

GT Fleet Electrification

Carbon Reduction Challenge

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Overview

Main Recommendations

- ◎ Transition all Georgia Tech Ford Transits, F-150s, Rangers to electric alternatives over a 20 year period
- ◎ Install necessary EV infrastructure to support vehicle transition

Total Carbon Reduced:
2,121 Metric Tons of CO2
equivalent Reduced

Total Cost Savings:
\$951,041 in reduced fuel costs*



*from early retirement as opposed to electrification at end of life

Background & Motivation

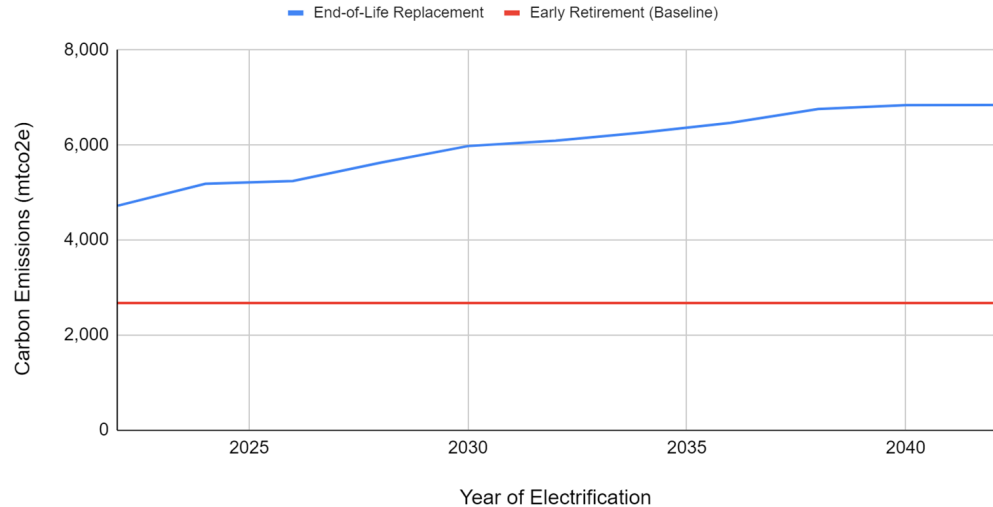
- ◎ Climate Change
- ◎ Electrify GT
- ◎ Benefits of Electrification
- ◎ GT Fleet Electrification Project

**Electrify
GT** 



Carbon Reduction

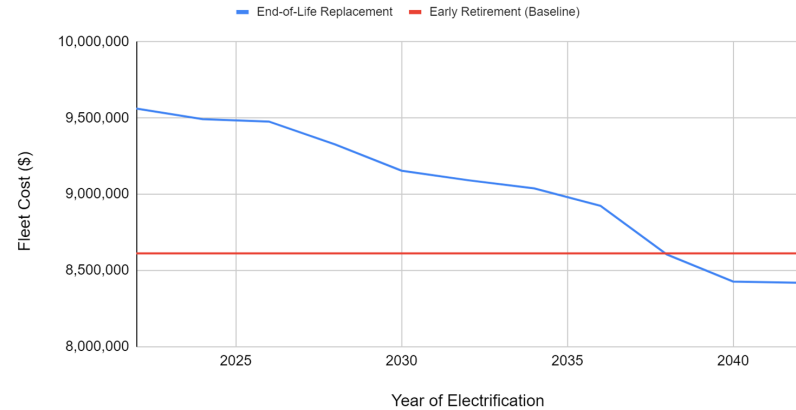
- ⊙ Early Retirement:
-4,171 mtco_{2e}
- ⊙ End-of-Life (2022):
-2,121 mtco_{2e}



Cost Savings

- ◎ Fleet Cost
 - Cost of vehicle replacement + cost of fuel over 20 years
- ◎ Early: \$8,611,188
 - Vehicle Cost ↑↑↑↑↑, Fuel Cost ↓↓
- ◎ End-of-Life: \$9,562,229
 - Vehicle Cost ↑↑↑↑↑, Fuel Cost ↓

- ◎ Pessimistic Estimates
 - Neglects tax rebates, short-term EV price decline, and increasing cost of gasoline



Co-Benefits



- ◎ Air Quality Improvements
 - Reduction in PM2.5 exposure, lowering respiratory diagnoses
- ◎ Lower Maintenance Costs
 - Maintenance of electric powertrains over conventional combustion engine drivetrains is cheaper
- ◎ Pioneer in Campus Electrification
 - GT sets a precedent as one of the first campuses to electrify their fleet vehicles

Next Steps

- ◎ Evaluate electrification beyond Ford F-150s, Rangers, and Transits
- ◎ Roadblock to Adoption: Initial fixed cost of EVs and EVSE
- ◎ Partial Solution: Rectify vehicle usage data gap
 - Strengthen accuracy of overall projection
 - Recommend optimal order of electrification
 - Include elimination/partial replacement

Propose to GT administrators to build off of the GTPD electrification pilot program