CAPITAL PROJECTS UPDATE
ELECTRIFICATION

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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 than 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

- Metrolinx Traction Power Facility
- Hydro One Transmission Lines

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

Comence Baseline Conditions Data Collection

Meetings with Municipal Officials

Public Meetings Round #1

Carry out Environmental Impact Assessment/Prepare EPR

Public Meetings Round #2

Notice of Completion/Posting of Environmental Project Report for 30 day Review

ONGOING ONLINE CONSULTATION

AUGUST 2015

NOV-DEC 2015

FEB-MAR 2016

FEB – AUG 2016

SEPT 2016

OCT - DEC 2016

AUGUST 2015

NOV-DEC 2015

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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