

**CERAWeek 2010**

**“The Future of Renewables”**

**A presentation by**

**Colin Andersen**

**Chief Executive Officer, Ontario Power Authority**

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Thank you for this invitation.

It's an honour to be part of this forum. To be in a place where so many energy leaders have gathered to discuss the issues that are critical to our industry.

More importantly, to our communities, to our nations. And our future.

It also seems fitting that this meeting would be here, in Texas. A place so legendary in the history of energy. And one so integral to electricity's future—the heartland of America's "wind belt."

I was asked to tell Ontario's story and give insights from a jurisdiction that is putting into practice many of the things you have been hearing about throughout the conference. We have heard a lot about Europe and Asia.

Now, I'd like to turn our attention to what has been happening right here in North America. Ontario's program addresses a lot of the issues raised on this panel and we're interconnected to the same grid, so we have a lot of common interests.

This morning, I'd like to tell Ontario's story, because Ontario has a very good story to tell. And it's certainly getting a lot of attention in Canada—and other parts of the world.

In fact, Al Gore recently called Ontario's plan "the single best green energy program on the North American continent."

To give you some context, we're the most populous province in Canada, with about 13 million residents and an electricity system of 35,000 megawatts. Our peak demand

is about 24,000 MW. Annually, we use 150 terawatt hours.

We're the economic heartland of Canada—generating about 40 per cent of the country's GDP.

My agency, the Ontario Power Authority, was created five years ago to ensure a sustainable and reliable electricity system for the future.

It's our job to plan. We also coordinate conservation initiatives and contract new energy supply.

We recognize that reliability and sustainability are based on having an integrated and diversified supply of resources—including natural gas, hydro, nuclear and renewable energy to meet our electricity needs. To ensure reliability, we also have developments underway across what is a very large geographic area.

When we set out to transform our electricity system, we also recognized that we needed to take a holistic and systemic approach. That's why we have so many initiatives underway—conservation, transmission, renewable energy and a smart grid. Lots are doing some, we're doing them all.

It's a recognition that there are many moving and interconnected parts. And that to make progress, we have to work on all of these parts while empowering our customers.

Conservation will always be first on our list and we've got ambitious goals.

We're already well on our way to meeting our target of reducing peak demand by 6,300 megawatts by 2025. That's the equivalent of taking one in five households off the grid. In fact, we're nearly one-third of the way there. And we believe we'll hit our goal early.

We're also making our grid smarter.

More than three-and-a-half million smart meters have already been installed and the entire province will be on time-of-use pricing by the middle of next year. That gives consumers more information and the opportunity to manage their bills better.

The smart grid will also help LDCs operate more efficiently and it better enables them to accommodate more distributed generation.

We're the first jurisdiction in the world that is getting out of coal-fired generation completely. And at one time it represented 20 per cent of our supply mix. It's the single largest climate change initiative in North America and it will be gone by 2014.

Getting out of coal means we are reducing our electricity system's carbon footprint by 75 per cent. Despite what you might have heard about Canada at Copenhagen, there's lots happening at the sub-national level.

We're also refurbishing existing nuclear plants and we're considering new nuclear.

And we're updating our transmission system. In October, our government announced the provincial network will see a \$2.3-billion injection over the next three years alone. And there's more to come.

Contrary to what people may think, the bulk of our supply doesn't all come from Niagara Falls. In fact, 50 per cent of our supply is generated by nuclear. Twenty-five percent is hydro and, as I said, coal was 20 percent and on it's way to zero.

So, we were starting from a supply mix that was already relatively green and clean.

But what has really put Ontario on the map is our

aggressive push into renewable energy.

Last May, the Ontario government set the groundwork for a new and ambitious clean energy program with the introduction of the Green Energy Act.

It not only positions Ontario as a global leader in both conservation and renewable energy, it's expected to encourage billions of dollars of investment in Ontario's electricity sector.

It's also expected to create 50,000 green collar jobs in its first three years. And serve as a catalyst for the greening of other parts of the economy, such as transit and vehicles.

There is of significant interest to Ontario as a leading auto manufacturer in North America.

The cornerstone of the Green Energy Act is our Feed-in Tariff program—the first and most comprehensive of its kind in North America. We launched our FIT program in the fall, and the response to it has been amazing.

In fact, we're going to be awarding our first big contracts in the next few weeks.

It's attracted attention from both developers and manufacturers. A good example is the significant deal the Ontario government has reached with Samsung and a group of Korean companies. Samsung recently announced plans to invest \$7-billion to build green energy projects in Ontario—including four manufacturing plants. That investment is expected to create 16,000 jobs alone. Over the next few years, we're expecting to add about three to four thousand megawatts of renewable energy into our supply. Some of this is already in the pipeline and some of that we are contracting under our Feed-in Tariff Program.

FIT is our primary vehicle for building our supply of green energy in Ontario—and it's enabling us to eliminate coal from our supply mix.

It essentially opens the door to those wanting to invest in renewable energy projects in Ontario in a way that is simpler and more certain than before.

It offers developers and entrepreneurs guaranteed incentives to invest in projects—roughly an 11 per cent Return on Investment and an 11-year payback depending upon the type of project. Our prices are designed to cover capital, operating, maintenance and connection costs and a reasonable rate of return. It covers on and offshore wind, solar pv, biogas, water and landfill gas.

It's an open-ended program. Projects have the “right-to-connect” – if a project is economic to connect, it will be connected.

Also, it will be easier for developers to build their projects – Ontario has streamlined the upstream approvals process, including environmental approvals.

FIT offers ownership opportunities not just for the private sector, but many other groups. Special funding is available to encourage municipalities, Aboriginal, LDCs and community groups to become involved in renewable energy.

Since launching the program on October 1st, we have received nearly 10,500 applications, representing about 9,800 MW of potential renewable energy.

- Of those, roughly 9,000 are for our microFIT program.
- And more than 3,000 have been given conditional offers
- We hit the second milestone in our renewable energy program last month, awarding contracts to 510 medium-sized projects

- And just two weeks ago, we awarded 184 large-scale contracts under our FIT program. The contracts represent 2,500 MW of renewable energy—enough to power 600,000 homes

We'll continue to look at nuclear and gas as a natural dance partner to renewable and combined heat and power usage in urban areas.

In all, over the next three years, generation contracts under OPA management including gas and renewables will double to 26,000 megawatts and triple in dollar value to over \$44-billion.

On a 33,000 megawatt system—give or take—that's a lot of investment and growth.

Despite our success over this past year, we recognize there are challenges ahead.

We are putting in place a system that requires much more flexibility. Here's an example: Last Halloween, at 4 p.m., wind generation was at a record level: Nearly 1,000 MW. Twenty-four hours later, it had dropped to 7 MW. That's a big swing but manageable.

Our system worked exactly as it should.

Our operator, the Independent Electricity System Operator, or IESO, was able to dispatch other flexible resources as wind supply was falling. And we were able to maintain reliability

IESO is also developing new tools to help them balance supply and demand. They are working on a sophisticated centralized wind forecasting system, as well as other mechanisms like load control and meaningful price signals.

Our FIT contracts are designed to take fluctuations into account. In periods of surplus baseload—a new challenge

for us—FIT contractors will continue to get paid even if the system isn't using their electricity. In other words, it's a “take or pay” system.

We're now seeing that we need to align operations and economics via market rules and contracts so one doesn't cancel out the other. For example, we should consider paying for dispatch ability—not just energy and capacity.

Other challenges and how we're addressing them:

While our contracts give guaranteed prices once in operation, we do know that some smaller developers are experiencing some issues getting through the construction phase of their projects. North American lenders are still less familiar with these types of projects than their European counterparts so financing can sometimes be an issue. I'm hopeful domestic lenders will get on board once they see some real life successes as the economy improves.

The multiplicity of approvals was a problem and we've streamlined the environmental approval process and put in place standard setbacks across the province. The latter streamlines the municipal part of the approvals process, too and provides more certainty.

We are also facing opposition in pockets of the province over wind farms. Some communities are concerned about wind turbine syndrome. Noise considerations and consultation are required parts of the approval process.

Community participation and/or ownership also help. And we are also anticipating increasing concern over the cost of electricity. But those are the costs of reliability and sustainability—the costs that come with transforming a badly outdated electricity system. We need to do more in explaining this clearly and repeatedly.

In addition to giving our residential customers to take greater control over their electricity usage, we've also

introduced a number of conservation programs for all classes--business and industrial users—to help them control their costs.

It's been a very busy and rewarding year in Ontario's electricity industry.

Our immediate focus, over this next year, will be on implementing our Feed-in Tariff Program and other aspects of the Green Energy Act.

While our path is largely set to 2015, when coal is gone and our nuclear plants begin to age out, there will be more decision-making to do. We'll be thinking more about export opportunities as well as the electrification of cars and our transit system.

The good news is that we've got some flexibility and we're already working with our government to solve those questions.

So, to recap, I think you can see why I say, Ontario has a very good story to tell. And I haven't even given you the complete story. There's much more to say about nukes, cogeneration, combined heat and power and energy from waste.

But I'd like to reiterate a few aspects of our story. We're eliminating coal from our supply mix

- We've set and are meeting ambitious conservation targets
  - We're implementing the first and most comprehensive Feed-in Tariff program on the continent
  - We're also leading in smart meters and doing a significant grid build—all at the same time
- Clearly, there's been a lot going on. And we're proud of all that we've accomplished over this past

year.