

Notes for Remarks

Terry Young speaks to the Corporate Real Estate community
January 30, 2018

Opportunity in a Changing Energy Environment

Thank you for having me here today.

Climate change is having a big impact in many sectors across the economy, and that is true of the electricity sector.

Paradoxically, our collective effort to combat climate change and all the negative things associated with it is actually creating a lot of opportunities. It's a great example of human ingenuity.

Efforts to create a cleaner and more resilient society are stimulating innovation, creating new business opportunities, and leading to a much more dynamic and customer-driven electricity system.

To illustrate this, I'd like to show a brief [video](#) that highlights some of these major areas of change.

We produced this video to support an initiative called [Powering Tomorrow](#). It's a new feature on the IESO's website that profiles innovative projects that the IESO is involved with that are preparing us for the electricity sector of tomorrow.

The point I want to make here today is that the opportunity is now for communities and consumers to respond to this change we're seeing... to take control of their energy use, manage costs, and become more competitive... all while helping to combat climate change.

I'm going to start with the bigger picture of the change we're seeing in the electricity sector, and then get into what that means for communities and consumers.

But first... let me explain who the IESO is.

Who is the IESO?

- We operate the grid and electricity market
- We support innovation
- We plan for Ontario's future energy needs
- We enable province-wide energy conservation
- We engage stakeholders and communities

Ontario at a Glance

Here are some facts showing Ontario's system at a glance, from which we can derive a few things. Maybe most of all, it shows the importance, and the challenge, of maintaining the resiliency of Ontario's vast system in the face of a changing environment.

Our system has about 30,000 km of transmission lines. We're interconnected with Québec, Manitoba, Michigan, Minnesota, and New York. And we currently serve about 5 million customers across 21 planning regions in Ontario.

That's a lot of physical infrastructure to maintain, a lot of coordination required across borders and within the province, and many customers affected.

We also see that demand in 2017 was 132.1 terawatt hours. But what does that mean? Let me put it into historical context...

Ontario Demand

Demand on our province-wide system has been declining for about a decade.

We can see the impact of generation that we call "embedded" in local distribution territories as well as the impact of conservation.

We're looking at about 20 terawatt hours, or 15 percent, of energy saved through conservation in a system where overall demand was 132 terawatt hours last year.

That demonstrates the significant ability of Ontario residents and businesses to conserve energy and become more energy efficient. And there's more we can do, which I'll get to later.

Ontario's Supply Mix

While our demand for energy has been declining, our supply mix has changed considerably.

Ontario's energy landscape has also been transformed in the last 10 years or so. Coal, which at one point made up one-quarter of our installed capacity, has been retired and replaced with renewable generation, refurbished nuclear and natural gas.

Non-emitting resources produced 96 percent of our energy in 2017.

Natural gas fired generation, which continues to provide valuable flexibility for our system operators, was down to only 4 percent, which is remarkable.

Ontario is now in a stable supply situation that is expected to continue into the 2020s.

But the nature of our supply mix is changing. Traditionally our energy has come from generators on the province-wide system, but now we're seeing more and more generation and other resources on local distribution systems that are contributing.

These are known as distributed energy resources, and they're changing the dynamics of the electricity sector.

Distributed Energy Resources

Distributed energy resources, or DERs as I will refer to them, are leading to a more decentralized and interconnected system, with more moving parts.

DERs can include solar panels, combined heat and power plants, electricity storage, small natural gas-fueled generators, electric vehicles and controllable loads, such as

HVAC systems and electric water heaters. These resources are typically smaller in scale than the traditional generation facilities that serve most of Ontario demand.

We now have over 4,300 MW of DERs in service and under development in Ontario, over half of which is solar.

To continue to serve customers at established reliability standards, DERs need to be fully integrated into electricity system operations, planning, markets, and regulations.

We're already evolving our planning processes to better integrate distributed resources, and to identify opportunities to leverage DERs to provide new services, such as transmission and distribution investment deferral.

This is something we've heard from local distribution companies and communities across the province... a desire to choose distributed resources—whether conservation, solar power or otherwise—as alternatives to traditional electricity infrastructure to meet regional needs. It's a good example of how DERs can improve how we can collectively serve our customers by offering opportunities for greater customer choice.

Regional Planning

Recognizing the increasingly decentralized nature of our electricity system, and the growing role of communities and consumers, the IESO continues to evolve its regional planning process.

This involves working with transmitters, local distribution companies, municipalities, Indigenous communities, consumers and other interested parties to enhance the process to better meet the needs of communities.

In many areas of the province, Local Advisory Committees have been established to help provide advice and recommendations on regional electricity planning.

An ongoing dialogue serves to build understanding of how regional planning happens and provides opportunities for local input. The changing nature of our system means we need to change how we engage. A strong consumer and community voice is crucial, and the IESO is working to strengthen their role in electricity sector decision-making and discussion forums.

Ontario Conservation Outlook

When we look at the growing role of the consumer in our electricity system, we see increasing opportunities to manage energy use. Ontario has established itself as a North American leader in conservation.

Conservation is the most cost-effective resource available when we compare program costs with investments in traditional supply resources. It helps defer the need for new investments in generation and transmission lines, while of course also helping consumers to manage their costs.

In 2015 we set out on an ambitious path to achieve 7 terawatt hours of conservation by 2020 through what is known as the Conservation First Framework.

We're currently on target and under budget at the halfway mark, having achieved about 3.5 terawatt hours, the equivalent of powering 1,200,000 electric vehicles for a year.

We see the potential for a lot more conservation savings in Ontario expected to come from already planned programs and potential future programs.

But this is where it's up to those of you in this room to get involved and take advantage of the opportunities before you.

For many businesses, energy is the single largest controllable cost.

Since 2011, there has been over \$400 million invested in energy efficiency for offices in Ontario. This has yielded over 475,000,000 kWh of energy savings.

What we are starting to see is deeper, broader energy efficiency projects... for example more control projects related to lighting and HVAC, for instance, instead of simple equipment replacement.

And while lighting is still the biggest source of energy efficiency, non-lighting measures are beginning to catch up.

And it's about more than costs... improved energy management practices can improve productivity, workplace safety and sales. It can help with tenant retention, corporate social responsibility, and achieving performance standards like BOMA BEST and LEED.

One of the programs we're most proud of is the Energy Performance Program. It's attracted a diverse group of participants, such as banks, schools, and large retailers.

The program is unique in that it doesn't provide a rebate or incentive for any particular measure. Participants set a baseline for their energy use and are then rewarded for continuous energy use reduction through conservation measures of their choice.

Green Ontario Fund

The Green Ontario Fund is bringing a new dimension to the energy efficiency landscape – so that reducing your carbon footprint is also a key consideration in energy management projects.

The Fund is expanding the investment pool, taking monies from the carbon market, and putting them into home, buildings and factories – in effect bringing fighting climate change to the ground level.

A key to this is having a “one stop shop” for conservation and energy efficiency programs. The [GreenON](#) web site acts as this central point for customers, making programs more accessible.

On the site, you can enter your location and the size of consumer you are and find conservation and energy efficiency programs available to you from various sources, whether IESO, Save on Energy, the City of Toronto, or natural gas companies.

Our energy sector is undergoing fundamental changes, many driven by climate change policies.

This is creating a lot of opportunities and I encourage you to stay engaged.

Thank you.