New Jersey Fleet Advisor Sample of Fleet Electrification Roadmap Contents

NEW JERSEY
FLEET ADVISOR
FLEET ELECTRIFICATION ASSISTANCE

Executive Summary

This document is intended to provide an overview of the roadmap reports developed for fleets participating in New Jersey Fleet Advisor. Each section contains a high-level summary of the information fleets can expect to find in each section of the roadmap, as well as some examples of the types of analysis that will be performed.

Contents

Current Fleet Overview

This section provides an overview of the current vehicles in the fleet as collected during the intake process for the program.

Duty Cycle Analysis

Fleet vehicles are categorized into Types based on the vehicle type, weight class, and duty cycle. Vehicle options that meet the specifications for each Type are outlined in this section. Examples of options for Cargo Vans and Class 6 trucks for a theoretical fleet's operations are shown below.

Cargo Van

Table 1. Cargo Van Electric Vehicle Replacements

Vehicle Group	Cargo Van				
Electric Vehicle	**Mercedes-Benz**	**Ford**	**BrightDrop**	**Rivian**	**Ram**
	eSprinter	**E-Transit**	**Zevo 400**	**Delivery 500**	**Promaster EV**
Availability	Now	Now	Now	Now	Now
Class/Size	Class 2b	Class 2b	Class 2b	Class 2b	Class 2b
Range	248 miles	125 miles	250 miles	150 miles	100 miles
Payload	2,600 lbs.	3,880 lbs.	1,800 lbs.	2,734 lbs.	3,020 lbs.
Energy Capacity	113 kWh	68 kWh	N/A	N/A	110 kWh
Level 2 Charging Time (11.5 kW)	10.5 hours	6.5 hours	N/A	N/A	10.5 hours
Website	eSprinter	E-Transit	Zevo 400	Delivery 500	Promaster EV
Vehicle Photo					

Class 6 Truck

Table 2. Class 6 Truck Electric Vehicle Replacements

Vehicle Group	Class 6 Truck				
Electric Vehicle	**International eMV Series**	**Lion Lion6**	**Peterbilt 220 EV**	**Freightliner eM2**	**Mack MD Electric**
Availability	Now	Now	Now	Now	Now
Class/Size	Class 6	Class 6	Class 6	Class 6	Class 6
Range	135 miles	218 miles	200 miles	180 miles	230 miles
Payload	11,000 lbs.	33,000 lbs.	10,000 lbs.	13,020 lbs.	19,400 lbs.
Energy Capacity	210kWh	up to 252 kWh	282 kWh	194 kWh	240 kWh
DC Fast Charging Time (50 kW)	2 hours	2 hours	2 hours	1.5 hours	2.5 hours
Website	International eMV	Lion6	220EV	Freightliner eM2	MD Electric
Vehicle Photo					

Charging and Infrastructure

Site Assessment

This section shows the results of the onsite electric infrastructure assessment. It includes a site diagram, recommended charger load, and electric service upgrades needed. An example outline of the information provided for a theoretical fleet is shown below.

Figure 1. Fleet Charging Equipment Installation Location

Newark Headquarters:

- Three dual-port Level 2 charging stations needed for six cargo vans.
- 120-amps remaining on current service – enough to install one charging station.
- New 400-amp service and new electrical panel will be needed to electrify the rest of the fleet.

Charging Equipment

This section includes a plug type and power level overview, charger recommendations for the fleet, an overview of managed charging definitions and applications, and whether managed charging makes sense for the fleet.

On-Route vs. Depot Charging

This section includes an overview of the on-route charging ecosystem, ways to find on-route chargers, and how to use public charging networks.

Vehicle and EVSE Financing

Vehicle Incentives

This section provides participating fleets with an overview of state and federal funding programs and tax incentives available to support their EV purchase as well as a brief overview of the application requirements and funds available. These programs are tailored to those most applicable to the fleet.

EVSE Incentives

This section provides an overview of state, federal, and utility funding programs and tax incentives available to support EVSE installation as well as a brief overview of the application requirements and funds available. These programs are tailored to those most applicable to the fleet.

Results

Total Cost of Ownership

A comparison of costs over time for internal combustion vehicles vs. battery equivalents over a 12 year vehicle life are provided. These calculations are made using a proprietary CALSTART tool. This allows organizations to understand the breakeven points and cost differences for purchasing an electric vehicle rather than a fossil fuel powered vehicle. Examples of these calculations for a theoretical fleet's vehicles are shown below.

Ford Transit Connect

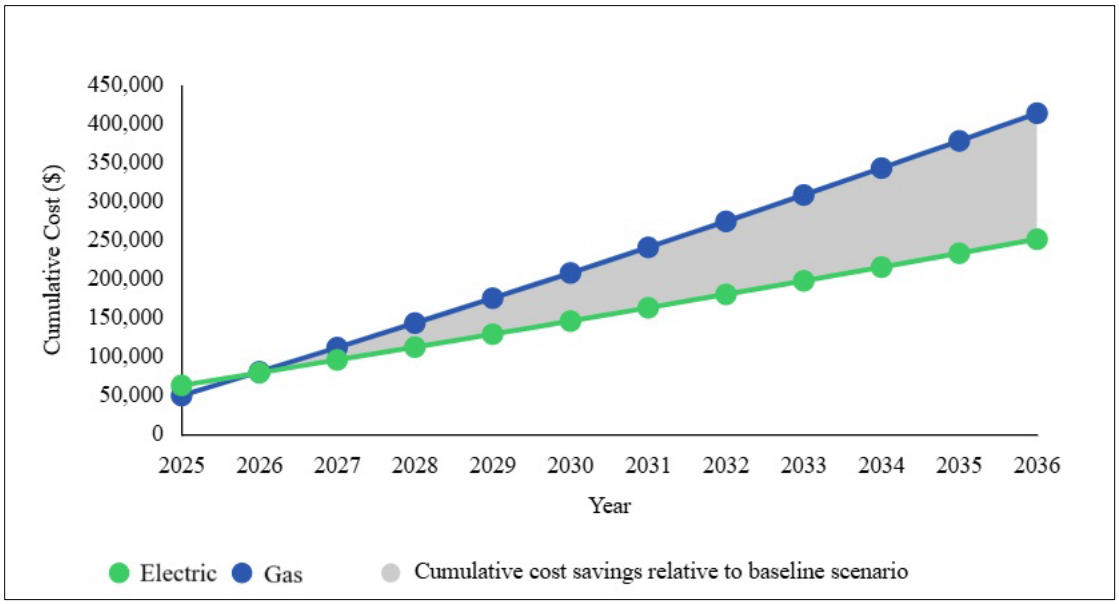

Figure 3. Ford Transit Connect Costs from 2025-2036

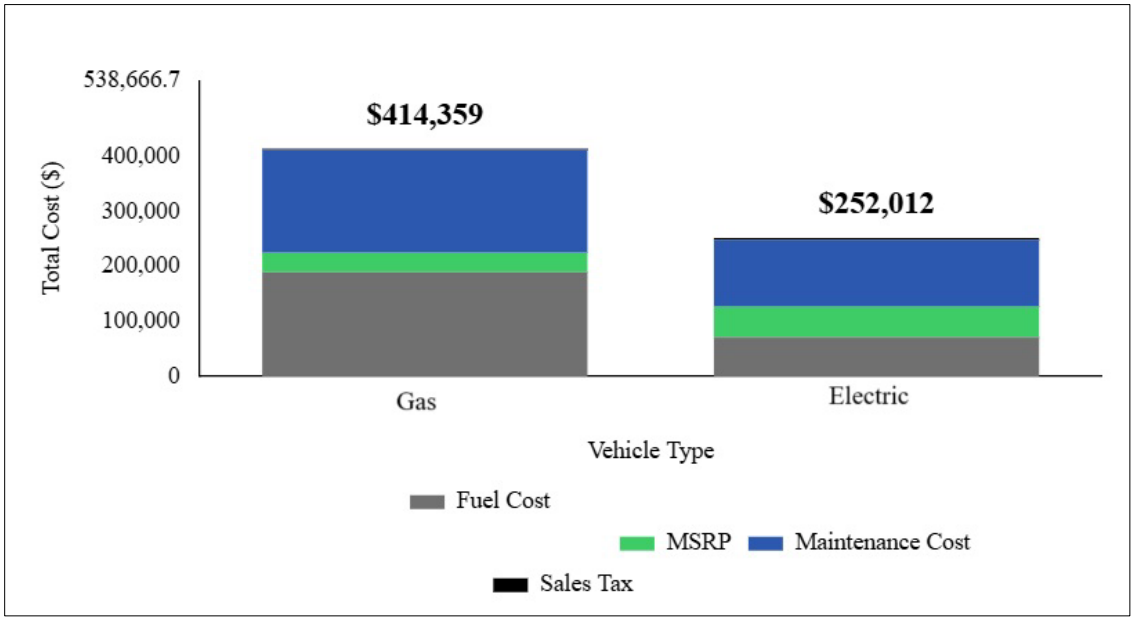

Figure 4. Ford Transit Connect Itemized Costs from 2025-2036

The total cost of ownership is lower for the electric replacement of the Ford Transit Connect. The electric vehicle begins producing savings, including reduced annual fuel and maintenance costs, in the first year after purchase.

Class 4 Work Truck

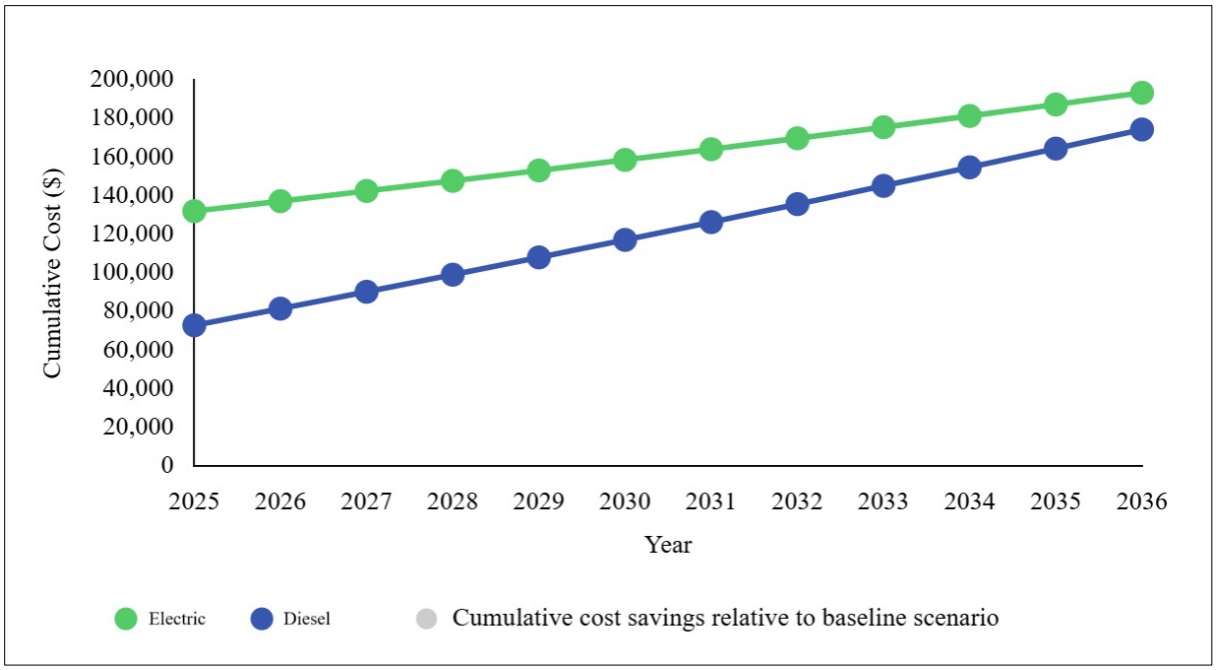

Figure 5. Class 4 Work Truck Costs from 2025-2036

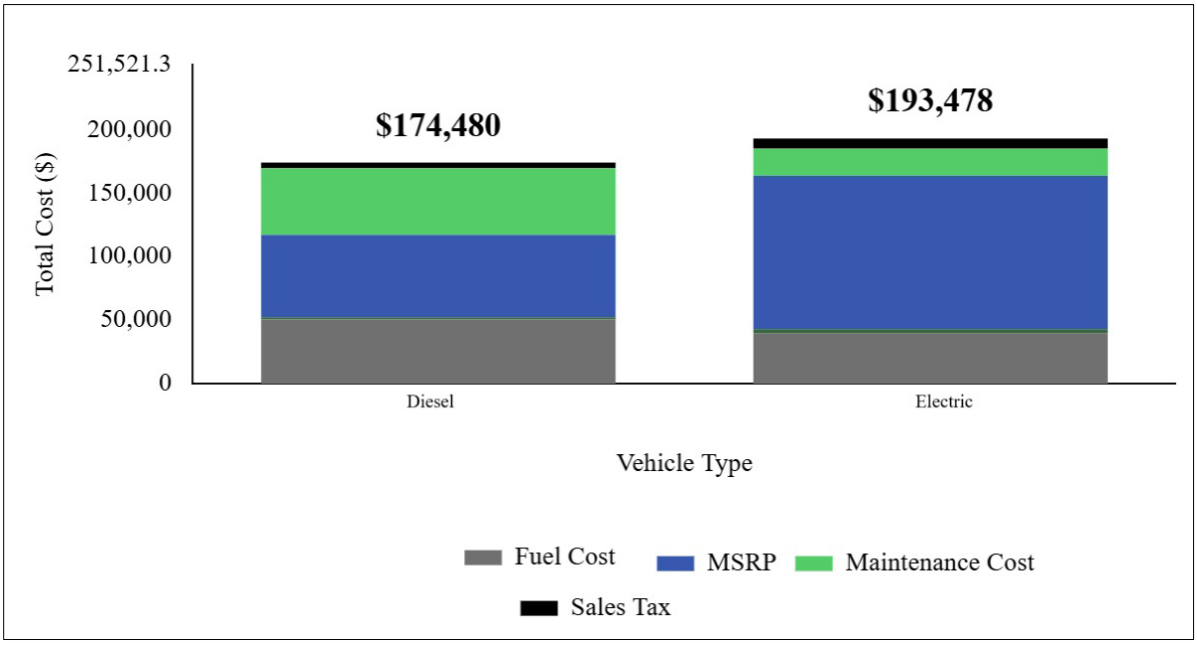

Figure 6. Class 4 Work Truck Costs from 2025-2036

The payback period for the electric Class 4 work truck is beyond the vehicle's estimated 12-year life. However, the electric truck still offers annual fuel and maintenance costs savings.

Environmental Impact

Emissions reduction from removing diesel vehicles from fleet, using a federally provided calculator. Emissions reduction from a theoretical fleet are shown below.

Pollutant	Annual Emissions (lbs.)
Nitrogen Oxide	82
Particulate Matter	4
Hydrocarbons	8
Carbon Monoxide	61
Carbon Dioxide	76,438
Fuel	5,125,000

Table 3. Fleet Annual Fleet Emissions

Implementation Considerations

This section outlines factors that might impact EV performance. This includes overviews of concepts such as preheating the battery, battery degradation, and effects of seasonal temperature changes.

Conclusions

This section describes the next steps the organization should take if it chooses to move forward with transitioning to electric vehicles. This includes a description of which vehicles are best suited for electrification and should be first in line for replacement with electric options.

Additional Links

- Contact information for site assessment team
- Contact information for utility upgrades
- Links to publicly available sources discussed in report