

Electrification Study Highlights



OVERVIEW:

Metrolinx conducted a detailed study of the entire GO Transit rail system to look at the value and effectiveness of electrifying GO's commuter rail network. The study examined how future commuter rail services will be powered – whether it be by electricity, enhanced diesel technology or other alternative technologies.

ELECTRIFICATION STUDY KEY FINDINGS:

Transportation Benefits

- There are important journey time savings that come from electrification. Over the longest trips, journey time savings would be between 5 and 10 minutes per trip. This reduction in journey time will benefit existing riders and attract new ones.
- There are significant operating savings associated with electrification, up to \$18 million per year for the recommended option.
- Electrification will be a significant step towards achieving the long term goals and objectives of The Big Move for a GO Express Rail service. Express Rail is a vision for even faster and more frequent service, with trains operating in the peak period as frequently as every five minutes.

Environmental and Health Benefits

- The study concluded that electrification would not materially reduce regional greenhouse gas emissions, since GO is such a small percentage of the overall emissions in the region.
- All technology options studied, including Tier 4 diesel, result in emissions that are well below stringent World Health Organization air quality standards. Therefore, while there are small environmental benefits with electrification, the associated health benefits are expected to be marginal.

METROLINX STAFF RECOMMENDATION:

Staff are recommending to the Metrolinx Board of Directors to move forward with the electrification of the GO Transit Lakeshore and Georgetown corridors in phases, beginning with the Air Rail Link (ARL). This recommendation is based upon the significant transportation benefits from the study listed above.

The recommended option would cost \$1.6 - \$1.8 billion with phased implementation. The first phase, the ARL, would cost \$457 million. These costs do not include the additional investment needed to reach the reference case, which the study has assumed would be in place.

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WHY GEORGETOWN & LAKESHORE?

- These corridors have the greatest journey time savings.
- These corridors have the highest ridership demand.
- Capital investments are currently underway along the Georgetown corridor and there is still a window to integrate electrification infrastructure design into the next phase of work on the Georgetown South corridor.
- The section of the Georgetown corridor between Union and Bramalea and part of the Lakeshore West corridor is owned by Metrolinx.
- On the Georgetown corridor, a small window exists to integrate electrification infrastructure design considerations with the current construction schedule
- On Lakeshore East, there are plans to establish a second maintenance facility around Whitby. Planning for the maintenance of electric locomotives could be integrated
- There are significant operating and maintenance cost savings in the recommended option, in the order of \$18M net annually. This represents a 25% reduction.

WHY ARL FIRST?

- The ARL terminates outside of Union Station, thereby removing the need to accommodate electrification within the Union Station trainshed.
- Metrolinx owns the portions of the Lakeshore and Georgetown corridors over which the ARL will operate making it easier to carry out the implementation work on these corridors.
- Having the first phase on a dedicated service such as the ARL would enable GO Transit to develop the experience and capacity needed for future phases.

PROPOSED IMPLEMENTATION SCHEDULE :

- Phase 1 - Step 1: Preliminary Design and Engineering and Environmental Assessments for recommended option (3-4 years)
- Phase 1 - Step 2: Construction from Union Station to Pearson Airport and out to Willowbrook on Lakeshore West (4-6 years)

