

## MEETING NOTE

**NAME OF ORGANIZATION:** Alectra

**DATE/TIME OF MEETING:** May 4, 2017 / 11:30 AM – 12:45 PM

**LOCATION OF MEETING:** Mercatto at 101 College Street

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**ATTENDEES:** **Deputy Minister of Energy**  
Serge Imbrogno

**Alectra**

Brian Bentz, President and CEO

Neetika Sathe, Director, Emerging Technologies

Tamar Heisler, Director of Government and Industry Relations.

### ANTICIPATED AGENDA ITEMS:

1. Powerhouse Feasibility Study
2. Energy Storage within Distribution Networks
3. Net Metering Updates

### NOTES ON AGENDA ITEMS:

#### 1. Powerhouse Feasibility Study

- With support from IESO, Alectra prepared a report that highlights the potential for wider deployment of their PowerHouse pilot program.

#### Suggested Response:

- The partnership between Alectra and the IESO on both PowerHouse and information sharing is an excellent example how innovation is driving Ontario's electricity sector.
- I am pleased to see that the PowerHouse project is already providing useful data to support the concept of virtual power plants.
- Customer choice will be a key feature of the next LTEP. It would be useful to learn more about the assumptions associated with the PowerHouse report, so the Ministry can consider how it aligns with policies such as net metering and grid modernization.

### Background:

- Alectra is actively promoting and seeking opportunities to expand its PowerHouse, which was launched in March 2016 and includes 20 homes that have installed a solar array, battery, and energy management system.
  - Alectra is testing the use of these homes as a virtual power plant that uses advanced communications and smart grid technology to treat these 20 homes as if they were one source of dispatchable energy.
- Alectra worked with the IESO to prepare a technical report on the potential value of expanding the PowerHouse project to several thousand customers within a pocket of its service territory.
- The report was shared with the Ministry in March 2017 and published in April 2017. The IESO and Alectra found that PowerHouse has the potential to provide significant energy capacity for Alectra when required, defer refurbishment of distribution assets, participate in IESO services markets, and reduce customer consumption and bills.
- Alectra is seeking Ministry support to identify and address the barriers to wider adoption, including:
  - Clarity on the timing of procurements for system services;
  - Updates to net-metering regulations and the Meter Data Management and Repository (MDMR); and,
  - Incorporation of non-wires solutions like PowerHouse and energy storage into both utility and regional planning processes.

## **2. Energy Storage within Distribution Networks**

- The Ministry commissioned a study from Essex Energy on energy storage in Ontario's distribution networks.
- The Ministry is working to finalize the report with Essex Energy for public release, fulfilling one of the Ministry's 2013 LTEP commitments.

### Suggested Response:

- **The Ministry commissioned report on energy storage in Ontario's distribution systems will be published soon. The report will identify the main issues faced by storage companies which wish to connect to the**

**distribution network.**

- **We understand that, currently, the greatest value exists for storage connected behind the meter at large customer sites.**
- **Changes under the Fair Hydro Plan will allow more commercial and industrial customers to participate in the Industrial Conservation Initiative, which can help storage facilities manage their Global Adjustment exposure.**
- **This study is just one way Ministry is looking at ways to address barriers that inhibit the wide adoption of projects such as Power.House, including encouraging innovative partnerships between utilities and customers, and the diffuse benefits problem that arises with technologies like energy storage.**

Background:

- Essex Energy was commissioned by the Ministry to produce a study on opportunities for energy storage in distribution networks. Soon to be published, this study finds that:
  - In general, storage projects on distribution systems are not yet economic;
  - That storage projects constructed on-site at large commercial and industrial sites can already be economic; and,
  - The economics of distribution connected storage could be significantly improved with changes to the way Global Adjustment is applied to storage projects. Ministry staff is working with our agencies to establish how these amendments might be delivered.
- Investment in energy storage – like many smart grid technologies – is inhibited by the fact that those who invest in the asset are unable to capture all the benefits that it provides. This is commonly known as the “diffuse benefits” problem. Ministry staff proposes using the next LTEP to address the diffuse benefits issue.
- The economics of customer-sited storage for Class A customers are already positive if the storage is used to reduce the peak demand of the customer. Ministry staff has met with storage companies who are already selling into this large customer segment of the market, including NRStor and Constant Power.

### 3. Net Metering Updates

- The Ministry has updated the Net Metering Program to specifically enable the use of energy storage when paired with renewables under net metering. Changes will be in effect July 1, 2017.
- The Ministry is examining the potential for further updates to the Net Metering Program, specifically considerations around enabling Third-Party Ownership and Virtual Net Metering.
- The Ministry is conducting a cost-benefit study to consider investments in Ontario's MDM/R to enable province-wide Time-of-Use billing for net-metered customers.

#### **Suggested Response:**

- **The updates to the Net Metering Program are intended to support energy choice for consumers looking to generate clean, renewable energy, and enable innovative technologies and customer-utility relationships, while maintaining a focus on value for electricity ratepayers.**
- **The Ministry appreciates Alectra's (and previously PowerStream) involvement in updating the Net Metering Program through its membership on the Ministry's Net Metering Advisory Working Group since 2015.**
- **The Ministry is currently assessing feedback from stakeholders on the considerations for Third-Party Ownership and Virtual Net Metering and developing policy options for consideration by government.**
- **Any proposed legislative or regulatory changes that may be required would be proposed on the Environmental and Regulatory Registries for further feedback before final decisions are made.**
- **The Ministry will be commencing outreach with LDCs this spring as part of its Time-of-Use study. The study will assess costs and benefits for both LDCs and the MDM/R.**

#### **Background:**

- The Ministry is updating Ontario's Net Metering Program in response to the commitment in the 2013 LTEP to "examine the potential for microFIT to transition from a generation purchasing program to a net metering program" and in recognition of the opportunity to expand and enhance the existing net metering program.

- On February 8, 2017 “Part 1” regulatory updates to the 2005 Net Metering Regulation were filed and posted on e-laws. The amendments will be in force on July 1, 2017. The amendments include:
  - Clarifying the description of the method used to calculate bill credits;
  - Clarifying the carryover period for bill credits at a consecutive 12 month period;
  - Removing the 500 kilowatt (kW) project capacity size limit to allow for any sized renewable energy generation system, subject to the system being used primarily for the generator’s own use;
  - Allowing for the use of energy storage and its recognition for the purposes of net metering; and
  - Allowing participants with existing net metering agreements to choose to opt into the updated terms, or to maintain their existing agreements.
- Stakeholders were notified of the Ministry’s planned consultations and Indigenous engagement on “Part 2” updates for TPO and VNM as well as the Time-of-Use cost-benefit study in the Environmental and Regulatory Registry posting for “Part 1” updates in August 2015.
- A Third-Party Ownership (TPO) model could provide a property owner with an opportunity to participate in a renewable energy project without the upfront capital cost of installing the system.
- Virtual Net Metering (VNM) could expand participation in net metering to include condos, apartments, co-ops, and other shared generation arrangements, thereby providing greater consumer choice.
- Enabling TPO and/or VNM as part of the Part 2 net metering updates would require legislative changes as well as regulatory changes.
- In order to enable TOU billing and crediting for net metering customers, investments would be required in the MDM/R and LDC systems. These investments have not been made, because it has been more cost-effective for LDCs to switch net-metered customers to Tiered Pricing and perform billing functions manually.

**ATTACHMENTS:**

1. Grid/LDC Coordination Update March 22, 2017.

**APPENDIX:****1. Item 1 – Background**

- Alectra is actively promoting and seeking opportunities to expand its PowerHouse, which was launched in March 2016 and includes 20 homes that have installed a solar array, battery, and energy management system.
  - Alectra is testing the use of these homes as a virtual power plant that uses advanced communications and smart grid technology to treat these 20 homes as if they were one source of dispatchable energy. This provides Alectra greater flexibility to respond to changing grid conditions.
  - The PowerHouse also provides additional benefits such as demand response to reduce strain on the grid during peak hours, and customer savings by exporting electricity to the grid during on-peak hours, while charging batteries during off-peak hours.
- If selected for the program, the customers pay \$3,500 upfront, as well as a \$20 monthly fee over five years. As part of a pilot program, participants are guaranteed a full payback on their upfront amount over the five years.
- Alectra worked with the IESO to prepare a technical report on the potential value of expanding the PowerHouse project to several thousand customers within a pocket of its service territory.
- The report was submitted to the Ministry in March 2017, and includes several key findings that include:
  - PowerHouse has the potential to reach meaningful volumes by 2030 with up to 30,000 units, providing 140 MW of dependable capacity;
  - PowerHouse could defer at least two years of investment in distribution assets in the City of Vaughan into the late 2020s; and,
  - Customer savings are highest in summer when PV generation exceeds household consumption. On average, customers are saving \$142 per month between May and July on their electricity bills, which represents a 77 per cent reduction in total electricity costs in these months.
  - Alectra can derive value by using the Powerhouse units to participate in existing ancillary and market services (regulation service, operating

reserve and demand response). The fast response abilities of PowerHouse will enable participation in additional future market services.

- ENERGY staff notes that the main benefit to the customer is a reduction in summer electricity bills from the solar PV panels. Alectra also assumes that the customer will enjoy a reliability benefit when making the cost benefit assessment.
- The main benefit to Alectra is the ability to dispatch a virtual power plant from the residential storage systems. At present, it is unclear how and when Alectra would be able to monetise these benefits. The value to the utility is highly dependent on the ability to bid into IESO demand response and ancillary services markets.
- Alectra committed to provide details of the assumptions made in developing their cost-benefit analysis. Ministry staff has yet to receive this data.
  - This additional data is required for a more detailed analysis of the study results and the potential for future applications in Ontario.
- Alectra and the IESO intend to continue to explore the PowerHouse model and barriers to its adoption through the newly established Grid-LDC Interoperability Standing Committee.
  - The Ministry is an observer on the committee. Its next meeting is June 8, 2017.

## **2. Item 2 – Background**

- Essex Energy was commissioned by ENERGY in Summer 2016 to meet a commitment in the 2013 LTEP to produce independent studies on the opportunities for energy storage in electricity networks.
- ENERGY has received a draft of the final report for feedback. The final report will be delivered once Ministry and agency feedback is incorporated.
- This study finds that:
  - In general, storage projects on distribution systems are not yet economic;
  - The single largest cost faced by independent storage is Global Adjustment (GA);
  - That storage projects constructed on-site at large commercial and industrial sites can already be economic; and,

- The economics of distribution connected storage could be significantly improved with changes to the way GA is applied to storage projects. Ministry staff is working with our agencies to establish how these amendments might be delivered.
- Investment in energy storage is inhibited by the fact that those who invest in the asset are unable to capture all the benefits that it provides. This is commonly known as the “diffuse benefits” problem.
  - For example, energy storage can reduce peak demand, reducing the need for bulk generation. Ontario’s LDCs are unable capture the value of reduction of energy needed at peak, while LDCs and customers cannot monetize the environmental value of this deferred generation. These benefits accrue to society-at-large.
  - Ministry staff proposes using the next LTEP to address the diffuse benefits problem for energy storage and other like technologies. Options include – but are not limited to – directing the OEB to address this issue through a working group.
- The economics of customer sited storage are already positive if the storage is used to reduce the peak demand of the customer. Not only does this reduce network charges that are calculated against peak demands, but it also allows large Class A customers to reduce or avoid GA charges.
  - The recent reductions in threshold for qualification as a Class A customer (now 500kW for industrial sites compared to the original threshold of 5MW) has increased the number of customers that may be able to benefit from on-site storage.