



Independent Electricity System Operator (IESO)
Northeast Ontario Regional Electricity Forum
Meeting Minutes
November 9, 2017
Sudbury, ON

Introductory Remarks

Opening remarks were provided by Amanda Flude, Senior Advisor of Regional and Community Engagement, IESO, as the emcee for the day, Terry Young, Vice-President of Policy, Engagement and Innovation, on behalf of the IESO, and Chief Miller, Atikameksheng Anishnawbek First Nation, and Al Sizer, Deputy Mayor, City of Greater Sudbury, representing the host communities.

Amanda Flude outlined the agenda for the day, and the geographical areas that have been included as part of the Northeast Forum focus. Northeast Ontario encompasses a vast territory, stretching north from Barrie to Moosonee and east from Wawa to Mattawa.

The Evolving Provincial Electricity System

Ontario's Evolving Electricity Sector: Provincial Keynote Address delivered by Terry Young, Vice-President, Policy, Engagement and Innovation, IESO

In the last 10 years, Ontario's electrical system has seen many changes. Coal—which once supplied 25% of Ontario's energy—has been completely replaced with renewables, natural gas, and nuclear power. Consumers have heard the call for conservation. Since 2006, Ontario consumers have saved 68 billion KWh of electricity, lowering the system's peak demand and averting the need to build expensive new generating stations.

The IESO is also encouraging industrial customers to lower demand during peak hours. 20 facilities in Northeast Ontario, including large employers in mining and forestry, have projects under way that will result in saving at least 20 GWh per site.

The province's electrical system was once centralized with a limited amount of large leaders responsible for the design and operations of the electricity system. Now, Ontario is moving to a more decentralized model where local distribution companies (LDCs) and consumers engage with the grid in new ways. Many new technologies are emerging and more energy decisions are being made locally. For example, close to 100 First Nation communities have received support from the IESO to develop energy plans that will boost reliability and sustainability.

Ontario is building the electricity system of tomorrow to serve a wide group of stakeholders: generators, transmitters, large industrial customers, communities, homes, and vehicles. Engaging with customers is an important part of that process, and the IESO is committed to ongoing dialogue with its customers.

The Power to Connect: Advancing Customer-Driven Solutions, presented by Vinay Sharma, Chair, Electricity Distributors Association (EDA), and President & CEO, London Hydro

Vinay Sharma outlined how customers today are major drivers of change.

The EDA represents 95% of Local Distribution Companies (LDCs) delivering electricity to millions of residential and commercial customers in Ontario. The association foresees today's one-way flow of electricity from utilities to customers evolving into a two-way flow, so that every customer is both a consumer and a generator. For example, every electric car sitting in a garage contains a certain store of energy. The car's owner could potentially sell some of that stored energy back to the grid, especially in a situation of emergency.

Such distributed energy resources (DER) require a decentralized platform that can support new technologies to generate, store, and consume electricity. In the near future, LDCs must create the policies, procedures and protocols to support this platform.

However, traditional models do not always work, said Mr. Sharma. While shareholders want to increase their profit, the Ontario Energy Board (OEB) only allows profit to be based on capital assets. In a decentralized model, utilities are not the only players that invest in capital assets that generate electricity. Mr. Sharma stated that these issues must be worked out between the Ministry of Energy, the IESO, the OEB and the EDA, recognizing that LDCs will play a central role in meeting the new customer demands.

Local Spotlight: The Hydraulic Air Compressor Demonstrator Projector, presented by Dean Millar, Director, Energy, Renewables and Carbon Management, MIRARCO

Using water to compress air has been done in many sites over the past 100 years, including the Ragged Chutes Air Plant in Cobalt, according to Dean Millar. Now this "old" technology has been given a "new" twist in a project led by Mr. Millar, professor of mining technology at Laurentian University.

In summer 2017, Millar and his team installed the 30.5-metre Hydraulic Air Compressor (HAC) Demonstrator Project in a former elevator shaft at Sudbury's Dynamic Earth science museum. This IESO-supported project started up June 21, 2017 and has produced results close to what computer models predicted. This makes the team confident they can scale up for industrial installations.

In this HAC design, water drains from an upper tank, gaining pressure as it falls. The pressure is transferred to air bubbles in the water, which separate out at the bottom as compressed air. The water then rises in a lower tank before being pumped back to the upper tank to complete the circuit.

This HAC design provides very efficient results thanks to low energy costs, because it drives a pump instead of a compressor; it has few moving parts, yielding low maintenance costs; and it has a long operating life, measured in decades. According to Mr. Millar, these factors result in 50% lower life-cycle costs than conventional gas compressors. Now his team is seeking to commercialize the technology quickly, especially for mining. They are proud to say that 95% of the demonstration project budget was spent in Northern Ontario, mainly in Sudbury.

Planning for Today and Tomorrow: Panel Discussion

Panel Moderator: Terry Young, Vice-President, Policy, Engagement and Innovation, IESO

Panelists: David Robitaille, Director, Market Operations, IESO

Ahmed Maria, Senior Manager, Transmission Integration, IESO

Robert Reinmuller, Director, System Planning, Hydro One Networks

Terry Young introduced the panelists, and the panel discussed how uncertainty affects the electrical system at the provincial and local level, planning strategies and community engagement.

David Robitaille explained that the current supply of electricity in Northeast Ontario—mainly from hydro power—is exceeding the local demand. And with demand reducing, the region has been exporting power to the south. One major challenge in the area is managing voltages across long transmission lines, so since 2006, more than \$250 million has been invested to improve lines in the Northeast.

Ahmed Maria described the IESO’s electricity planning process. The first step is to look 20 years into the future and identify any possible challenges in that timeline, such as increased demand due to electric cars, reduced demand due to conservation, or the retirement of a major facility. The second step is to try and identify the lowest-cost solutions to any challenge, while considering aspects such as conversation opportunities, feasibility and community preferences

Robert Reinmuller said that Hydro One delivers electricity across an area the size of France, with as many poles as there are customers, so it is always a challenge to restore power after any outage. That is especially true in the north, where the infrastructure is less robust than in Southern Ontario. Among his challenges are new customers connecting to the grid, who can create outages for existing customers. To maintain reliability, aging equipment must be replaced and transmission lines reconditioned. Sometimes there is no available capacity, which can be a challenge to enable connecting new projects to the grid.

The Local Perspective

The Local Evolving Electricity System: Local Keynote Address, delivered by Frank Kallonen, CEO, Greater Sudbury Hydro

Frank Kallonen described Sudbury as the first town in Ontario to own an electrical plant. However, today the cost of energy in Ontario is too low to drive innovation. For example, when the *Fair Hydro Act* cut electricity bills for some customers in half, some generating projects were no longer justified and were put on hold. By contrast, higher prices in Europe give customers there incentives to invest, save energy, and become DERs who both generate and consume power.

Imagine if everyone drives home in an electric car, plugs it in, then puts dinner in the oven all at the same time. But then everything goes dark because the system cannot handle that peak demand. Instead, anyone who did not need to go out again could share their car’s charge through the grid—turning that car into a DER.

LDCs must evolve to support DER customers who generate, consume, buy, and sell electricity. And LDCs must account for those transactions, perhaps using block chains—highly secure online records.

Mr. Kallonen said the big question is how soon all this will be needed. To adapt, Greater Sudbury Hydro is looking beyond the company’s own walls, beyond the electricity industry, and in some ways beyond geographical borders. Staff attend conferences, keep in touch with academics, test new technologies, sponsor pilot projects, and renew older assets with an eye on the future.

Ontario’s Long-Term Energy Plan and the IESO’s Implementation Plan, presented by Ken Nakahara, Director of Energy Networks and Indigenous Policy Branch, Ministry of Energy, and Carrie Aloussis, Senior Manager, Customer, Stakeholder and Community Engagement, IESO

Ken Nakahara provided an overview of Ontario’s new Long-Term Energy Plan (LTEP), which creates a policy framework with a 20 year outlook. He said thousands of Ontarians provided input to develop the plan, and consumers are at the heart of it. The plan seeks to ensure energy is affordable, enable innovation, encourage conservation, and respond to climate change.

The LTEP is available on the Ministry of Energy's website; and key themes include:

- Consumer focus
- First Nations and Métis leadership and capacity support
- Innovation
- Conservation and energy efficiency
- Challenge of climate change

Now the IESO is creating an implementation plan to support the LTEP. The implementation plan will show the process, timing, and outcomes for nine key initiatives.

Carrie Aloussis explained the implementation plan process. Meetings with stakeholders are being held in November along with a public webinar, and feedback will be accepted until December 13, 2017 on the first phase of the implementation plan. The completed proposed implementation plan is due on January 31, 2018 to the Minister of Energy. Once it has been approved, the IESO will move into the next phase of engagement for next steps on how it will implement the initiatives outlined in the LTEP.

To help inform the plan, the IESO is engaging stakeholders and communities to prioritize factors and gather views in nine areas:

- Options for energy support programs to First Nations and Métis
- Options to improve conservation programs, and access, for First Nations and Métis
- Renewable distributed generation projects
- Ways to mitigate barriers for energy storage
- Options for pilot projects to evaluate the use of electricity to create hydrogen
- Develop a formal transparent bulk system planning process
- Develop a competitive transmission procurement process
- Review of the regional planning process
- Review technical criteria to assess customer reliability

Further information is available on the IESO's LTEP Engagement webpage.

Local Spotlight: The Peter Sutherland Generating Station, presented by Waylon Iserhoff, Business Development Officer, Taykwa Tagamou Nation

Waylon Iserhoff provided an overview of the 28 MW hydroelectric generating station. After 10 years of negotiations, planning, and construction, the facility went into service in April 2017. Mr. Iserhoff explained how the station began as a grievance over earlier projects built by Ontario Hydro without his people's permission. That grievance was settled in 2007 when Ontario Power Generation and the First Nation agreed to co-develop a new hydro station on the Abitibi River north of Cochrane.

The project faced many challenges, including limiting the amount of water that could be rerouted to preserve the beauty of New Post Falls, and requiring special permission from the Ministry of Natural Resources as the project is located in a provincial park. The transmission line ran through a neighbouring band's territory, and the clay basin made it hard to sink pilings strong enough to last for a projected 50 years. Band members doing construction worked a grueling 14-day rotation through two harsh winters.

Despite all this, the project was completed ahead of schedule and under budget, a rare accomplishment for a \$300-million project. Named after a respected Elder, the station is now generating cash for the community and should continue to do so for another 50 years.

The project awarded \$53 million in competitive contracts to Taykwa Tagamou Nation companies and employed 49 band members, who gained valuable skills in carpentry and electrical engineering. Among the lessons learned were to build trust between partners early, keep everything transparent, and leave the past in the past, Mr. Iserhoff said.

Engagement at the Local Level: Panel Discussion

Panel Moderator: Carrie Aloussis, Senior Manager, Customer, Stakeholder and Community Engagement, IESO

Panelists: Maury O'Neill, CEO, Economic Development Corporation, Wawa
Alan Spacek, Mayor, Town of Kapuskasing, Chair, FONOM
Rob Reid, President, Economic Development Corporation, Sault Ste. Marie
Richard Eberhardt, Program Manager, Green Economy Network
Craig Nootchait, Project Manager, Conservation on the Coast

Carrie Aloussis introduced the panel, and panelists discussed stakeholder engagement in their communities, how to encourage participation in programs, build awareness about the electricity sector, and to be a part of discussion about regional electricity needs that are taking place.

Maury O'Neill said that Wawa was one of the first communities in Ontario to develop a community energy plan, and she spent the first six months on engagement. Her advice is to start with local resources and let them hire more people for specific tasks. One place where she felt she was able to successfully engage local residents was the food bank. Health care workers doing home visits are also a way to help reach isolated seniors. Ms. O'Neill said that you need staff, money, and to be on the ground because not everyone is on the Internet or can understand how to navigate survey forms.

Alan Spacek is the third-term mayor of Kapuskasing and Chair of the Federation of Northern Ontario Municipalities, which represents 100 towns in the Northeast, more than half of which have fewer than 2,000 people. He said that all northern municipalities struggle with a declining tax base, so some municipalities saw the Green Energy and Economy Act as a revenue opportunity. His town runs 20 small Feed-In-Tariff (FIT) projects with other municipalities, with 12 more to build. However, many colleagues are intimidated by the industry and do not have much capacity to do planning or develop partnerships. Mayor Spacek said the challenge is to get the ears of policy-makers in the south and make sure they are sensitive to needs in the north. He pointed to potential of biomass generation from byproducts of the forestry industry, which could create tens of thousands of jobs.

Rob Reid said that today Sault Ste. Marie has utility-scale wind farms and solar farms, plus an innovation centre, a college, and a university all geared to the energy industry. This gives the city unique history, assets, and a mindset for success in energy projects. He said that effective engagement can come down to holding a meeting in the right hotel or curling club.

Richard Eberhardt said that when he engages decision makers, he opens the discussion with cost savings. But his larger vision is to move to a low-carbon economy. Top decision makers in turn engage their own employees. Behavioural changes that save energy improve a company's financial results and further a cultural change rolling across Northern Ontario. But this engagement cannot be directed from Toronto, Mr. Eberhardt said, and it cannot rely on social media such as Twitter or Facebook. Rather, it is best to go where the people go, like the post office or the hockey rink.

Craig Nootchait described how the group helps save energy in three First Nation communities with 500 homes and two dozen small businesses. There are families spending \$16,000 a year on energy, but this is not just about reducing bills. It is about reviving the community's culture, reducing their carbon footprint,

and improving the health of their people. The project has trained 54 people in carpentry and inspired young people in a possible career. Mr. Nootchai said that next his group hopes to engage schools and hospitals. Engaging homeowners started by visiting each family for tea. While many homeowners were reluctant at first, now they seek the team out and are knocking on the project office's door. Mr. Nootchai recommends asking local champions where to reach people, which may perhaps be the bingo hall, Facebook, or community events like fish fries.

Asked how to lessen intimidation, panelists suggested programs should be flexible, and administrators must remember that northern towns have limited staff and budgets. As for the greatest opportunities, panelists mentioned using biomass from forestry to generate heat and power in a sustainable way. Everyone agreed that the provincial government must not dictate to northern communities but enable them to plan and direct their own futures.

Forum Wrap-Up, delivered by Terry Young, Vice-President, Policy, Engagement and Innovation, IESO

During the final wrap up of the day, Terry Young reiterated the importance of the dialogue that took place that day, and that it was a start to a conversation that needs to continue with local communities. It is important to ensure that information and idea sharing is exchanged in both directions, and that conversations take place at the local level.

The IESO looks forward to more of these conversations in Northeast Ontario, growing new relationships, and strengthening and building upon those that have already been established.