wireless supply connections.

Do those institutional arrangements with LDCs sound far-fetched?

Not at all. Just look at the process underway in New York where the State Public Service Commission is driving a radical rethink of their distribution system ... what they are calling “*Reforming the Energy Vision*” (REV). The Commission believes that by fundamentally restructuring the way utilities and energy companies enable the provision of electricity, the state can maximize the utilization of cleaner resources -- and reduce the need for new infrastructure through expanded and co-ordinated demand management, energy efficiency and conservation, renewable energy, distributed generation and energy storage programs.

The heart of the concept is that each LDC would operate a Distribution System Platform. This platform is intended to afford the opportunity for distributed generation, storage, and controllable load to “plug and play” – participating in a uniform local

marketplace.

The operation and dispatch of that marketplace would be carried out by the LDC – with the aggregated LDC results being integrated with the ISO. But for the LDC, managing the increased contributions from demand response, conservation and embedded generation like solar and storage would be the distribution analogue to the jurisdiction-wide ISO.

Ambitious – but at the very least, these specific proposals remind us that with an increasing portfolio of supply and load resources embedded in our LDCs, there will need to be protocols developed to better co-ordinate LDC operations with IESO operations. Our world needs to evolve to one of a more coordinated or integrated model of distribution and transmission decision making, resulting in more intelligent solutions for the consumer -- and that needs to happen soon.

So we'll be looking to get started quickly with one or more of the LDCs with embedded supply and load resources to figure out the best way those resources can help both organizations.

Working with others in the sector, we've been successful to date in integrating the significant and fast growing amounts of variable renewable generation into our supply mix, and we and the LDCs have worked well together to advance the government's Conservation First initiative.

I'm confident we and the LDCs can build on those successes to deliver greater benefits for ratepayers through increased co-ordination of operations.

Some of these developments that I have talking about are likely to take years to be fully realized. But before I close, I want to come back to this year – and mention three other priorities or initiatives I have set for myself in managing this new organization, in addition to the ongoing priorities of conservation, market operation and long-term planning.

Priority number one is at the strategic level -- and here my goal is to expand the public value that we provide. That will be a key lens in guiding our business.

You may have heard me speak about the concept of public value in other venues, it is a concept that resonates with me and one that resonates with our employees ... it guides

what and why we do what we do.

In the former IESO organization, our public value centred around our system and market responsibilities, managing those responsibilities to promote both reliability and efficiency that our customers could count on. The OPA's public value stemmed from their responsibilities around promoting a conservation culture in Ontario, acquiring new sources of cleaner, renewable power and ensuring the long-term sustainability of the province's power system.

Both organizations were considered leaders in this sector and both had equally critical, valued and inspiring responsibilities.

Our challenge now is to bring those responsibilities under one roof, learn from one another and leverage that learning to expand our public value – earning the legitimacy and support that will be the measure of our success across our business.

As a second item, let me give a project example – but a project that I also believe meets my public value objective.

As you will know, we currently operate the smart meter data repository in our role as the Smart Meter Entity for the province of Ontario.

Ontario has made a significant investment in smart meters and in the central repository for high quality, consistent residential and small commercial electricity consumption data. This repository is currently being used by LDCs in the processing and management of smart meter data to support billing of electricity customers on time-of-use rates.

But the data set in MDMR also offers significant potential value for designing conservation and demand response programs, system planning, policy development, academic research and to support innovation in Ontario.

Capturing that value will involve two requirements:

One is to ensure that the data repository is provided with common data fields from all LDCs – there is some optionality now that will have to be addressed to capture the analysis value of the full data set.

And second, we will need to develop an agreed or mandated framework or protocol that governs access to meter data, and builds in Privacy by Design.

Over the next few weeks, we'll be initiating a process to engage the sector to address these two requirements, with the goal of enhancing the value of Ontario's smart meter data.

The third priority that I want to touch on today is focused on effective engagement with our stakeholders. Stakeholder engagement has been an important part of the IESO's DNA for a number of years, and I intend that to be equally the case in the new organization.

The Stakeholder Advisory Committee process adopted by both organizations will continue. We are working with the members of both SACs to establish the right make-up for the new organization – and we'll be working with stakeholders to establish one process going forward, again taking the best from both organizations and applying it here.

Given the increased scope of the new IESO, it will be particularly important for us to seek out and respect the input that is provided by stakeholders, participants and customers. And that's a promise we make to all of you.

That's really only a tiny sample of what is on our plate. But I believe it is our duty to embrace the full scope of our mandate – and we will.

I also hope to give you a report-back on this occasion next year – which is my shameless way of promoting the tradition of the IESO's New Year's opener at the OEN.

Thank you for your attention.