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Case study: Electrification of an early-adopter fleet in Canada

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Introduction

Switching to electric vehicles can offer significant cost-of-ownership savings over time for small businesses. However, the high upfront purchase cost of zero-emission vehicles (ZEVs) can be a barrier for some that want to adopt clean technology. To highlight the considerations many fleets will make when acquiring their first ZEV, this paper presents a case study of Rudy's Transportation Services Inc, a small courier service located in Deer Lake, Newfoundland, Canada. Rudy's Transportation Services is expanding and is considering acquiring a ZEV instead of an internal combustion engine vehicle (ICEV). To understand how Rudy's Transportation Services will be affected when migrating to a medium-duty ZEV, this analysis predicts the daily driving strategy, including charging locations and charging time, and estimates operational costs. We then forecast of the financial impact of purchasing a ZEV with a loan instead of an ICEV, including a return-on-investment analysis.

Methodology

Vehicle Specifications

This assessment models a 2023 Ford E-Transit T350 battery electric vehicle (BEV) with seating for two passengers and a cargo capacity of 7 cubic meters.[1] This vehicle is a Class 2b heavy-duty vehicle with a gross vehicle weight rating (GVWR) of 4,309 kg.[2] The baseline gasoline vehicle analyzed is a 2023 Ford Transit model T350.[3] The passenger and cargo capacity are the same as in the ZEV model. The vehicle is a Class 3, with a GVWR of 4,990 kg.

1 Ford Motor Company, "2023 Ford E-Transit™ Cargo Van All-Electric Van, Model Details & Specs," accessed December 19, 2022, https://www.ford.com/commercial-trucks/e-transit/2023/models/cargo-van/.

2 Environment and Climate Change Canada, "Guidance Document - Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations," February 10, 2015, https://ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=71EF09D7-1&offset=3.

3 Ford Motor Company, "2023 Ford Transit Cargo Van, Model Details & Specs," accessed December 19, 2022, https://www.ford.com/commercial-trucks/transit-cargo-van/2023/models/transit-van/.

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Modeling daily vehicle operations

The main difference in operations between an ICEV and a BEV are the limited driving range and required recharge time of the electric vehicle. We developed a trip simulation to model the current daily operations of the Ford E-Transit and determine how the BEV could fulfill the duties of the gasoline Ford Transit that Rudy's Transportation Service is currently operating.

Trip simulation

We define a trip as a one-way driving event from Deer Lake to Corner Brook, which is about 64 km. These are two cities in the western part of the island of Newfoundland, and Rudy's makes this trip four times a day, five days a week. In addition, we assume that the E-Transit van must make intermediary trips when charging is required. A charging event is triggered when the depth of discharge (DOD) of the battery is more than 65% at the end of a trip. For each charging event, we assumed the vehicle is driven 2 km one-way to a depot and uses a 62.5 kW DC fast charger (DCFC) to recharge the battery up to 90% state of charge (SOC). We then estimate the time and cost needed to recharge.

Range

The Ford E-Transit has a nominal maximum range of 203 km (approximately 126 miles) with a battery capacity of 68 kWh.[4] This range is based on complete depletion of the battery from 100% to 0% under highway driving operations. To improve long-term battery performance, we specify a maximum DOD of 65% to trigger a charging event.

Battery charging

For the fast-charging stations, we assume a linear relationship between the charge time and the SOC based on the manufacturer's claim that it takes 34 minutes to charge the vehicle from 20% to 80% SOC.[5] Similarly, we assume a linear relationship for depot charging. We assume the charge rate of 10 miles per hour using a Level 2 charger, as provided in the manufacturer specifications. Based on the manufacturer's estimates, this configuration has the capability to achieve 0% to 100% in 11 hours.[6]

Battery discharge

We estimate the BEV fuel economy by dividing the E-Transit van's nominal range of 203 km by its battery capacity of 68 kWh, resulting in a fuel economy of 3.0 km/kWh. Applying the U.S. Environmental Protection Agency's conversion factor of 8.904 kWh/L, this equates to 27 km per liter equivalent (L_{eq}).[7] We obtain the total fuel consumed by dividing the distance traveled by the BEV fuel economy.

$$BD = \frac{distance\ traveled}{fuel\ economy_{BEV}}$$

4 Ford Motor Company, "2023 Ford E-Transit™ Cargo Van All-Electric Van | Model Details & Specs."

5 Ford Motor Company, "The 2022 E-Transit. Electric Vehicle Charging Solutions For Your E-Transit," 2022, https://www.ford.com/cmslibs/content/dam/brand_ford/en_us/brand/commercial-trucks/all-electric-transit/2022/E-Transit_Charging-v2.pdf.

6 Ford Motor Company, "The 2022 E-Transit. Electric Vehicle Charging Solutions For Your E-Transit."

7 U.S. Environmental Protection Agency, "EPA Test Procedures for Electric Vehicles and Plug-in Hybrids," November 14, 2017, https://www.fueleconomy.gov/feg/pdfs/EPA%20test%20procedure%20for%20EVs-PHEVs-11-14-2017.pdf.

Cold weather impacts

Cold temperatures can cause a loss of range in electric vehicles and increase charging time. For this reason, we assumed that during cold weather months in Newfoundland (assumed to be six months of each year for simplicity in this analysis), the vehicle experiences 20% range loss and that charging times are increased by 17% for fast charging events from 24% to 90% SOC (this equates to six additional minutes—that is, from 34 minutes to 40 minutes).

These cold weather adjustments for range and charging times are based on a study by the Norwegian Automobile Federation (NAF) which published the winter and summer charging times of 16 different passenger vehicles.[8] We calculate the average of the vehicles' differences between winter and summer charge times. In the NAF study, vehicles were charged from 10% to 80% SOC. Ford's published charging times are for charging from 20% to 80% SOC, so we applied a scaling factor to the NAF charging times. Additionally, we doubled the average difference to account for the increased battery capacity of the E-Transit compared to the vehicles in the NAF study.

We model every trip in winter with a 20% penalty in energy consumption for the same distance traveled. This impacts the SOC and the time needed to recharge. The overnight charging time increased by 45 minutes, or 8% more than the charging time during the other six months of the year.

Financial Impact Assessment

The parameters summarized in Table 1 describe the considerations in the financial impact assessment. All currency is expressed in Canadian dollars.

Table 1. Parameters for financial impact assessment

Parameter	First vehicle owner perspective
Analysis period	7 or 10 years
Loan period	5 years
Down payment	10%
Discount rate	7%
Taxes	Recoverable interest taxes, ZEV enhanced depreciation
BEV incentives	Federal ($10,000) and provincial ($2,500)
Salvage value	30%

Operational cost

For each fast-charging event, we use an hourly tariff of $1.98 per hour, as published by ChargePoint in November 2022.[9] For overnight charging, we use Newfoundland Power's (NFP) depot tiered tariff and calculate the hourly rate given the outlet's power demand on a 240 voltage and 32 amperage circuit.[10] Then, we estimate the hourly

8 Norwegian Automobile Federation, "20 Popular EVs tested in Norwegian winter conditions," Mar 12, 2020. https://www.naf.no/elbil/aktuelt/elbiltest/ev-winter-range-test-2020/#qbrickVideo1a0723c0-00090201-04b09b31

9 ChargePoint, "Charge Station Finder," November, 2022, https://ca.chargepoint.com/charge_point?id=1:4819343&action=VIEW

10 Newfoundland Power, "Current electricity rates," https://www.newfoundlandpower.com/My-Account/Usage/Electricity-Rates

charging cost of $0.94 based on the 12.2 cents per kWh cost. The fuel cost (FC) for the BEV can be defined as:

$$FC_{BEV} = \sum_{1}^{i} charge\ time_{DCFC} \times tariff_{DCFC} + charge\ time_{depot} \times tariff_{NFP}$$

where *i* represents the total charge events.

The fuel costs for the baseline gasoline vehicle are based on a fuel economy of 14 km/L, which is the average real-world fuel consumption rate reported by Rudy's Transportation Services. We multiply the fuel economy value by the distance traveled for each trip to estimate the liters consumed. After multiplying the total liters consumed by the province's average gasoline price of $1.73 per liter,[11] we determine the total fuel cost for the ICEV:

$$FC_{ICEV} = \sum_{1}^{j} distance\ traveled \times fuel\ economy_{ICEV} \times gas\ cost_{NFP}$$

where *j* represents the total trips per day.

Maintenance costs were provided by Rudy's Transportation Services as $500 per month for their current ICEVs. We assume that the BEV's maintenance costs are roughly 35% lower than for the ICEV based on our TCO study of zero-emission trucks in the European market.[12]

Federal and provincial incentives

Table 2 shows the ZEV incentives available for Rudy's Transportation Services. For each year of vehicle ownership, loan interest payments do not surpass $3,600. Interest payments are therefore fully covered by the loan interest deduction benefit and result in a net-zero effect on the cashflow.

Table 2. Incentives available to Rudy's Transportation Services for the purchase of a Ford E-Transit.

Type	Name	Organization	Benefit
Federal	Point-of-sale incentive	Transport Canada / iMHZEV Program	$10,000 reduction at the point-of-sale
Federal	Capital cost allowance (CCA)	Canada Revenue Agency	Increases in value from $30,000 to 100% of the vehicle. 30% CCA rate No 50% rule on acquisitions
Federal	Loan interest deduction	Canada Revenue Agency	Up to $3,600 per year
Provincial	EV Rebate	Newfoundland and Labrador Hydro	$2,500 rebate

11 Statistics Canada, "Monthly average retail prices for gasoline and fuel oil, by geography," https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000101&pickMembers%5B0%5D=2.2&cubeTimeFrame.startMonth=07&cubeTimeFrame.startYear=2021&cubeTimeFrame.endMonth=07&cubeTimeFrame.endYear=2022&referencePeriods=20210701%2C20220701

12 Hussein Basma, Arash Saboori, and Felipe Rodríguez, *Total Cost of Ownership for Tractor-Trailers in Europe: Battery Electric versus Diesel*, (Washington, DC: ICCT, 2021), https://theicct.org/publication/total-cost-of-ownership-for-tractor-trailers-in-europe-battery-electric-versus-diesel/.

Vehicle purchase

The Deer Lake Ford dealership offered Rudy's Transportation Services a 2023 Ford E-Transit for $90,000, pre-tax. The price significantly increased from the previous year's model, the 2022 Ford E-Transit, which was $69,000. At present, the 2022 E-Transit is no longer available, and the only option for Rudy's is to purchase a 2023 model.

The 2023 Ford Transit gasoline model price on the website starts at $66,150. Based on community forums, we estimate the market adjustment increases the cost by about $5,000, to a final price point of $71,000, pre-tax. In one Ford Transit-focused online forum, users cited price increases of up to $20,000 over the listed prices online. As with any vehicle model, the discrepancy in the actual price consumers pay for the Ford Transit versus the prices listed online can vary widely based on several factors, including location, model availability, and demand.[13]

Summary of modeling assumptions and limitations

Below we list assumptions used to model the daily driving strategy and the return-on-investment analysis.

Operations

» The E-Transit has access to a garage with a 240V outlet and a maximum distance from the parking space to the outlet of 3.5 meters. There is no need to install a special charger for the vehicle.

» The BEV will recharge overnight using the business tariff of 12.2 cents per kWh.

» The vehicle only operates between Corner Brook and Deer Lake.

» Battery aging and performance deterioration are not considered in the model.

» Charging time is based on manufacturer estimates.

» We assume a range loss of 20% during cold weather. We calculate the average of the winter and summer time difference for 16 tested vehicles during recharging on temperatures between -6 and -2 °C.

» Liter equivalents were calculated using the U.S. Environmental Protection Agency's conversion factor and compared to values from Natural Resources Canada for reference.[14]

Economics

» We add a $5,000 adjustment increase to the base price of the gasoline vehicle found on Ford's website based on information from community forums.

» Expenses related to tolls and idle time while recharging are not considered.

» The ICEV maintenance cost is based on Rudy's Transportation Services monthly estimates of $500. The BEV maintenance cost is assumed to be 35% lower based on a previous ICCT study.

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13 Ford Transit USA Forum, "Dealers with 'market adjustments,'" https://www.fordtransitusaforum.com/threads/dealers-with-market-adjustment.89536/; Ford Transit USA Forum, "Expensive surprise trying to order a 2023," https://www.fordtransitusaforum.com/threads/expensive-surprise-trying-to-order-a-2023.91276/

14 Natural Resources Canada, "2022 Fuel consumption guide," 2022, https://www.nrcan.gc.ca/sites/nrcan/files/oee/pdf/transportation/fuel-efficient-technologies/2022%20Fuel%20Consumption%20Guide.pdf

Additional considerations

The purchase strategy of Rudy's Transportation Services relies on the vehicle supply in the area. At present, the substantial cost gap between the battery-electric and ICE van is a key barrier to the company. Most of the available incentives rely on the company's ability to purchase and pay for the vehicle acquisition expenses in advance, at least during the first year. The tax-deductible incentives can then be recovered in the upcoming years.

A lack of capital is often a limitation for small businesses like Rudy's Transportation Services, because the company might not be able to absorb the additional expenses associated with acquiring an electric vehicle and potentially installing charging infrastructure.

Results and discussion

Key Findings

The trip simulation shows that the 2023 Ford E-Transit can run the four daily trips with one recharging event after the second trip. The recharging time is estimated to be 34 minutes using a DC fast charger, which is currently available in both Deer Lake and Corner Brook. The overnight recharge time in the warmer months is 9 hours and 24 minutes to fully charge the battery to 100%. Figure 1 shows the battery's capacity and its state of charge after each trip.

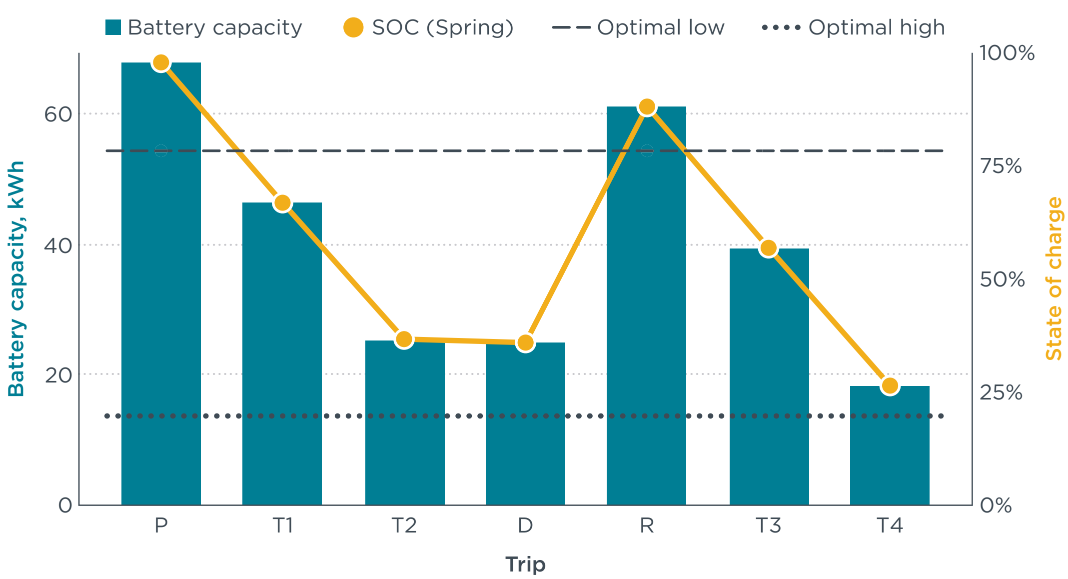

Figure 1. Battery status during trip simulation. P: Vehicle at the business garage with a fully charged battery from overnight recharge. T1: First trip 64 km from Deer Lake to Corner Brook. T2: Return 64 km trip from Corner Brook to Deer Lake. D: A charge event is triggered, requiring a 2 km trip to a charging station. R: The battery is charged to 90% after recharging. T3: Repeat a similar T1 trip. T4: Repeat a similar T2 trip.

During the daily runs, we found the driver must recharge before the third trip to avoid falling below an ideal minimum 20% state of charge.[15] The strategy maintains the battery's state of charge within the optimal lower and higher limit during the summer months. However, during winter, the last trip ends with 14% state of charge. Given that it is cheaper to charge at the depot compared to using fast charging, and another charging event would disrupt the driver's schedule even further, we assumed that the daily operations can be completed without adding another charging event.

In Figure 2, a typical day is displayed for the E-Transit following the driving and charging strategy proposed. We assume that loading and unloading the vehicle takes 2 hours. Under this scenario, the driver would spend about fifteen minutes driving to a charging station and an additional 30 minutes recharging. We also expect the overnight charging will be completed about four hours before the first trip of the day, which starts at 9:00 AM.

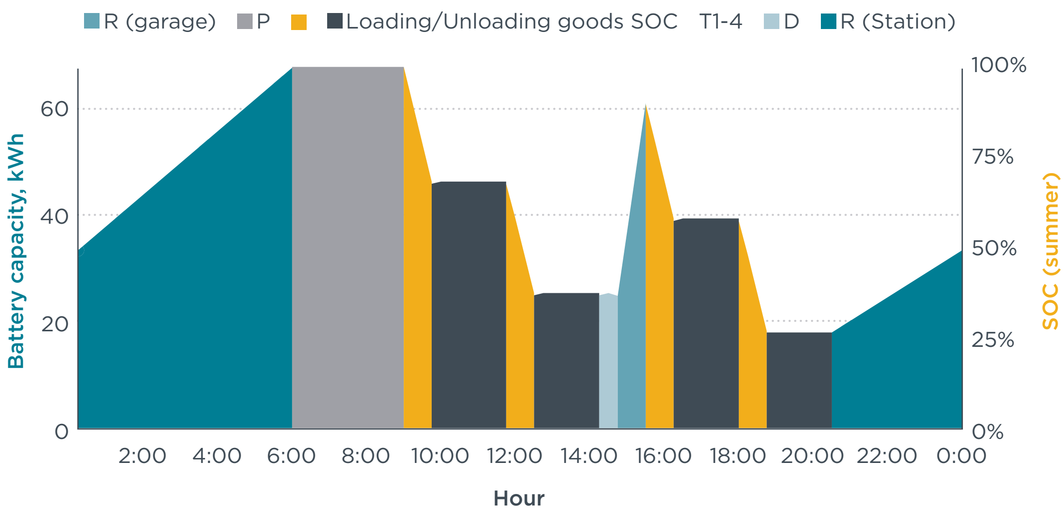

Figure 2. Hourly battery status in the summer. R (garage): Overnight charge at the business garage. P: Initial battery state at the business garage. T1-4: Trip of 64 km from Deer Lake to Corner Brook (or vice versa). D: Trip of 2 km to a charging station. R (station): After recharging at the station, the battery is charged to 90%.

During the winter months, we estimate that the driver spends an additional 6 minutes charging at a fast-charging station. The largest impact is during overnight charging, where cold temperatures add 45 minutes to the charging time. Given that we estimated that the vehicle will be parked for three hours fully charged before its first morning trip, the extra overnight charging time during the winter months is not expected to pose a concern. In a scenario where the vehicle SOC is near 0% at the end of the day, the overnight charging time would be about 11 hours. This would mean that, at the latest, the E-Transit would need to be plugged in by 10:00 pm to reach a full charge by 9:00 am.

Figure 3 shows the estimated annual fuel and maintenance costs for the E-Transit and the baseline gasoline Transit vans. The annual costs for the E-Transit of roughly $6,600 are nearly 70% lower than the baseline annual costs for gasoline vehicle of roughly

15 J. Jaguemont, L. Boulon, and Y. Dubé, "A Comprehensive Review of Lithium-Ion Batteries Used in Hybrid and Electric Vehicles at Cold Temperatures," *Applied Energy* 164 (February 2016): 99–114, https://doi.org/10.1016/j.apenergy.2015.11.034.

$14,300. Longer charging times during the six winter months have negligible impacts on overall costs, adding about $100 per year.

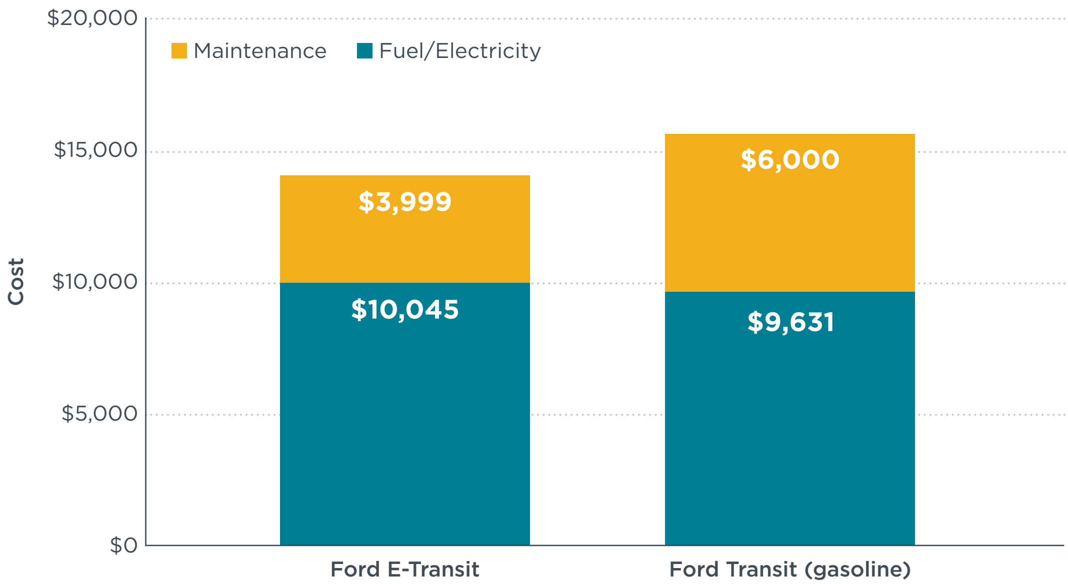

Figure 3. Annual operational cost breakdown.

For the return-on-investment analysis, we do not include any electricity or gasoline price sensitivity and assume that the vehicle is owned and operated by Rudy's over the entire analysis period.

We consider two scenarios for ownership duration:

1. A seven-year ownership period, based on the average life expectancy of a Ford Transit vehicle of 480,000 km.
2. A ten-year ownership period, extending the vehicle life up to 700,000 km, which is equivalent to three additional years on the average life expectancy after investing in a major repair ($5,000).

Figure 4 shows the estimated cumulative savings of acquiring and operating the E-Transit.[16] As shown, the curve crosses over to positive in year two, which is largely a result of the vehicle purchase incentives helping to offset the additional purchase price of the E-Transit. In addition, the incentives reach their maximum effect in the fourth year. Once the vehicle is paid off in the fifth year, the savings maintain constant value until year seven, when the salvage cost is recovered. In the second case, a decrease in year seven appears due to expenses for a major repair, followed by constant savings until year ten, when the vehicle is sold. In both the seven- and ten-year ownership scenarios, the net present value benefit of the E-Transit is roughly $60,000.

16 Detailed cash flow tables are included in the appendix for both the E-Transit (Table A2) and Transit (Table A3). The data points in Figure 9 come from Table A4, which has the annual cash flow differences between the E-Transit and Transit.

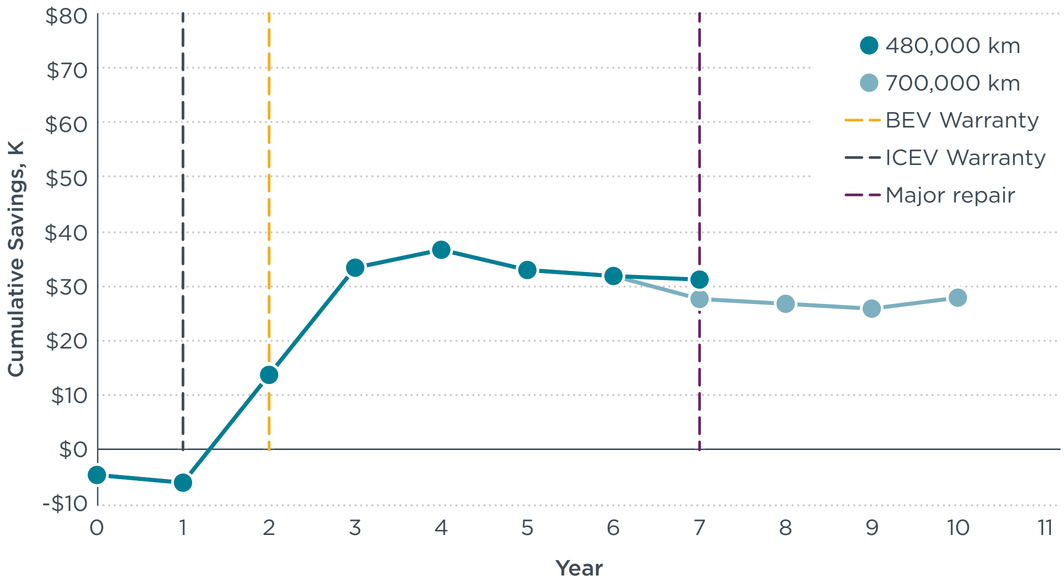

Figure 4. Cumulative savings over seven-year and ten-year timelines, calculated as the net present value using a 7% discount rate.

Based on the yearly distance traveled, the BEV has one year difference in warranty compared to the ICEV. Both vehicles have an equal life expectancy of 480,000 km.

Sensitivity analysis

Electricity and Gasoline Costs

Based on the financial assessment results for the net present value (NPV) in year seven, we vary the electricity and gasoline costs to obtain the NPV isolines shown in Figure 5. The gasoline and electricity values are the average cost each year during the analysis period.

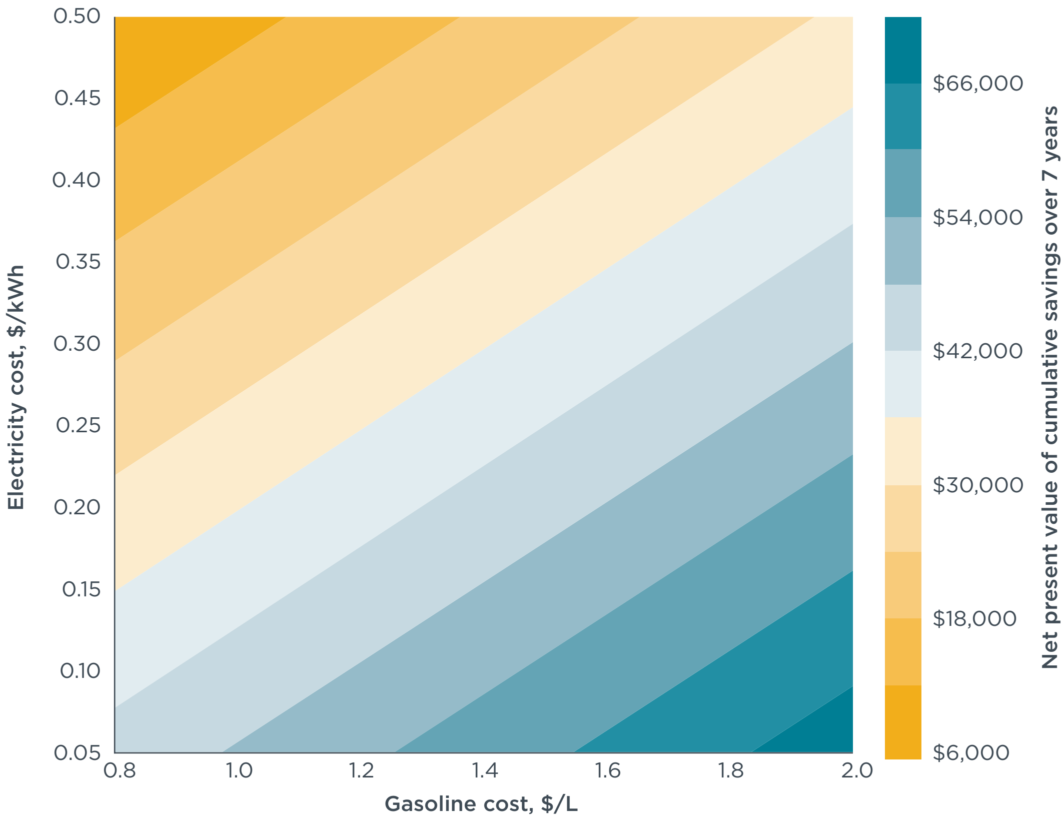

Figure 5. Net present value of seven-year savings under varying electricity and gasoline prices.

The results show under what conditions we expect a constant NPV. Even in the worst-case scenario when the cost of gasoline is at its lowest ($0.80/L) and the electricity at its highest ($0.50/kWh), savings of about $6,000 can still be achieved.
Figure 5 considers the cost of overnight charging, which depends directly on the business tariff when plugged in at the depot. The fast-charging electricity and maintenance costs remained fixed at the respective values for this analysis, although the electricity cost from fast-charging could vary.

Conclusions

Fleet electrification can be particularly challenging for small businesses due to operational and capital constraints. This case study explored the feasibility of a small business adopting a Ford E-Transit and found that the van was capable of driving four 64 km trips in one day, with the vehicle staying over 20% SOC in the summer and over 14% SOC in the winter with the aid of one overnight charging event and one fast charging event. The net present value of the savings realized from switching to a BEV was approximately $60,000 on both seven-year and ten-year timelines. A sensitivity analysis showed that these savings were robust to electricity and gasoline prices, with positive savings even at electricity prices as high as $0.50/kWh and gasoline prices as low as $0.80/L. The analysis demonstrates that electrification is feasible and cost-effective for the case study examined.

Appendix

Table A1. Financial parameters used in the financial impact assessment.

Parameter	First-ownership perspective
Analysis period	7 or 10 years
Loan period	5 years
Loan interest rate (APR)	4%
Down Payment	10%
Discount rate	7%

Table A2. BEV cash flow and net present value analysis

Year	0	1	2	3	4	5	6	7	8	9	10
Purchase value	**-$90,000**										
Down payment	-$9,000										
Loan net value, BOY		-$81,000	-$64,800	-$48,600	-$32,400	-$16,200	$0	$0	$0	$0	$0
Yearly payment, EOY		-$16,200	-$16,200	-$16,200	-$16,200	-$16,200	$0	$0	$0	$0	$0
Operational Costs											
Recharging		-$2,671	-$2,671	-$2,671	-$2,671	-$2,671	-$2,671	-$7,671	-$2,671	-$2,671	-$2,671
Maintenance		-$3,999	-$3,999	-$3,999	-$3,999	-$3,999	-$3,999	-$3,999	-$3,999	-$3,999	-$3,999
Km travelled		70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Cumulative km travelled		70,000	140,000	210,000	280,000	350,000	420,000	490,000	560,000	630,000	700,000
Incentives											
Federal	$10,000										
Provincial	$2,500										
Depreciation limit	$90,000	$63,000	$36,000	$9,000							
CCA rate	30%										
Depreciated value		$27,000	$27,000	$27,000	$9,000						
Salvage value											
Salvage value percentage	30%										
Value end of project, 7 yr								$27,000			
Value end of project, 10 yr											$27,000
Future value											
Yearly projection, 7 yr	-$68,500	$4,131	$4,131	$4,131	-$13,869	-$22,869	-$6,669	$20,331			
Cumulative value, 7 yr	-$68,500	-$64,369	-$60,239	-$56,108	-$69,978	-$92,847	-$99,517	-$79,186			
Yearly projection, 10 yr	-$68,500	$4,131	$4,131	$4,131	-$13,869	-$22,869	-$6,669	-$6,669	-$6,669	-$6,669	$20,331
Cumulative value, 10 yr	-$68,500	-$64,369	-$60,239	-$56,108	-$69,978	-$92,847	-$99,517	-$106,186	-$112,856	-$119,525	-$99,195
Present value											
Cumulative, 7 years	-$68,500	-$60,158	-$52,615	-$45,801	-$53,386	-$66,199	-$66,312	-$49,313			
Cumulative, 10 years	-$68,500	-$60,158	-$52,615	-$45,801	-$53,386	-$66,199	-$66,312	-$66,127	-$65,683	-$65,014	-$50,426

Table A3. ICEV cash flow and net present value analysis

Year	0	1	2	3	4	5	6	7	8	9	10
Purchase value	**-$71,000**										
Down payment	-$7,100										
Loan net value, BOY		-$63,900	-$51,120	-$38,340	-$25,560	-$12,780	$0	$0	$0	$0	$0
Yearly payment, EOY		-$12,780	-$12,780	-$12,780	-$12,780	-$12,780	$0	$0	$0	$0	$0
Operational Costs											
Fuel		-$8,331	-$8,331	-$8,331	-$8,331	-$8,331	-$8,331	-$8,331	-$8,331	-$8,331	-$8,331
Maintenance		-$6,000	-$6,000	-$6,000	-$6,000	-$6,000	-$6,000	-$6,000	-$6,000	-$6,000	-$6,000
Km traveled	0	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Cumulative km traveled		70,000	140,000	210,000	280,000	350,000	420,000	490,000	560,000	630,000	700,000
Incentives											
Federal	0										
Provincial	0										
Depreciation limit	$30,000	$3,000									
CCA rate	30%										
Depreciated value		$27,000	$3,000								
Salvage value											
Salvage value percentage	30%										
Value end of project, 7 yr								$21,300			
Value end of project, 10 yr											$21,300
Future value											
Yearly projection, 7 yr	-$63,900	-$111	-$24,111	-$27,111	-$27,111	-$27,111	-$14,331	$6,969			
Cumulative value, 7 yr	-$63,900	-$64,011	-$88,121	-$115,232	-$142,342	-$169,453	-$183,784	-$176,814			
Yearly projection, 10 yr	-$63,900	-$111	-$24,111	-$27,111	-$27,111	-$27,111	-$14,331	-$14,331	-$14,331	-$14,331	$6,969
Cumulative value, 10yr	-$63,900	-$64,011	-$88,121	-$115,232	-$142,342	-$169,453	-$183,784	-$198,114	-$212,445	-$226,776	-$219,806
Present value											
Cumulative, 7 years	-$63,900	-$59,823	-$76,968	-$94,064	-$108,592	-$120,818	-$122,463	-$110,111			
Cumulative, 10 years	-$63,900	-$59,823	-$76,968	-$94,064	-$108,592	-$120,818	-$122,463	-$123,376	-$123,645	-$123,351	-$111,738

Table A4. Financial impact after subtracting the BEV from ICEV values

Financial Impact (NPV)											
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cumulative savings, 7 years	-$4,600	-$335	$24,353	$48,262	$55,207	$54,619	$56,151	$60,798			
Cumulative savings, 10 years	-$4,600	-$335	$24,353	$48,262	$55,207	$54,619	$56,151	$57,248	$57,962	$58,337	$61,313