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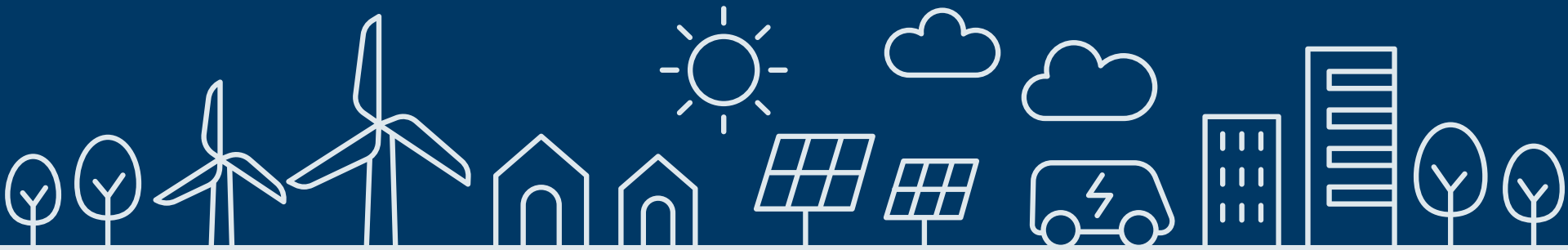
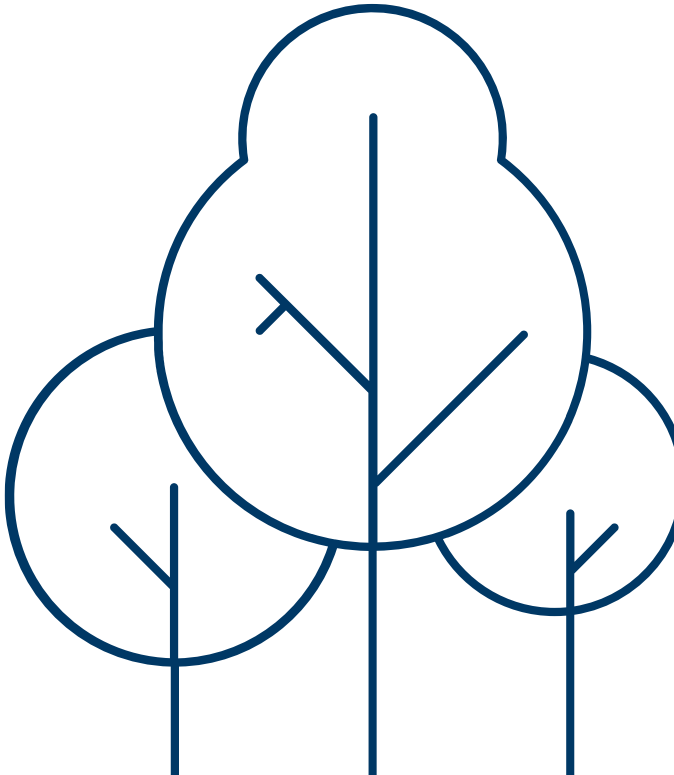
Fleet Electrification for Local Governments

Friday, March 14, 2025



Agenda

- Introduction to GPI and DEMN
- Charging Smart
- Fleet Electrification
- Q&A



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Great Plains Institute

- Accelerate the transition to net-zero carbon emissions for the benefit of people, the economy, and the environment
- Minneapolis-based with a national footprint

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Drive Electric Minnesota

- Facilitated by the Great Plains Institute
- Coalition of EV champions in Minnesota, dedicated to encouraging the deployment of EVs and establishing EV charging infrastructure throughout the state

Drive Electric
MINNESOTA

GPI's Local Government Peer Learning Networks

- **Minnesota Cities Climate Coalition:** A nonpartisan statewide group of 70+ **city council members and mayors** focused on advancing local climate and clean energy goals by 1.) influencing state policy and regulations, and 2.) sharing best practices and policy ideas.
    - Meets on Zoom the 4th Thursday of every month + at LMC

- **Community Energy Network:** Local government **sustainability staff** network – representing 80+ communities from across Minnesota – co-facilitated with CERTs
    - Meets quarterly on Zoom

- Contact Catherine Kemp (ckemp@gpisd.net) if you're interested in joining

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CHARGING SMART

NATIONALLY DISTINGUISHED. **LOCALLY POWERED.**

Charging Smart: A program for local governments

What is Charging Smart?

Charging Smart provides free technical assistance and national recognition to local governments to facilitate the adoption of electric vehicles (EVs) and EV charging for their community.

IREC

Energy Ready: Free Technical Assistance

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- **Free technical assistance** & recognition to local governments
- Strategically manage the expansion of energy technologies
- **Energy-Ready.org**

Energy Ready
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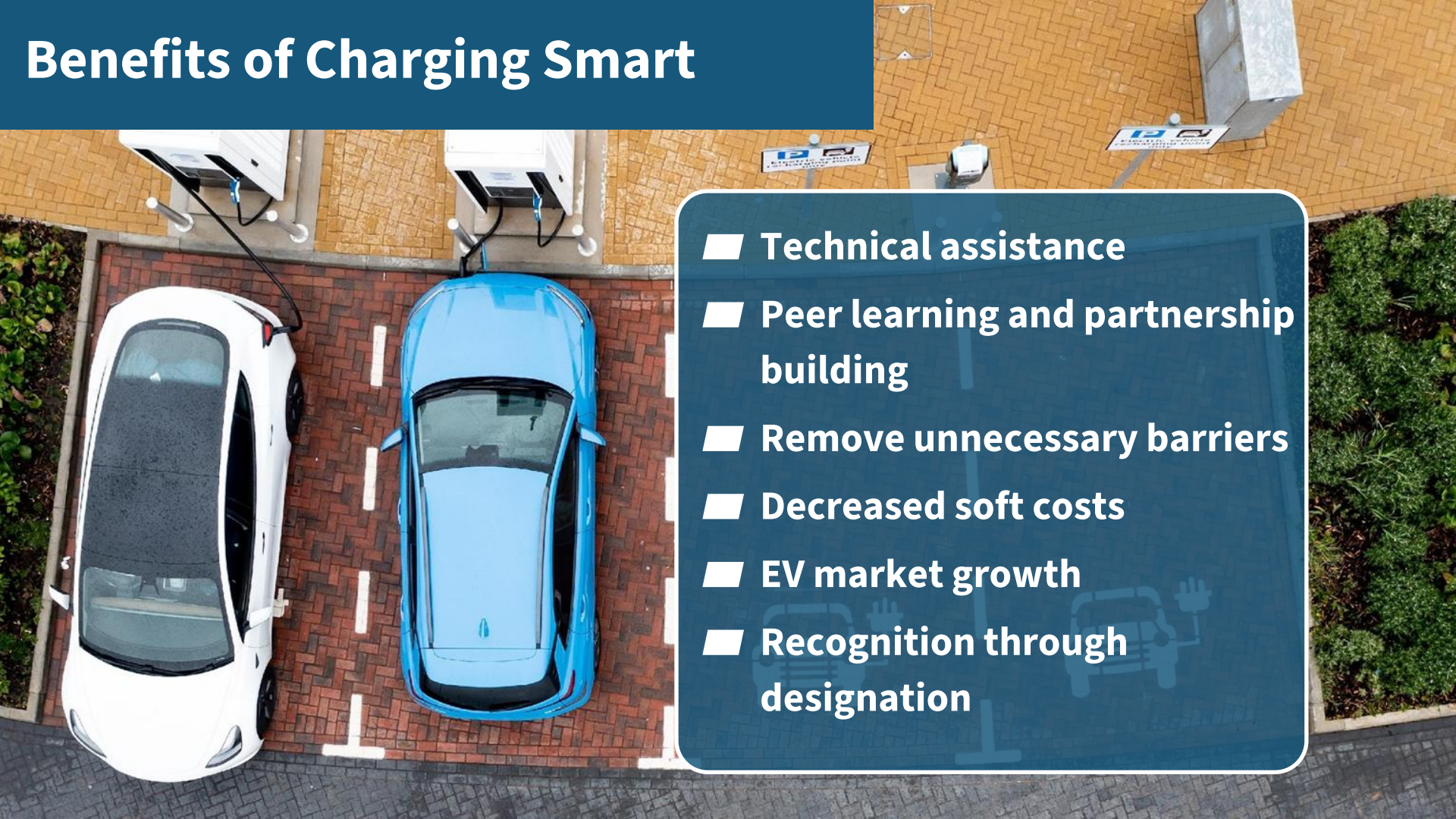
Benefits of Charging Smart



- Technical assistance
- Peer learning and partnership building
- Remove unnecessary barriers
- Decreased soft costs
- EV market growth
- Recognition through designation

Expert Technical Assistance

- Clear Pathway to Achieve Designation
- **Vetted Best Practices and Implementation Strategies**
- Guidebooks, Templates, and Model Language
- **Tailored Support to Communities at All Levels**
- Meet Your Community's Adopted Goals and Implement Plans
- **Effectively Address Critical Concerns** including:
  - Land Use and Zoning Regulations
  - Permitting

Charging Smart Designation

- Celebrate your community's accomplishments
- Be recognized as a national leader
- Send a signal that your community is "open for EV charging"
  - Attract new business
  - Create new jobs
  - Spur economic growth

Charging Smart Partners

Charging Smart Action Categories

- Planning
- Government Operations
- Regulation
- Education and Incentives
- Utility Engagement
- Shared Mobility

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Government Operations

Focus: Municipally-controlled assets and resources to lead by example in embracing transportation electrification.

Best Practices:

- Provide publicly available EV chargers in the community
- Electrify the city fleet
- Install staff-reserved EV chargers

Government Operations

Actions:

- Provide fleet operators and maintenance staff with resources and/or opportunities to test EVs
- Complete an initial fleet analysis
- Adopt EV conversion goals for fleet with timelines
- Electrify at least one light-duty vehicle for the municipal fleet
- Track EV fleet metrics over time
- Provide training for appropriate emergency response, first responders, and/or public safety personnel on fires and other emergencies related to EVs and charging infrastructure, and when appropriate, other electrified modes.

Shared Mobility

Focus: Accelerate electrification across modes of transportation serving the public, such as public transit fleets, school buses, rideshare services, car-sharing programs, shuttles, and paratransit.

Best Practices:

- Deploy electric transit, paratransit vehicles
- Deploy electric school buses
- Develop electric micromobility transportation
- Develop EV car sharing program

Designation Structure

Next Steps

- **Commitment Letter:** Complete the template and signed by authorized representative
- **Self-Assessment:** Complete a short form reviewing your jurisdiction's EV programs, goals, challenges, and completed actions

Contact Information

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Great Plains Institute

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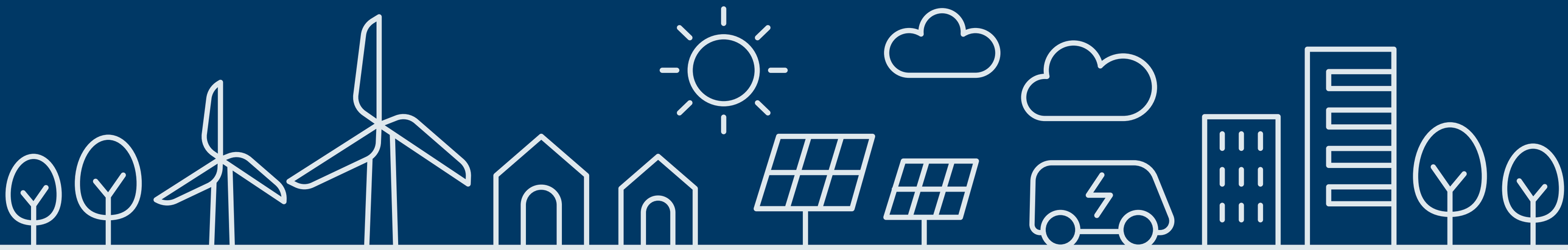
Fleet Electrification

Ramsey County League of Local Governments



Introduction

Great Plains Institute is a non-profit working to accelerate the transition to net-zero carbon emissions for the benefit of people, the economy, and the environment and facilitates **Drive Electric Minnesota.**

Presenter:

Maddie Poling, Minnesota GreenCorps Member at Great Plains Institute

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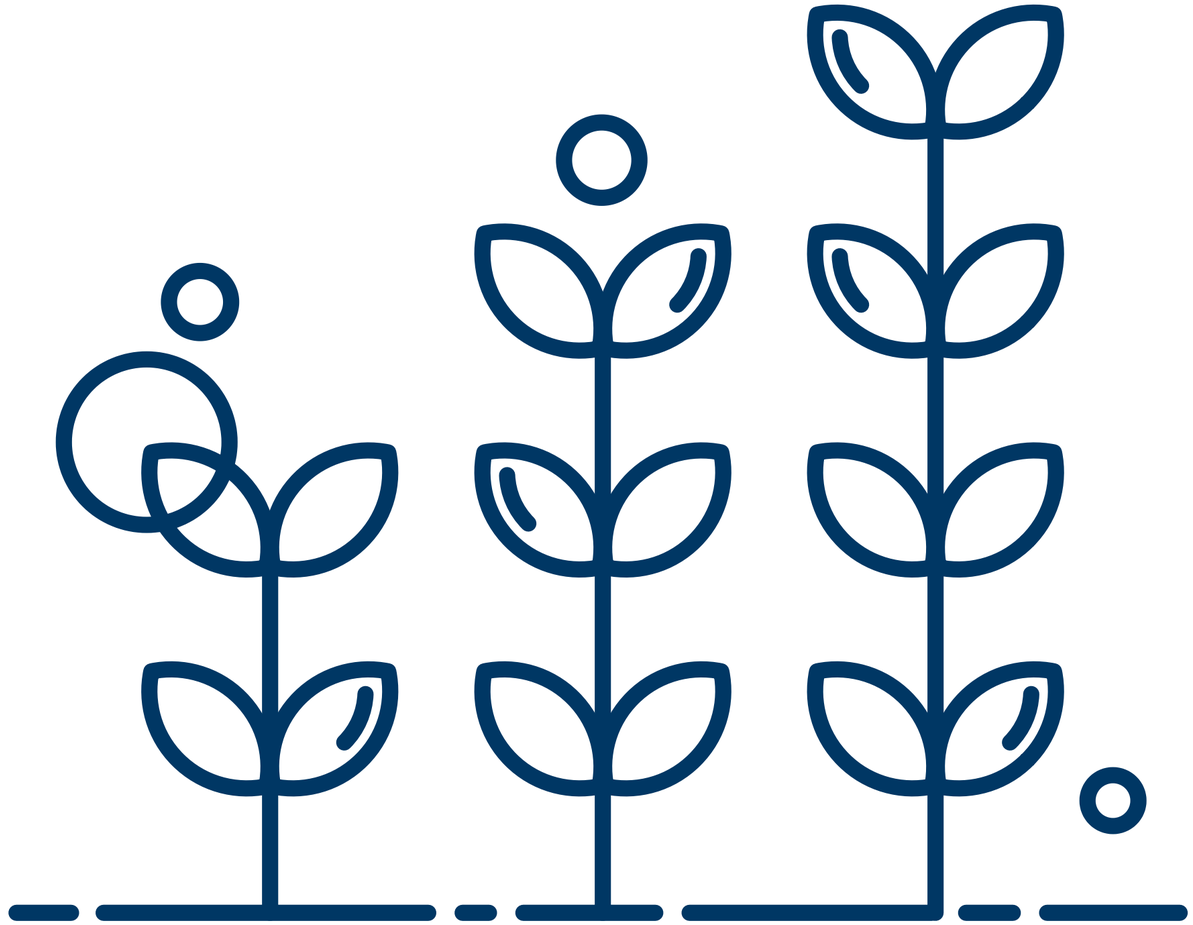
Table of contents



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Why Electrify

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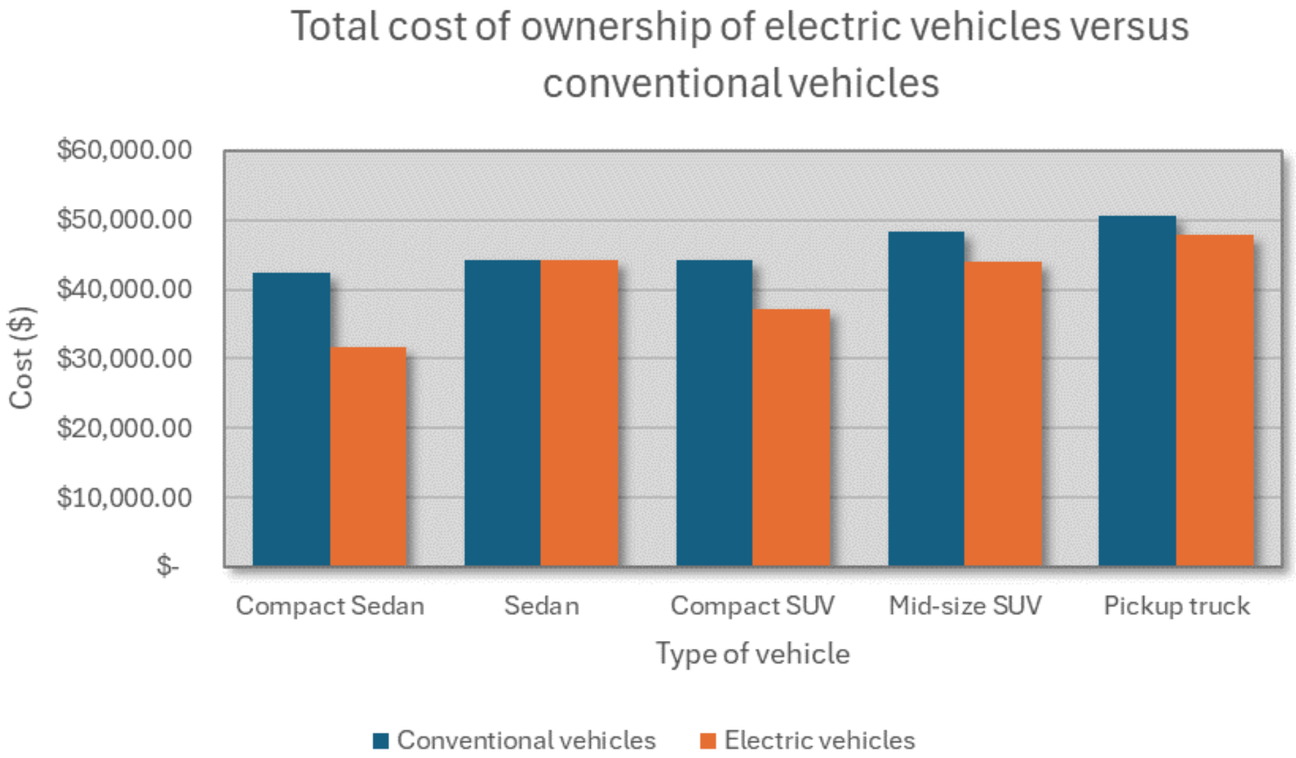
Total Cost of Ownership

- Fully electric passenger vehicles are typically cheaper to own than conventional vehicles
- EVs could cost more to insure than conventional vehicles according to Consumer Reports
- Vehicles typically come with a minimum federal battery and electric motor warranty of 100,000 miles or 8 years



Source: Based on data from Atlas Public Policy, Comparing the Cost of Owning the Most Popular Vehicles in the United States (March 2024), https://atlaspolicy.com/wp-content/uploads/2024/03/Comparing-the-Cost-of-Owning-the-Most-Popular-Vehicles-in-the-United-States.pdf.

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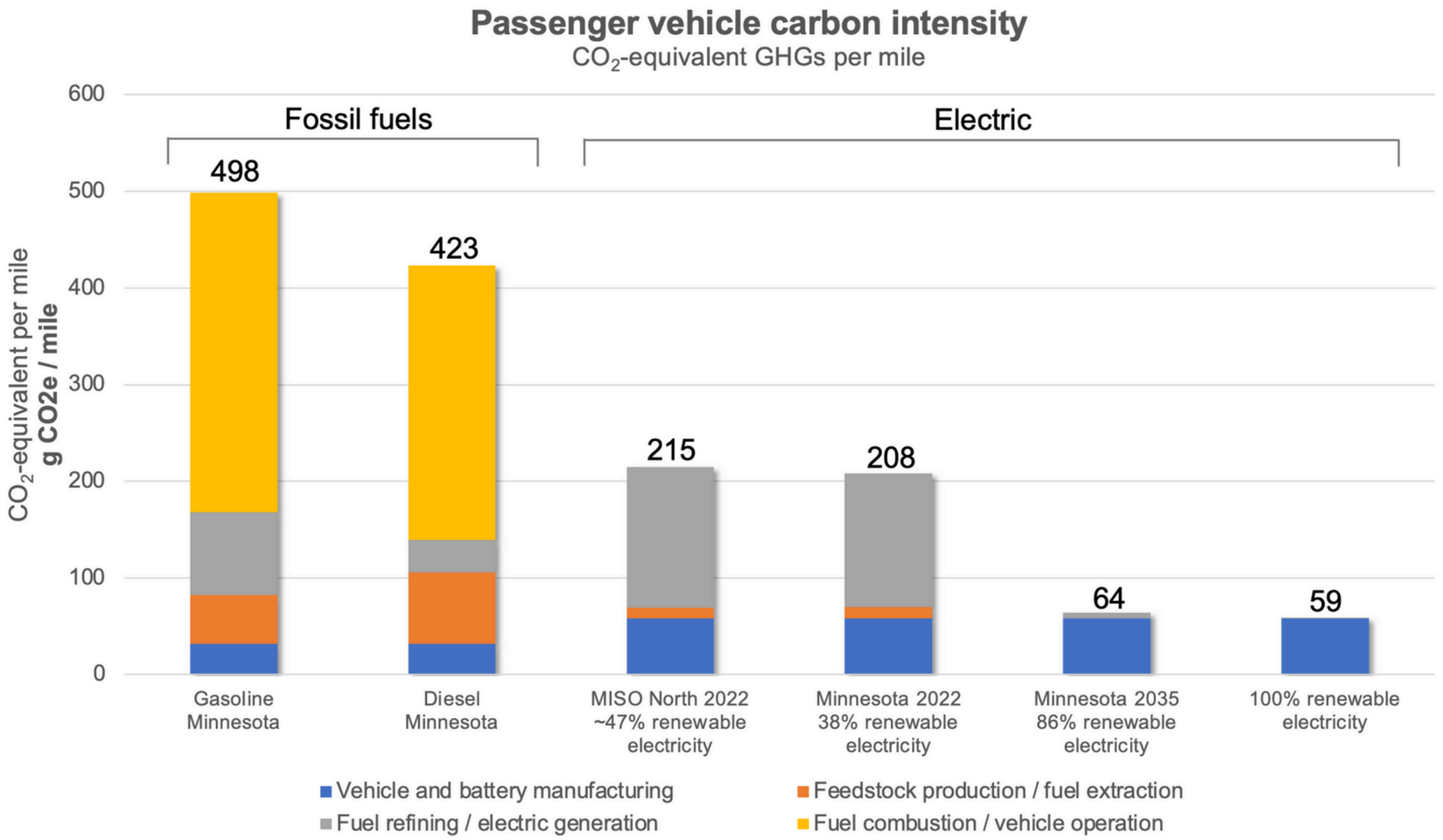
Reduces Greenhouse Gas Emissions

On a lifecycle basis, electric vehicles produce 57 to 88 percent fewer greenhouse gas emissions vs. conventional vehicles



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Source: Katelyn Bocklund and Dane McFarlane, “Electric Vehicles are Up to 88 Percent Less Greenhouse Gas-Intensive than Gasoline Vehicles,” Drive Electric Minnesota, November 13, 2023, https://driveelectricmn.org/electric-vehicles-are-up-to-88-percent-less-greenhouse-gas-intensive-than-gasoline-vehicles/.

More Benefits

Employee enjoyment

- Smooth driving experience
- Great tech
- Creates opportunities for employees to acquire new skills in EV maintenance, charging infrastructure, and related technologies

Noise reduction

- No engine noise means quieter streets

No exhaust

- Zero tailpipe emissions means cleaner air

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Simpler Maintenance Schedules

Maintenance Schedule for your 2017 Chevrolet Bolt EV

Certified Service	7,500 miles	15,000 miles	22,500 miles	30,000 miles	37,500 miles	45,000 miles	52,500 miles	60,000 miles	67,500 miles	75,000 miles	82,500 miles	90,000 miles	97,500 miles	105,000 miles	112,500 miles	120,000 miles	127,500 miles	135,000 miles	142,500 miles	150,000 miles
Rotate tires, if recommended for the vehicle, and perform Required Services.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replace passenger compartment air filter (or 2 years, whichever comes first).			✓			✓			✓			✓			✓			✓		
Drain and fill vehicle coolant circuits.																				✓

Source: Shift2Electric.com

Maintenance Schedule for your 2016 Chevrolet Cruze Limited

Certified Service	7,500 miles	15,000 miles	22,500 miles	30,000 miles	37,500 miles	45,000 miles	52,500 miles	60,000 miles	67,500 miles	75,000 miles	82,500 miles	90,000 miles	97,500 miles	105,000 miles	112,500 miles	120,000 miles	127,500 miles	135,000 miles	142,500 miles	150,000 miles
Rotate tires, if recommended for the vehicle, and perform Required Services. Check engine oil level and oil life percentage. Change engine oil and filter, if needed.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replace passenger compartment air filter (or 2 years, whichever comes first).			✓			✓			✓			✓			✓			✓		
Replace engine air cleaner filter (or every 4 years, whichever occurs first).						✓						✓						✓		
Replace spark plugs and inspect spark plug wires.													✓							
Replace spark plugs. Inspect ignition coils boots. (Applies to: 1.4 L)								✓								✓				
1.8L Engine Only: Rplace timing belt, idler pulley, and timing belt tensioner (or every 3 years, whichever comes first). (Applies to: 1.8 L)													✓							
Change automatic transmission fluid, if equipped. If filter is serviceable, change filter. (Applies to: Severe)						✓						✓						✓		
Change manual transmission fluid. (Applies to: Manual, Severe)						✓						✓						✓		
Drain and fill engine cooling system (or every 5 years, whichever comes first).																				✓
Change brake fluid (or every 3 years, whichever occurs first).						✓						✓						✓		
Change clutch fluid (or every 3 years, whichever occurs first). (Applies to: Manual)						✓						✓						✓		
Inspect evaporative control system.						✓						✓						✓		
Inspect engine accessory drive belts for fraying, excessive cracks or obvious damage (or every 10 years, whichever occurs first).																				✓

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Charging

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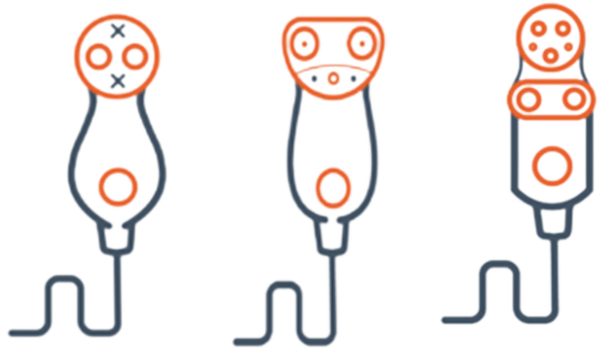
Charger Types

Level 1 (120V)

- Included with vehicle
- Plug into 120V outlet
- 1-1.4 kW
- 4 miles added per hour

Level 2 (240V)

- Most popular vehicle charging method
- Plug into a 240V outlet (used for dryers)
- Requires installation
- 6.4-22 kW
- 30-60 miles added per hour



Direct-current (DC) fast charging

- Commercial installations at retail centers, highway charging stations, etc.
- 50-350 kW
- Up to 400 miles in 30 minutes

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Charging Considerations

Depot Charging

- For vehicles that return home daily to charge

En Route Charging

- Charging on the route, and not coming home nightly

Megawatt Charging

- Emerging technology
- Faster on-the-go charging for Medium and Heavy Duty Vehicles.

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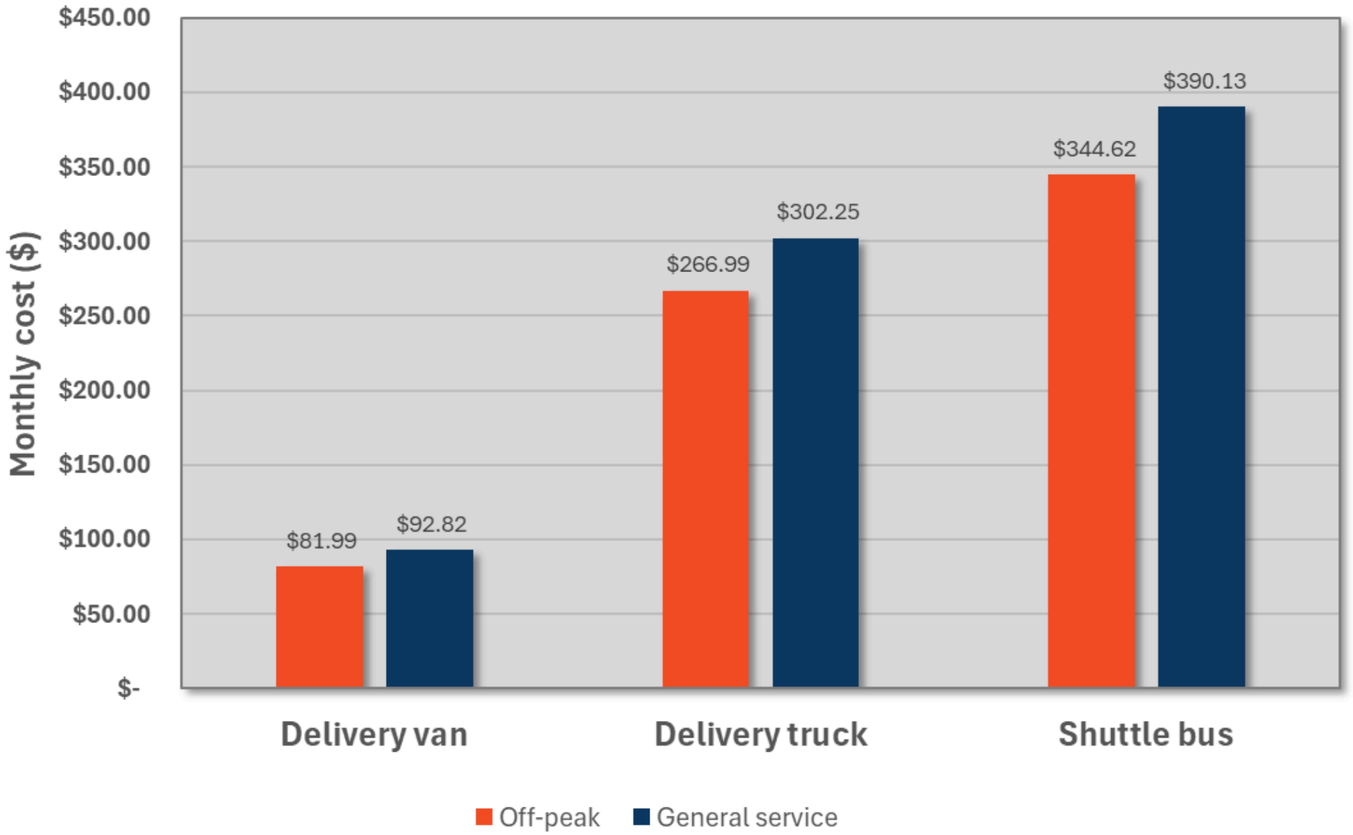
On-Peak and Off-Peak Charging

Connect with your utility

- Connect with your utility early to explain your plans so they can help you meet your goals and save money.
- Medium- and heavy-duty EVs have different charging needs and require separate infrastructure investments from light-duty EVs.
- Utilities offer different rate structures to encourage charging when it's best for the electric grid.



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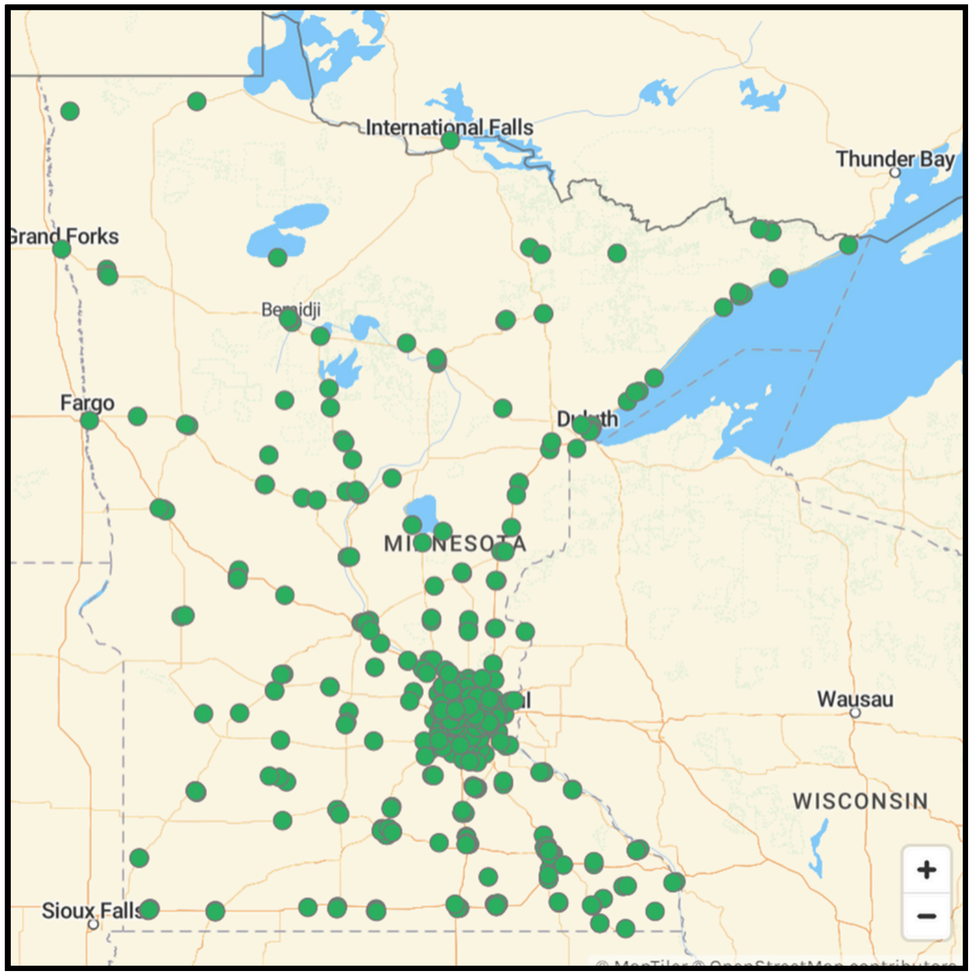
Sources: Electricity rate data from Dakota Electric Association; Environmental Defense Fund, Medium- and Heavy-Duty Vehicles: Market structure, Environmental Impact, and EV Readiness, July 22, 2021, https://www.edf.org/sites/default/files/documents/EDFMHDVEVFeasibilityReport22jul21.pdf.

Public Charging in Minnesota

- 2,376 charging ports total (as of 1/24/2025)
- 1,705 Level 2 (J1772) ports
- 671 DCFC ports
  - 338 CCS
  - 288 J3400 (Tesla Supercharger)
  - 98 CHAdeMO
- Concentration of public charging in the Metro area
- Pull-through stations work for vehicles with trailers/boats or larger vehicles



Source: Screenshot of Alternative Fueling Station Locator, courtesy of Alternative Fuels Data Center

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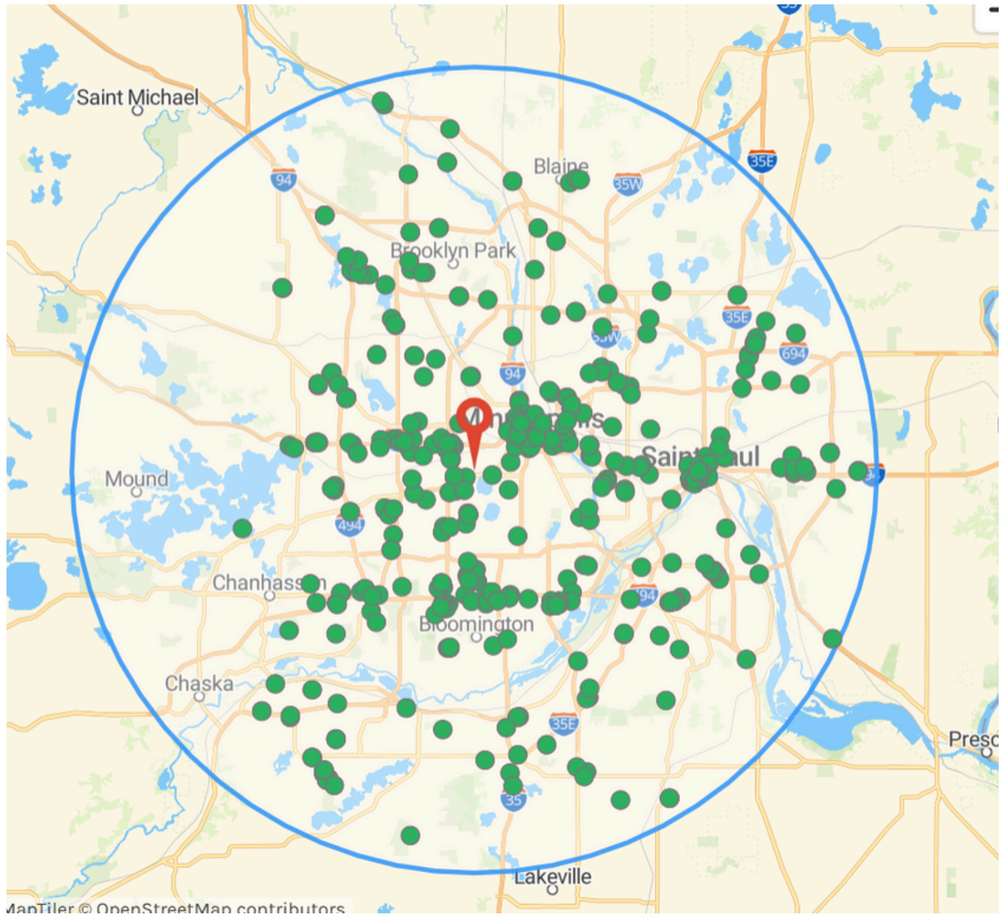
Public Charging in the Twin Cities

- 517 EV charging station locations
- 1,338 EV charging ports
  - 1,118 Level 2 charging ports
  - 220 DCFC ports



Source: Screenshot of Alternative Fueling Station Locator, courtesy of Alternative Fuels Data Center. Updated 1/17/25

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Charging Apps Available

- You will need to choose a charging provider
- Choose one provider for ease of connection.
- There are many charging platforms (called networks) in the US. In Minnesota, the big ones are:
  - ChargePoint
  - Tesla
  - Blink
  - ZEF Energy

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How to locate public chargers

- Plugshare offers a map with details on chargers in the area and can be filtered for compatible chargers.
- Alternative Fueling Station Locator is an online map that shows different chargers and can be filtered for compatible chargers.
- Most EVs also have built-in navigation to locate public EV chargers.

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Installing Chargers

- Charging Guidance: This guide is designed to walk you through the process of installing electric vehicle charging for public sites, fleets, and workplaces.

- Fleet Electrification: Breaks down infrastructure costs associated with electrifying a passenger vehicle fleet

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Fleet Planning

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Common Types of Municipal Fleet EVs

- Sedans
- Waste management trucks
- Shuttle buses
- School buses
- Transit buses
- Police vehicles
- Fire trucks
- Pick up trucks

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Steps to Electrifying your Fleet Vehicles

First Step: Fleet analysis

- Consider your fleet's daily miles traveled.
- Analyze your current and future needs.
- Decide which vehicles might be able to be replaced first.
- Consider contracting a third-party to conduct an analysis or do a DIY analysis with the DRVE Tool.

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Steps to Electrifying your Fleet Vehicles

Replacing vehicles

- You won’t need to replace all vehicles at once.
- Electric vehicles can replace vehicles that are at their end of life in your fleet currently.
- Consider a “preference policy” for EVs in your municipal fleet.

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Steps to Electrifying your Fleet Vehicles

Second Step: Purchase or lease?

- Determine if you want to purchase your EVs or utilize a fleet management service to support you through your transition.
- Some companies will conduct a fleet analysis, provide electric vehicles and charging infrastructure, and aid in maintenance.
- Here is Drive Electric Minnesota's guide for purchasing or leasing electric fleet vehicles

Steps to Electrifying your Fleet Vehicles

Common local government fleet purchase and lease options

- Minnesota Department of Administration
  - Leases and sells electric and hybrid vehicles.
  - Offers a long-term vehicle lease program for government agencies.
  - Rentals are available- A great way to test drive an electric vehicle
  - Admin's fleet is now officially recognized as a Sustainable Fleet by the National Association of Fleet Administrators (NAFA).
- Direct from the manufacturer
- Sourcewell:
  - Cooperative purchasing
  - Has a guide for purchasing fleet vehicles

Steps to Electrifying your Fleet Vehicles

Staff Training

- Will need to train your employees how to drive, operate, charge and maintain electric vehicles
- Foster an open line of communication to let the employees ask questions and express their thoughts

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Find the right EV for your Fleets Needs

Drive Electric Minnesota has an EV buying guide to help you find the right EV for your fleet, with many great resources listed:

https://driveelectricmn.org/electrify-your-fleet/

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Resources

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Federal Incentive

Clean Bus Planning Technical Assistance

- Provides school and transit bus fleets with free technical assistance to develop comprehensive and customized fleet electrification transition plans.
- Local governments providing bus service, including public school districts and charter schools are eligible.
- Applications reviewed on a rolling basis.

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Federal Incentive

Tax Credits for Electric Vehicles and Charging Infrastructure

- Commercial fleets and tax-exempt organizations that buy a qualified commercial clean vehicle may qualify for a clean vehicle tax credit per vehicle (these include all-electric, plug-in hybrid electric, or fuel cell EVs).
- Has an incentive for charging infrastructure as well.

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Minnesota Rebates and Incentives

School Bus Purchasing Grant

- $13 million allocated to help schools purchase electric school buses and installing charging infrastructure, along with Technical Assistance needed.
- Applications Due: Tuesday, **May 13, 2025**

To find more electric vehicle incentives in MN, go to https://driveelectricmn.org/incentives/

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Fleet Study Lessons Learned

Lessons learned from a fleet study done in 2019

- More miles driven=more savings
- Look for vehicles that take many short trips
- Switch vehicles that idle a lot

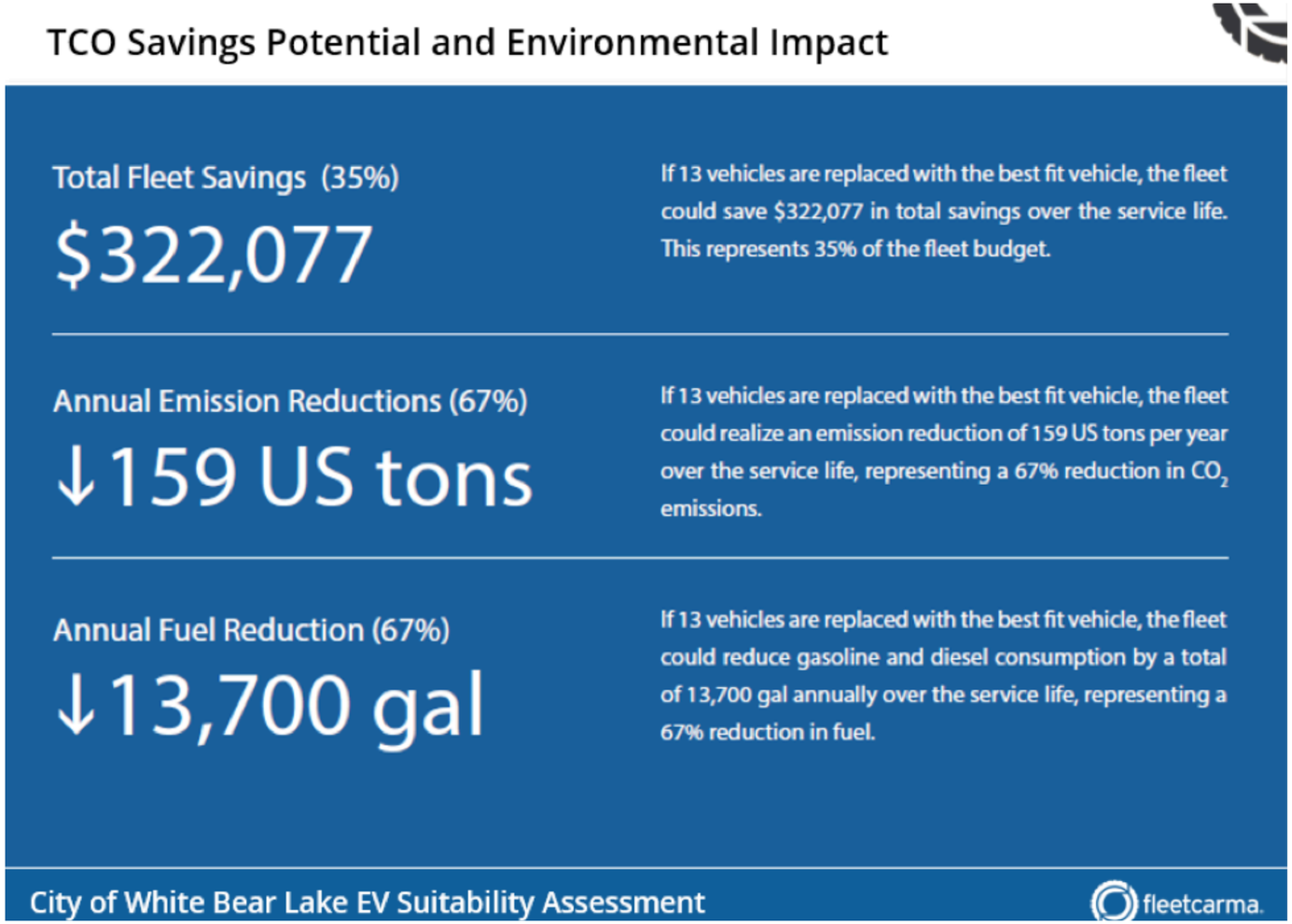

Figure 1. FleetCarma results presented to the City of White Bear Lake, 2019. Note. TCO stands for Total Cost of Ownership

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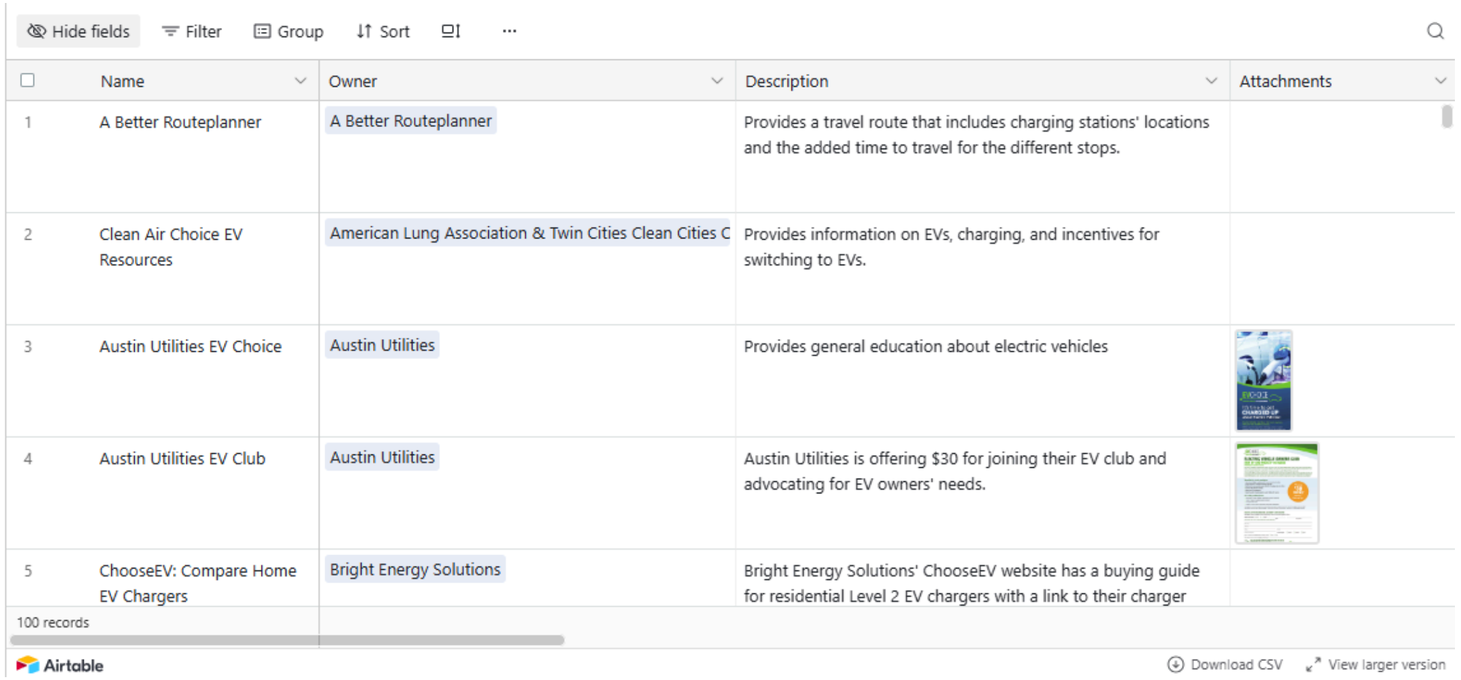
EV Resources Database

- Educational resources on electric vehicles across various criteria, allowing you to easily filter resources to your needs
- There are over 100 resources available
- https://driveelectricmn.org/electric-vehicles/electric-vehicle-resource-database/



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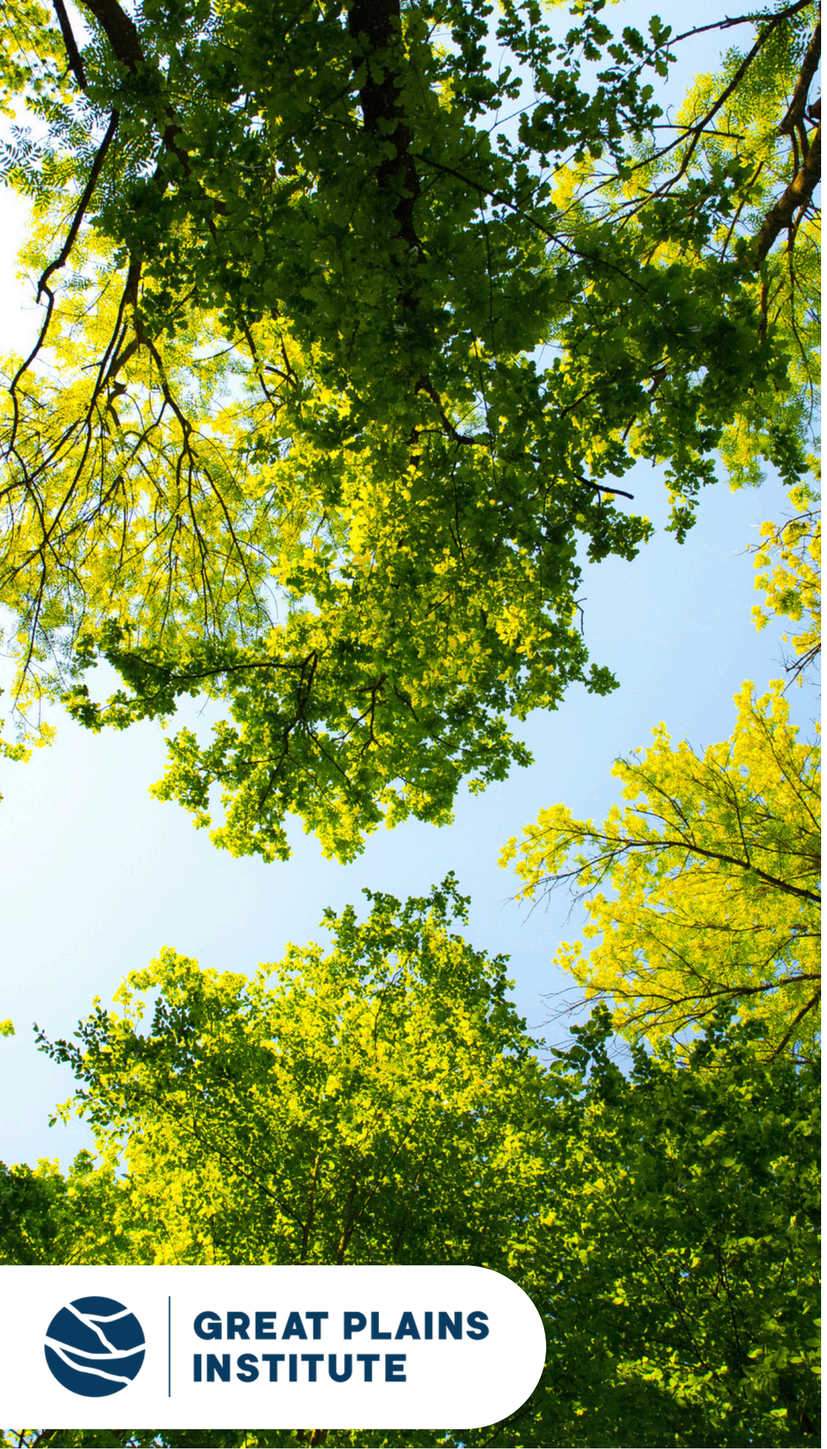

Get involved

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THANK YOU

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