

Overview of Electricity Trade Agreement between Québec and Ontario

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For Information Purposes Only

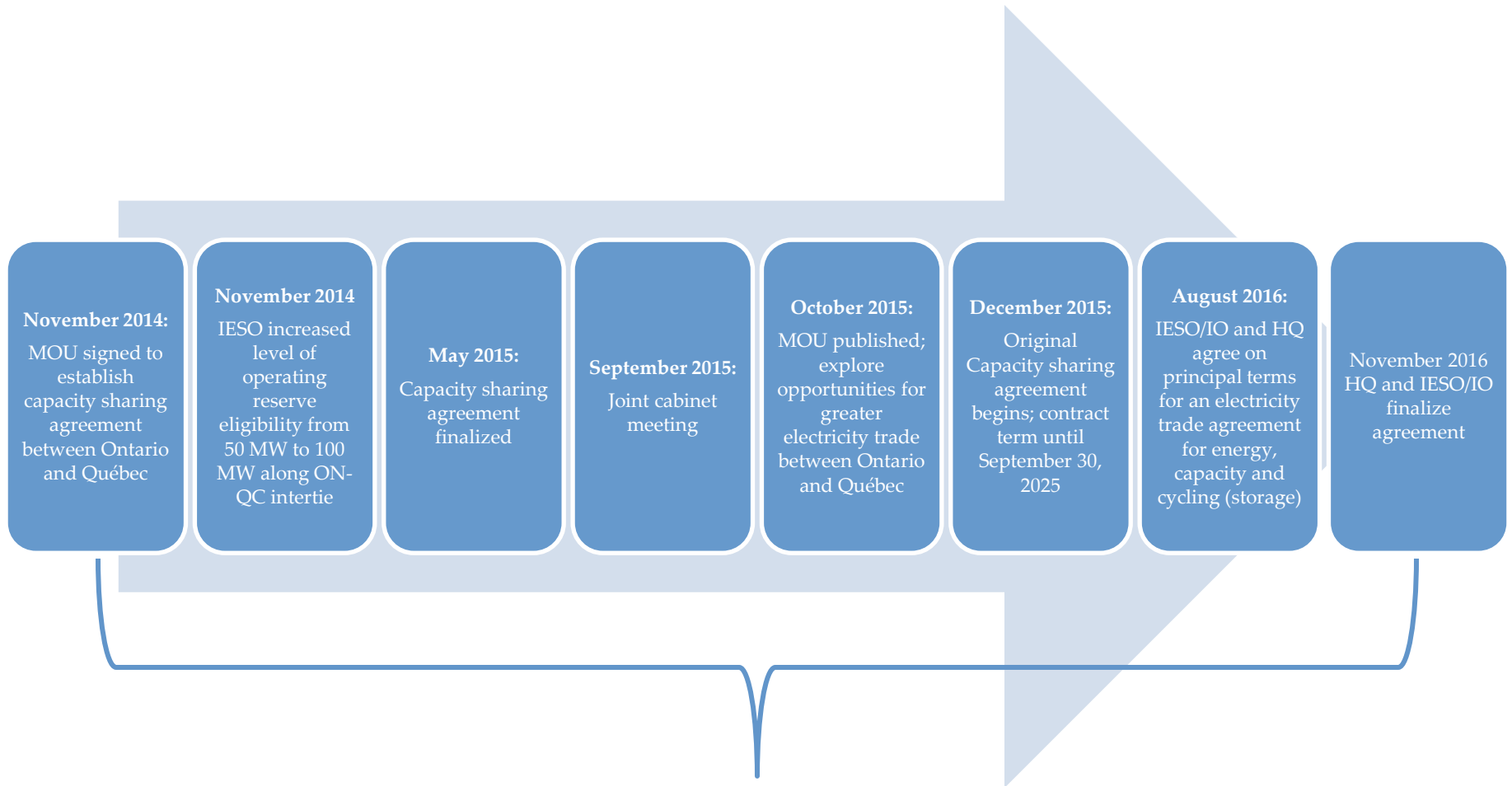
Purpose

To provide an overview of the electricity trade agreement between the Independent Electricity System Operator (IESO) and Hydro Québec (HQ) signed in fall of 2016

Background

- In 2014 the Ontario & Québec governments initiated a joint working group with the respective agencies to explore potential Electricity Trade between the two provinces
- Following the agreement to pursue a *Seasonal Capacity Sharing Agreement* in November 2014, that was finalized in May 2015, IESO and HQ continued discussions on the potential for further electricity arrangements
- In September 2015, at a joint cabinet meeting, the two Provincial Premiers signed an Memorandum of Understanding (MOU) to continue collaboration on bilateral energy opportunities by mandating their Ministries and in turn their agencies to meet regularly and explore opportunities for electricity trade Government engaged Infrastructure Ontario (IO) in April 2016 to support the negotiations
- At a bilateral Minister's meeting in April 2016, parties agreed to a 'bundled' framework, comprised of three components: energy, capacity, and cycling
- Contracts were finalized in November 2016

Background (cont'd) - Timeline of Activities



Regular scheduled meetings between HQ and IESO/IO

Electricity Trade Agreement – November 2016

- The November 2016 HQ and IESO/IO Agreement is in line with government mandate to reduce electricity sector greenhouse gas (GHG) emissions, provide value to Québec and Ontario, and complement other electricity market and policy initiatives
- The agreement is a bundle of three components:
 - **Energy** - Ensures that Ontario will continue to receive at least 2 TWh of hydropower from Québec until 2023
 - **Capacity** - Provides Quebec with 500 MW of Ontario Surplus Capacity
 - **Cycling** - Allows Ontario to cycle its surplus energy by sending energy to Québec, storing it and withdrawing energy back in future periods to offset gas production in Ontario

Ontario's Objectives for Negotiations

- **Reducing GHG emissions in Ontario:** Electricity imported from Québec is targeted to specific hours in which GHG emissions can be curtailed
- **Providing savings to Ontario ratepayers:** Overall costs to operate the electricity system must be reduced
- **Complementing other electricity wholesale market and policy initiatives:** As examples, the agreement must be consistent with the goal of Ontario's cap and trade program, ongoing conservation and demand management programs and IESO's proposed market renewal and capacity auction initiatives

2015 Memorandum of Understanding

- The MOU signed by the two Premiers in September of 2015 instructed Ministers and respective energy agencies (i.e. IESO and HQ) to engage in discussions to conclude an electricity trade agreement
- In line with Ontario's three objectives the terms of the MOU outlined that an electricity trade agreement would:
 - Mitigate anticipated increases in electricity sector GHG emissions by structuring the delivery of electricity from Québec to Ontario to displace Ontario natural gas-fired generation
 - Provide savings to Ontario ratepayers, and provide value to Québec
 - Complement other electricity wholesale market and policy initiatives in Ontario and Québec
- The parties had until 120-days following the finalization of the design of Ontario's cap and trade system to reach an agreement in principle

Key Considerations

- Québec is a winter peaking jurisdiction:
 - Long on clean energy all year
 - Short on winter capacity
- Ontario has:
 - Surplus capacity and energy during certain parts of the year
 - GHG emissions as part of the electricity sector supply
 - Opportunities to reduce costs for the benefit of all electricity customers

Agreement on Principal Terms

Summer 2016 IESO and HQ agreed to principal terms for an electricity trade agreement for a 'bundled' package using the existing wholesale energy market:

ENERGY	<ul style="list-style-type: none">• 2 TWh per year• Term January 2017 to December 2023
CAPACITY	<ul style="list-style-type: none">• 500 MW/month to Québec during Winter months (December-March)• Starting December 1, 2016 and ending on March 31, 2023• 2015/16 capacity (already delivered to Québec) to be returned in kind during summer period between 2017 and 2030
CYCLING (storage)	<ul style="list-style-type: none">• Send low emitting/price energy and return it targeted at higher emitting/cost periods• Term January 2017 to December 2023

Principal Terms Explained

Energy

- Ontario is securing 2 TWh of imported clean energy per year from 2017 until 2023
- This imported energy will target specific hours in which gas facilities are being utilized and displace dispatchable gas production; this component will help Ontario lower its electricity sector GHG emissions in line with stated GHG reduction targets and climate change policy
- Flexibility in delivery to recognise market requirements in both Québec and Ontario

Principal Terms Explained (con't)

Capacity:

- Ontario will continue to provide 500 MW of capacity per month throughout December to March until 2023
- Beginning in December 2016, Ontario will receive payment for capacity provided, creating value to Ontario ratepayers
- The 500 MW of seasonal capacity already shared with Québec in the winter of 2015/2016 under the *Seasonal Capacity Sharing Agreement* will be returned to Ontario in kind during the summer months before 2030, based on Ontario's needs

Principal Terms Explained (con't)

Cycling/storage:

- Between 2017 and 2023, it is expected that energy will be sent to Québec to store and cycled back to Ontario
- Provides Ontario the opportunity to send energy to Québec during lower emitting/ priced periods and take it back during higher emitting/ priced periods helping to reduce GHG emissions and system costs

Benefits of the Principal Terms

- GHG emissions from Ontario's electricity sector are expected to be reduced by approximately 1 megatonne, or up to 25%, per year from 2017-2023
- The net cost of the energy (net of the capacity revenue and the benefit of the cycling energy) is expected to save ratepayers about \$70M
- IESO has begun a market development initiative which will assess opportunities to evolve and improve the current market design; timing for this initiative is in line with the new agreement and is expected to be in place before its conclusion in 2023