

Briefing Note for Tim O'Neill

Context

- This briefing note is intended to assist Mr. O'Neill with his closing remarks at the June 12 Stakeholder Summit. Below is a summary of what we expect to hear during the panel discussions, based on the preliminary coordination calls.
- In terms of the keynote presentations, we have received some of the slide decks and can provide those if/ as required.
- Some panel presentation decks are available and can be sent to Mr. O'Neill in advance of the session for his advance review.
- In addition to this note, Tim Butters in IESO's S&PA group will be at the Summit on June 12, and available to assist Mr. O'Neill with his notes as required.

Summit Intro

- **Terry Young** – Welcome delegates to the Stakeholder Summit (draft remarks below as appendix A)
- **James Scongack** – Welcoming address on behalf of Stakeholder Advisory Committee (draft remarks below as appendix B)

Section I: Examining trends to a cleaner grid: decarbonisation on electricity markets and systems and how to learn from impacts and realize potential opportunities

Speaker: **Nat Bullard**, Head of Content, Bloomberg New Energy Finance

- Perspectives on energy demand, capital, technology and policy

Panel 1 > Building Flexibility into the Electricity System

Per agenda, "a panel of experts discuss the tools and rules that should be considered as electricity systems integrate and manage the influx of emissions-free power."

Speakers:

- Moderator, **Leonard Kula**, Vice President, Market and System Operations & COO

- **Christian Weeks**, General Manager and Vice President, Global Demand Response, EnerNOC
- **Rupp Cariveau**, Associate Professor, University of Windsor
- **Rob Coulbeck**, VP Energy Management, Goreway Station Partnership

Context:

This panel will be one hour 9:15 – 10:15 am, and will commence with a 5-8 min (1-2) slide presentation from the panelists. Overall, the opening remarks are scheduled to take ~30 mins. Following the opening remarks, Len Kula will facilitate the discussion by posing a set of questions, including:

- ☐ Numerous and significant energy price spikes have been observed in Q1 2017, reflecting the need for increased quantities of flexible resources. Why are these price spikes insufficient to incent investment and/or changed behavior that increase the supply of flexible resources?
- ☐ What is a reasonable amount of risk to be borne by the ratepayer and vendor when considering different models to compensate suppliers of flexibility?
- ☐ How do we protect the ratepayer? How do we provide for the most efficient outcome – both today and tomorrow as requirements potentially change?
- ☐ How do we provide a framework for all technologies to compete on a level playing field?
- ☐ What principles/objectives are important to potential vendors?
- ☐ Are all technologies ready for full-time production? Are pilots required, and if so, for what purpose? Validate ability to meet technical requirements under a variety of grid scenarios? Validate a business model?

Discussion Points from Panelists:

Christian Weeks

- ☐ Province has a successful aggregated capacity DR market today that can serve as the foundation for additional load-based flexibility products
- ☐ Many of the customers participating in the capacity DR program can deliver more flexible DR resources
 - DR participation in existing IESO reserve markets is low because aggregation is currently not allowed, but even if it was allowed a number of barriers to entry exist
 - In order for flexible loads to be fully utilized in Ontario, telemetry should also be removed. Other jurisdictions have no real-time telemetry requirements.

- There are several key principles to maximize value of DR to serve IESO flexibility needs (6 items)

Rupp Carriveau

- Focus on energy storage as a resource to provide system flexibility
- Asset managers/energy storage developers need to:
 - understand the capability of their assets – both its technical characteristics and its ability to interact with market mechanisms
 - know how to best optimize their performance
- Barriers to increased implementation of storage facilities for power system flexibility and other grid services:
 - education – particularly to develop and understand the path to monetize their asset
 - fully understanding the round trip efficiencies to develop solid business cases for these assets

Rob Coulbeck

- Focus on existing resources already developed/connected to the system
 - Get something more from assets already installed
- Will provide an operational perspective for operating a facility and providing flexibility
- Barriers to transformation of existing assets to provide additional service like flexibility:
 - Price/market signals are not there
 - These transformations of technical capability are a significant investment
 - Need better signals to provide assurance that facility owners will get a return on their spending

Panel 2 > The Influence of Decarbonisation on Tomorrow's Electricity Market

Per the agenda, “this panel will discuss experiences in other jurisdictions with electricity markets that are seeing the effects of growing renewable resource penetration, and how markets are reacting to these shifts.”

Speakers:

- Moderator, Adam White, President & CEO, Powerconsumer Inc
- Jack Burkom, Senior VP Commercial Development, Brookfield Energy Marketing Inc.
- Pete Fuller, Vice President, Market & Regulatory Policy, NRG
- Kathleen Spees, Principal, The Brattle Group

Context:

This panel will be just over an hour, 10:45 am – 12:00 pm (Lunch). Rob Doyle will introduce the panellists and the moderator (~5 mins). The moderator, Adam White, will then set the context for the discussion (~10 mins), after which each panelist will have about 10 mins each to provide commentary. The last portion of the panel will include a 30 min segment during which the panelists will be able to debate themes and issues, followed by an audience QA.

Questions the moderator will use to guide the discussion include:

- Critical juncture: evolution of electricity system and need to meet environmental/emissions goals –how would you advise the Premier of Ontario?
- Trend has been toward decarbonisation which Ontario has led in electricity (other markets dealing with these challenges now). This has provoked both strong support and equally strong political disagreement especially about cost. Is this trend in fact inevitable given political realities or could the pace of decarbonisation be impacted by the ‘political cycle’?
- Can we ensure both efficient markets and sustainable outcomes? Where is the balance?

Kathleen Spees (10 mins)

- Setting the broad context, trends and data
 - Decarbonisation and market reforms (current market design is far behind)
 - Introduction of cap and trade and market renewal
 - Ways Ontario could express decarbonization objectives in the electricity sector
- Commentary on where things may be headed

Pete Fuller (10 mins)

- US perspective, current challenges for generators, barriers to efficient markets in Ontario

Jack Burkom (10 mins)

- Ontario perspective, what is missing and implications for Market Renewal; challenges with applying designs to Ontario’s unique ‘hybrid’ system

Section II: Examining the expanded grid: learning how distributed energy networks and empowered consumers change the make-up of traditional electricity markets and systems

How ISOs and RTOs can create a more nimble, robust bulk electricity system (Edward Arlitt, IESO, Chairman, ISO-RTO Council Emerging Technologies Task Force)

Reforming the Energy Vision (James Pigeon, Manager, Distributed Resources Integration NYISO)

Themes:

- Main policy goals of NYPSC REV (Reforming the Energy Vision)
- Emerging trends
- Integrating DER in wholesale markets
- DER Roadmap
- NYS Clean Energy Standard (policy)
- Market enhancements

Advancing Customer Driven Solutions (Vinay Sharma, President London Hydro, EDA Chair & Todd Wilcox, President, North Bay Hydro, Past Chair, EDA)

Themes:

- The energy landscape in Ontario is changing and that brings threats and opportunities which will require transformation of the utility business model.
- The leadership of LDCs will be needed to manage the integrated power flows and digitally enabled grid
- LDCs are critical to enabling DERs in the province's energy system and to cost effectively satisfy increased demand for clean electricity through the electrification of transportation and fuel switching
- Overcoming barriers – regulatory, customer, stakeholder, operations

Panel 3 > Empowering consumers through conservation and demand management

Per the agenda, "this segment will describe how consumer engagement in conservation and demand management is happening in other jurisdictions. As consumers continue to see high electricity prices, and expanded opportunities for self-generation, what offerings will it take for customers to meaningfully engage with the grid?"

Speakers:

- Moderator, John Sherin, Manager, Climate Change and Energy Conservation, The Regional Municipality of York
- Matt Duesterberg, CEO and Founder, OhmConnect
- Robert King, President, Whisker Labs
- Kenneth Black, Co-Chairman, E Source

Summit Wrap-up:

Tim O'Neill, Chair, IESO Board of Directors

IESO Chair provides perspective on key learnings from the day and how the IESO Board of Directors engages with stakeholders.

APPENDIX A

Notes for Remarks—Terry Young

DATE: June 12, 2017

TIME: 8:30 a.m.

LOCATION: Beanfield Centre | Main Ballroom | 105 Princes' Blvd | Toronto, Ontario, Canada

- Good morning, everyone.
- My name is Terry Young; I am the Vice President of Conservation and Corporate Relations at the IESO, and on behalf of the organization, it is my pleasure to welcome you to the 2017 IESO Stakeholder Summit here at the Beanfield Centre in Toronto.
- This is actually a first for the IESO as a merged entity. The predecessor IESO held similar one-day forums in 2013 and 2014, which we found to be effective vehicles to hear a range of perspectives on a variety of issues and opportunities facing Ontario's electricity system. Around the same time, the former Ontario Power Authority (OPA) hosted regional forums in northwestern Ontario to discuss regional-specific interests.
- So we are building on our collective experience in delivering today's summit, as well as the five forums that we have planned for this Fall, that will enable us to facilitate dialogues on province-wide, regional and local energy issues.
- Our efforts in delivering today's Summit have also been guided by our Stakeholder Advisory Committee (SAC) that provides valuable advice and recommendations on market development, conservation, and planning decisions directly to the IESO's Board of Directors and Leadership Team.
- Our SAC members represent consumers, generators, distributors, transmitters, related businesses, services and Ontario communities. James Scongack, one of our SAC members, will be speaking shortly.
- In addition to thanking our SAC for their ongoing advice and stewardship, I would also like to thank the collection of speakers and presenters who have joined us here today, all of whom have taken time from their busy schedules to contribute to today's discussion.
- We were also very pleased to see just how many people registered for today's Summit. I was told there are about <250> of us here today. As I do a quick scan of the room today, I see a wide range of energy sector leaders from Ontario, and I also see folks who have

journeyed here from outside the province to share their unique perspectives with us. To everyone, I say welcome and thank you for joining us here today.

Importance of Stakeholder Engagement

- Working with our stakeholders, our communities, our customers...working with all of you in this room is a central priority for the IESO, and it is a commitment that is central to the corporate strategy that we developed with our Board of Directors last year. The IESO strives to facilitate meaningful dialogues by creating opportunities for all parties to contribute to the discussion.
- To achieve this, the IESO has a broad range of engagement channels and processes to ensure that our initiatives are guided by collective engagement, and reflect our evolving mandate in the sector. From the aforementioned SAC, to our technical panel, standing committees, working groups, local advisory committees, and program-focused engagements, our aim is to provide individuals and organizations with the opportunity to provide input and feedback about proposed decisions or changes that affect them.
- We are also committed to stakeholder engagement as a continuously evolving process. The IESO's Engagement Principles provide an effective framework to help guide open, transparent and meaningful opportunities for input. We also conduct annual stakeholder satisfaction surveys, to assist with continuous improvements in the way that the IESO receives and acts on input from customers, communities and stakeholders.

Context for today's discussion

- So I've mentioned the structural similarities to stakeholder forums that we've facilitated in the past, but there are also some important distinctions with today's event.
- In bringing together experts and energy leaders from across North America, our aim today is to generate discussion and hear perspectives on how *other* jurisdictions throughout the continent are approaching their own shifting energy landscapes, and the opportunities emerging to address changing sector conditions.
- As a quick primer on Ontario, our province's energy landscape has been transformed in the last 10 years or so. Over six gigawatts of installed coal-fired capacity has been retired and replaced with renewables, natural gas-fired and demand response resources.
- Over the last decade, Ontarians have also saved almost 10 billion kilowatt-hours through conservation and energy efficiency, which helps to lower demand and enable

the IESO to defer or avoid the need to build new infrastructure.

- While the nuclear refurbishments will ensure we continue to have a strong supply of baseload energy for decades to come, we are seeing increasing amounts of generation embedded in the distribution system. Evolutions in technology and policy are expanding opportunities for customer engagement and participation.
- Distributed energy resources are contributing to a system more characterized by two-way flows, rather than only one-way delivery from large central stations. New resources are increasingly being located closer to loads and demand centres on the lower-voltage distribution wires. We now have about 2,000 MW of solar embedded within LDC territories.
- This evolution of the distribution system to include more energy resources and a more active role for the consumer is also resulting in a need for us, as the system operator, to understand the impact of these changes on the operation of the bulk power system.
- We are working with stakeholders to develop cost-effective solutions to address these challenges, both in terms of scheduling resources, enhancing system flexibility and correcting variations in power system frequency.
- With this rapidly evolving sector, we have also seen the rise, adoption and entry of new technologies and innovations related to embedded generation, storage, conservation, and renewables.
- The provincial government has also signaled a sharp and renewed focus on cost containment and rate mitigation, as well as greenhouse gas reductions.
- This is a strategic juncture to have this type of discussion and take a look out to the future of the sector. At current levels, Ontario's electricity system is well-positioned to meet provincial needs into the 2020s, while continuing to adapt to significant change across the sector and the evolution of policy decisions.
- For example, as we look out over the longer-term, we could see higher levels of demand driven by different levels of electrification associated with policy choices on climate change.
- Looking forward, the IESO will be developing an implementation plan to support the upcoming Long-Term Energy Plan and completing a mid-term review of the Conservation First Framework. This work is aimed at better preparing the IESO, and the

sector generally, for the future challenges and opportunities ahead.

- Also in the years ahead, some of the IESO's efforts will fundamentally reshape the way that our electricity market functions.
- Through the market renewal program, the IESO will redesign Ontario's wholesale electricity markets to provide greater transparency, promote competition and deliver more efficient outcomes. It will really lay a foundation that will prepare us for the electricity sector of tomorrow.
- So, in a relatively short period, Ontario's supply mix has undergone a major shift, which has changed the dynamics of our electricity system.
- However, all across North America, system operators and policy makers are addressing new challenges as their supply mixes evolve.
- Given the complex interdependencies of a changing North American energy sector, the role of collaboration and shared learning is critically important.
- We hope today's session will provide a broader perspective on North America's energy sector and offer in-depth analysis on a range of emerging energy trends that are shaping the next generation of electricity systems.
- Today's agenda offers an entry point into these discussions and includes an exploration of distributed energy networks and decarbonisation from the perspective of real-time system operations, emerging electricity markets, as well as long-term system planning.
- I look forward to frank and focused discussions on these topics and more.
- As I mentioned, the IESO's SAC plays a vital role in the work that we do. To provide some additional context, I'd like to invite James Scongack, Vice-President Corporate Affairs & Environment at Bruce Power, he represents the generator community, and is the current SAC Vice-Chair. Please welcome James.

APPENDIX B

Notes for Remarks—James Scongack

DATE: June 12, 2017

TIME: 8:30 a.m.

LOCATION: Beanfield Centre | Main Ballroom | 105 Princes' Blvd | Toronto, Ontario, Canada

- Good morning. I am James Scongack, the Vice President of Corporate Affairs and Environment at Bruce Power and the Vice Chair of the IESO Stakeholder Advisory Committee.
- I am welcoming you to the IESO Stakeholder Summit on behalf of the IESO's Stakeholder Advisory Committee. Our responsibility as members of the SAC is to provide policy level advice to the IESO Board of Directors and Leadership team, across all areas of the IESO mandate. Over the last few months, the SAC has provided input on the Conservation Framework Mid-Term Review, the IESO Market Renewal program and the IESO Business Planning Process. We have also had discussions on the Ontario Climate Change Action Plan, and how distribution and transmission systems are working together. If you haven't already been plugged into SAC discussions, I would recommend that you consider attending our August meeting.
- I believe in the importance of engagement both at the SAC and in the work that we do at Bruce Power, which requires a significant amount of engagement with our local communities and with industry stakeholders. We believe that keeping lines of open, transparent and proactive communication are critical to ensuring that communities and stakeholders are invested to attain mutually beneficial outcomes.
- Today's summit represents a great opportunity to hear different perspectives from outside of Ontario, and how they might inform the discussions happening in Ontario, and even at our future SAC meetings. I sincerely hope that you enjoy the day and participate in the conversation. Thank you.