

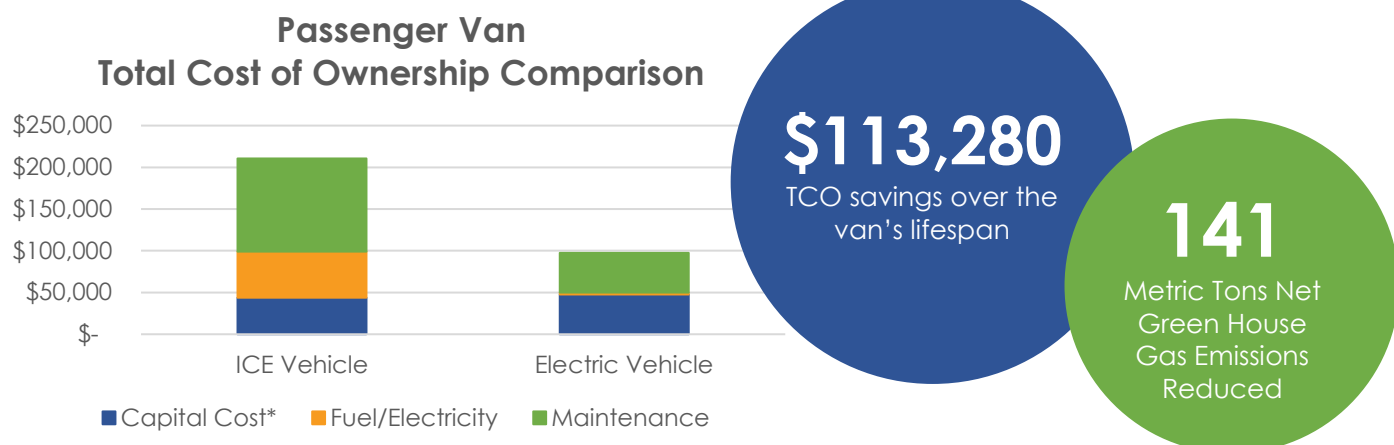
Passenger Vans

POTENTIAL FLEET ELECTRIFICATION SAVINGS

Fleet Electrification Opportunities

ICF, on behalf of Consumers Energy provides fleet electrification recommendations and objective guidance from our team of electric vehicle (EV) experts. We are here to help your fleet understand the potential impacts and benefits of shifting your Internal Combustion Engine (ICE) fleet vehicles to EVs.

Below is a high-level estimate of the potential total cost of ownership (TCO) savings and emission reductions associated with converting one of your passenger vans to electric.



*EV capital costs include EV charging infrastructure and installation cost estimates, and Consumers Energy's PowerMIFleet EVSE and Make-Ready Program incentives. TCO calculations are based on a 15-year vehicle life.

Why Switch to Electric Vans?



Battery electric vehicles (BEVs) don't release any tailpipe emissions, which means cleaner air in your community.



Electric vans can help cut down on operations and maintenance costs. That's because they are more efficient, less expensive to fuel, and require less maintenance over time.



EVs have a lower center of gravity which offers better handling and responsiveness. The electric engine provides smooth acceleration and deceleration, and a quiet ride, which all leads to a safer experience.



EVs are broadly incentivized by Consumers Energy's PowerMI EVSE and Make-Ready Program as well as through state and federal agencies. Our experts can connect you with the type of financial assistance that is right for you.

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Types of EV Charging Infrastructure

EVs require access to chargers, also known as EVSE. In a fleet application, the majority of charging is typically done at the fleet facility – overnight or between shifts. Facility-based charging can be supplemented with periodic charging at workplaces, idle locations, and public destinations as needed. There are three types of EV chargers: Level 1, Level 2, and Direct Current (DC) Fast, which are described further below.

	Level 1	Level 2	Direct Current (DC) Fast
Power Supply (Volts)	120	240 or 208	208/480 three-phase
Range per hour (Miles/hour charging)	2 to 5	10 to 20	150+
Additional Notes	Plugs into the vehicle's SAE J1772 charge port. Slowest category of EVSE	Most common charger for home, public and workplace charging.	May require infrastructure upgrades and cost significantly more than Level 2 chargers. Range depends on vehicle type and power supply.

Our analysis uses a conservative one-to-one vehicle-to-charger ratio, but it may be possible to reduce the number of chargers by:

- Manipulating the duty cycles of the vehicles to allow for successive (non-overlapping) charging;
- Identifying managed charging solutions to optimize charger use;
- Garaging EVs together to allow for shared chargers; and
- Leveraging publicly available EVSE, where appropriate.

Environmental Benefits

Converting a passenger van to electric is estimated to produce the following environmental impacts:



141

metric tons (MT) of CO₂ eliminated over 15 years



2,628

Pounds (lbs.) of site NO_x eliminated over 15 years

Over 15 years, these estimated emission reductions equate to:



switching **5,342** incandescent lamps to LEDs, or:



recycling **48** tons of waste instead of landfilling it, or:



planting **2,319** trees.

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Total Cost of Ownership Assumptions

The following table provides additional context and assumptions around our fleet savings estimates.

Passenger Van TCO Comparison	Diesel Passenger Van	BEV Passenger Van
Capital Cost	\$44,000	\$46,990
Charging Infrastructure Hardware (L2:12-15 kW) ¹	N/A	\$2,000
Charging Infrastructure Installation	N/A	\$3,500
EV and EVSE Incentives/Grants ²	N/A	(\$5,000)
Annual Fuel/Electricity Costs ³	\$4,931	\$214
Annual Maintenance Costs ⁴	\$9,631	\$3,991
15-Year Total Costs ⁵	\$210,595	\$97,315
Single EV Van TCO Savings	\$113,280	

Passenger Van EV Models

There are several BEV model options available for passenger vans summarized in the table below.

Manufacturer	Model	Type	EV Range (Miles)	Battery Size (kWh)
Ford	E-Transit Wheelchair Van	BEV	150	68
Lightning eMotors	Lightning ZEV3 Transit Van – LEV120T	BEV	200	120
Lightning eMotors	Lightning ZEV3 Transit Van – LEV60T	BEV	140	80
Maxwell Vehicles	ePro Long Range Passenger Van	BEV	175	N/A*
Maxwell Vehicles	ePro Medium Range Passenger Van	BEV	150	N/A*
Maxwell Vehicles	ePro Standard Range Passenger Van	BEV	125	N/A*
ZEVx	Chevrolet Express 3500	BEV	110	N/A*
ZEVx	Ford E-350	BEV	110	62
ZEVx	Ford Transit 150 – ATHENA	BEV	110	62
ZEVx	Freightliner Sprinter 2500 - ATHENA	BEV	115	62
ZEVx	Mercedes-Benz Sprinter 2500 – ATHENA	BEV	115	62

*Information is not currently available

¹ This conservatively assumes a one-to-one charger-to-vehicle ratio and does not account for any existing chargers your fleet may have. Depending on the scheduled duty cycles of the vehicles, it may be possible to reduce the number of chargers.

² Assumes Consumers Energy's PowerMIFleet EVSE and Make-Ready Program incentives (up to \$35,000 per non-public DCFC and installation costs, with a limit of 10 ports per site). EV capital and infrastructure costs shown in the table do not have incentives applied.

³ Assumes 30,000 miles driven per year, \$2.86/gallon diesel (year 1 cost), \$0.12/kWh (year 1 cost). Fuel pricing is escalated annually using projections from U.S. Energy Information Administration's 2021 Annual Energy Outlook.

⁴ Uses a dollar per mile maintenance cost assumption (\$0.31/mile for diesel vans, \$0.13/mile for BEV vans), escalated at 2.2% annually.

⁵ NPV assumes a 5% discount rate.