



METROLINX

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CAPITAL PROJECTS UPDATE

ELECTRIFICATION

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February 10, 2016



Paris. Sydney. London. Toronto.



- Compared to other developed countries, Canada's national railway network has the smallest proportion that is electrified
 - Only one electrified passenger railway line in Canada – 30 km in Montreal
 - Historically less economical to pursue electrification here compared to Europe (or even Australia): diesel available at lower cost, lower train frequencies and longer distances
- Global cities with frequent regional rail networks all make use of electric trains
- Metrolinx's pending introduction of high-frequency service throughout the GO network is the game-changer that makes electrification viable in the GTHA

Improving your Ride and Improving your Region

- A faster, more attractive service
 - Electric trains can accelerate faster and stay at top speed for longer, saving time for existing customers and helping attract new customers
 - By attracting additional riders, frequent electric rail slows the growth in road congestion and reduces greenhouse gas emissions from automobiles
- A more efficient, reliable service
 - Lower operating and maintenance costs mean that for a given amount of operating funding, we can offer more trips with electric service than diesel service
- Other supporting benefits
 - Modest reductions in train noise as electric trains are typically quieter on average
 - Reductions in rail greenhouse gas emissions, which form a minor part of the regional emissions total

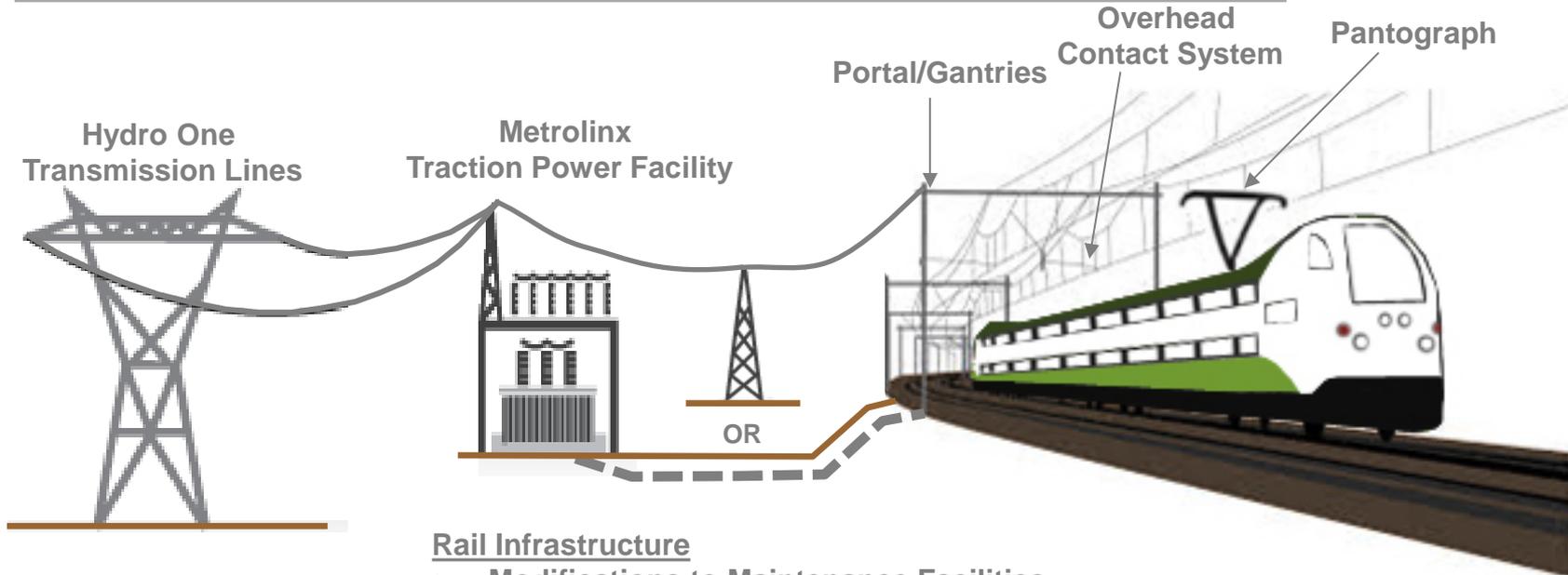


Where are we Electrifying?



- All core areas of the GO network where 15-minute-or-better service is planned (5 corridors)
- Remaining parts of those GO lines that are 100% Metrolinx-owned end-to-end:
 - the Barrie line to Allandale Waterfront
 - the Stouffville line to Lincolnville
 - the Lakeshore East to Oshawa
- UP Express

What is Required for Electrification



Rail Infrastructure

- Modifications to Maintenance Facilities
- Bridge Modifications (clearances, attachments)
- GO Train Station Modifications
- Track & Signals Immunization
- Grounding & Bonding

Electric Fleet

- Trains could potentially be electric multiple units (EMUs) or electric locomotives pulling conventional coaches; current assumption is a mixed fleet
- Request for Information (RFI) issued to leading international rail manufacturers in February 2015
- Developing a strategy for integrating new electric trains into the current rail fleet



By the Numbers

- 262 km of electrified corridor
- 6 traction power substations
- 11 traction power distribution facilities (switching or paralleling stations)
- 12 locations where overhead clearance restrictions require an engineered solution
- 78 overhead bridges requiring installation of protective fencing/barriers

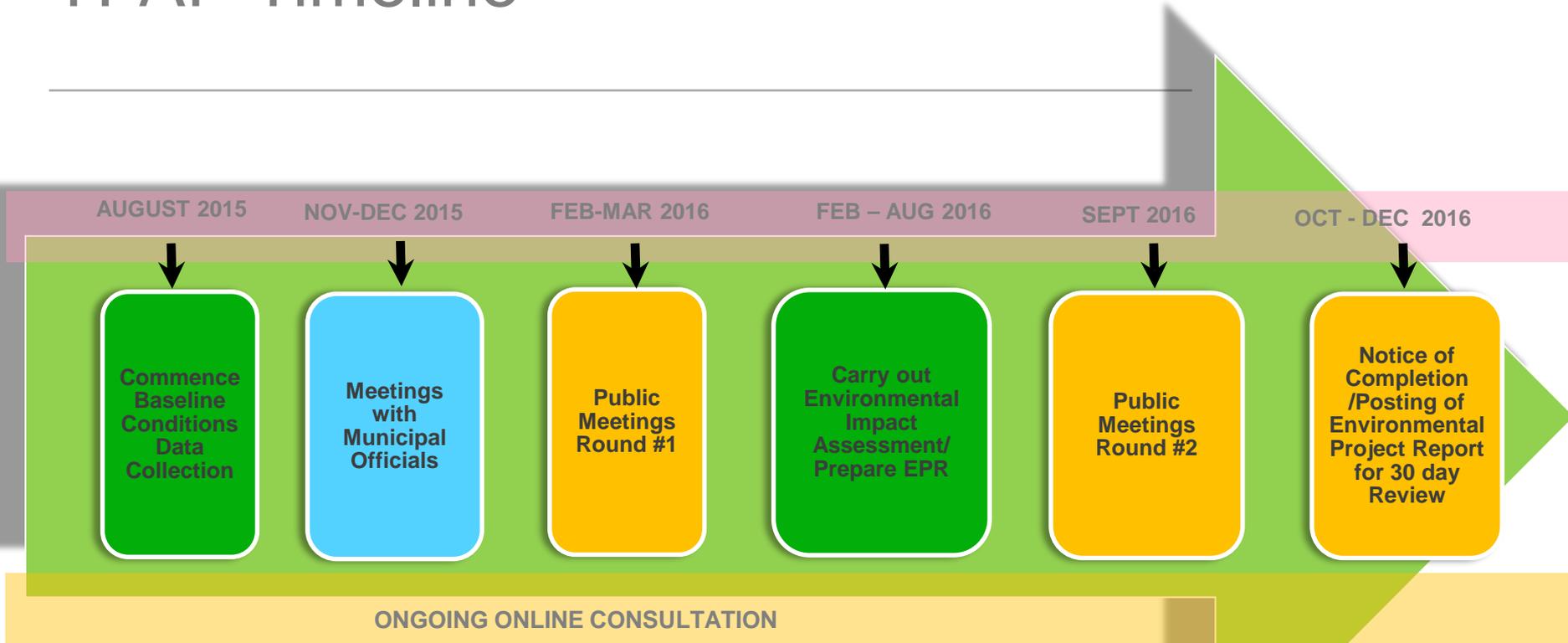


How will we make the infrastructure a reality?

1. Creating an in-house expertise in electrification through strategic hiring, augmented with external consultants
2. Design of infrastructure on a network-wide basis
3. Transit Project Assessment Process (TPAP)
4. Attracting large experienced contractors capable of efficiently delivering the electrification program
5. Phased construction, testing and commissioning



TPAP Timeline



Next Steps

- Public engagement regarding Electrification
- Complete the System TPAP Environmental Approval Process
- Secure approval to deliver electrification as an Alternative Finance and Procurement project through Infrastructure Ontario
- Ensure public facing infrastructure at bridges and stations meet Metrolinx's Design Excellence standards
- Upon receiving all the approvals, tender the design, construction and maintenance contracts for electrification

