Hitting the Road in an EV!

A Guide to EV Travel

DRIVE ELECTRIC VERMONT

November 18, 2025

Agenda

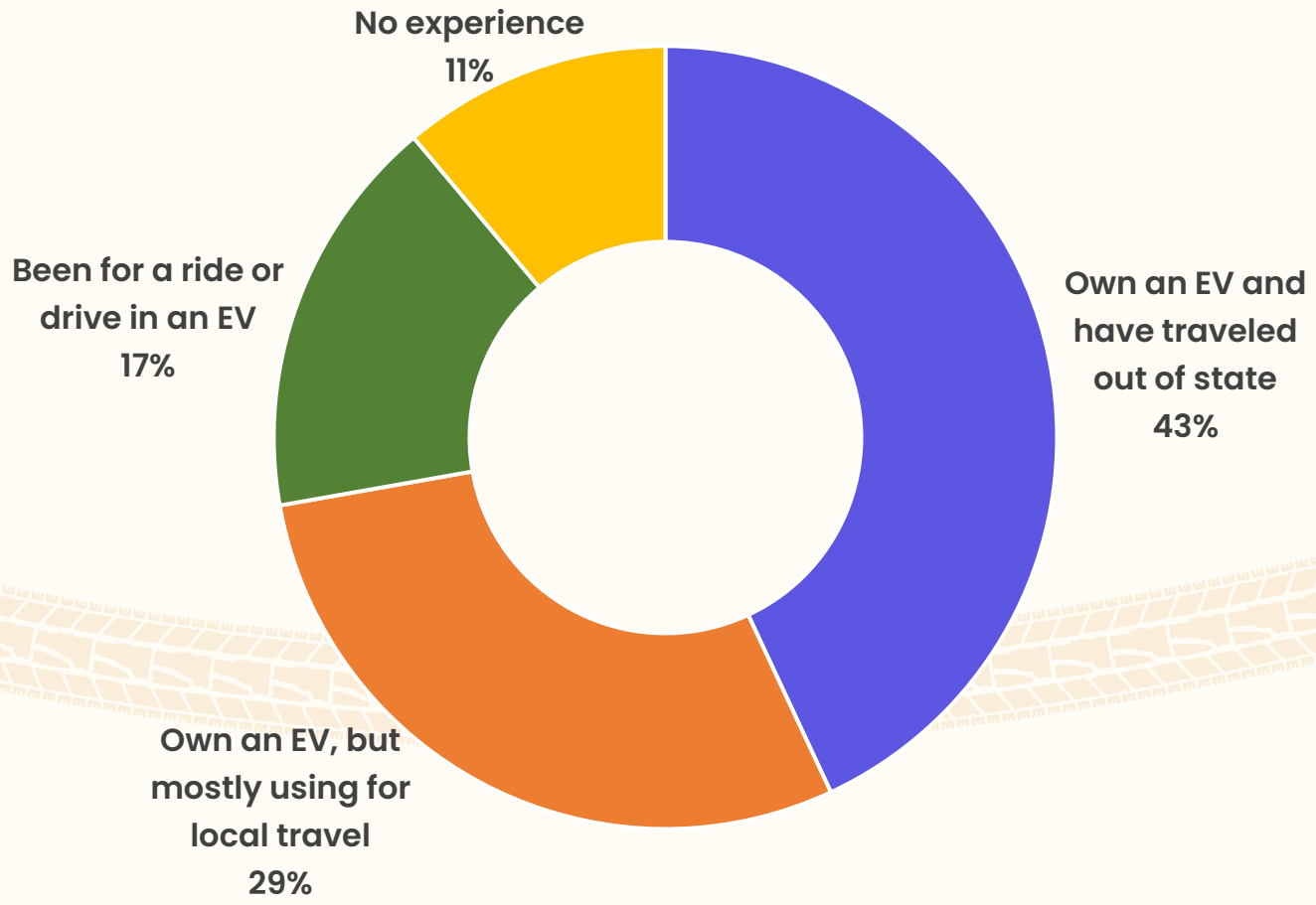
1. Drive Electric Vermont Introduction
2. EV Overview
    - Winter Operation
    - Towing
    - Charging at Home and On-the-Road
3. Trip Planning
4. Paying for Charging
5. Real-world Experiences
6. Discussion / Q & A

About VEIC

VEIC is on a mission to generate the energy solutions the world needs.

- ***Winooski-based*** nonprofit operates the Efficiency Vermont energy efficiency utility
- VEIC also coordinates the Drive Electric Vermont program in partnership with the State and other stakeholders

What's Your Experience With Electric Vehicles?



Why Go Electric?

- Save money
- Reduce emissions
- Great performance
- Quiet
- Convenient charging at home

General EV overview available at:

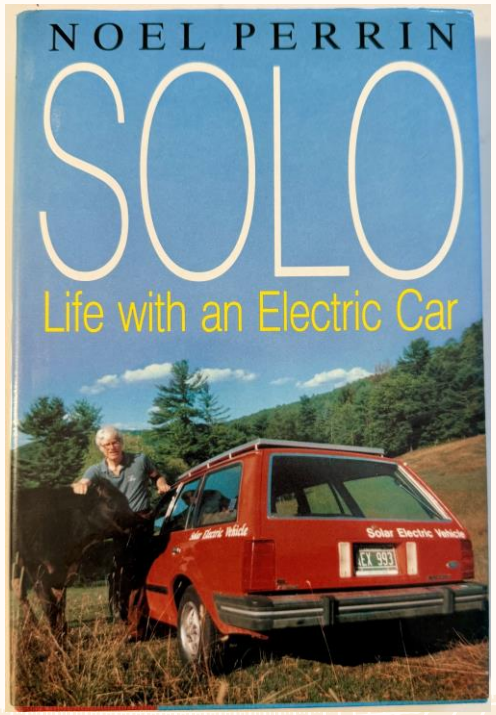
Webinar: A Guide to Going Electric in the Green Mountain State - Drive Electric Vermont

Poll Question

1. When was the first recorded USA cross-country EV road trip?
    a) 1905
    b) 1925
    c) 1955
    d) 1968
    e) 1976
    f) 2001

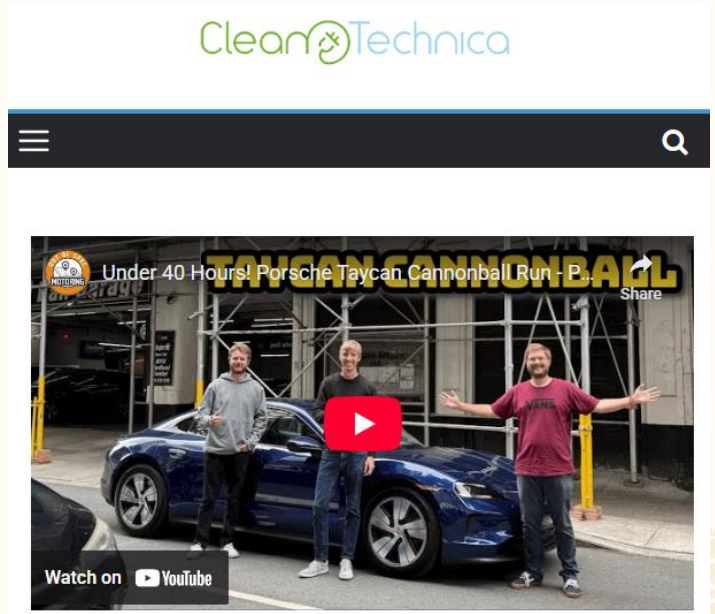
The Great Electric Car Race of 1968

[The Great Electric Car Race of 1968 - Caltech Library]



Honorable Mention

1991 EV conversion traveling from Santa Rosa, CA to Thetford, VT



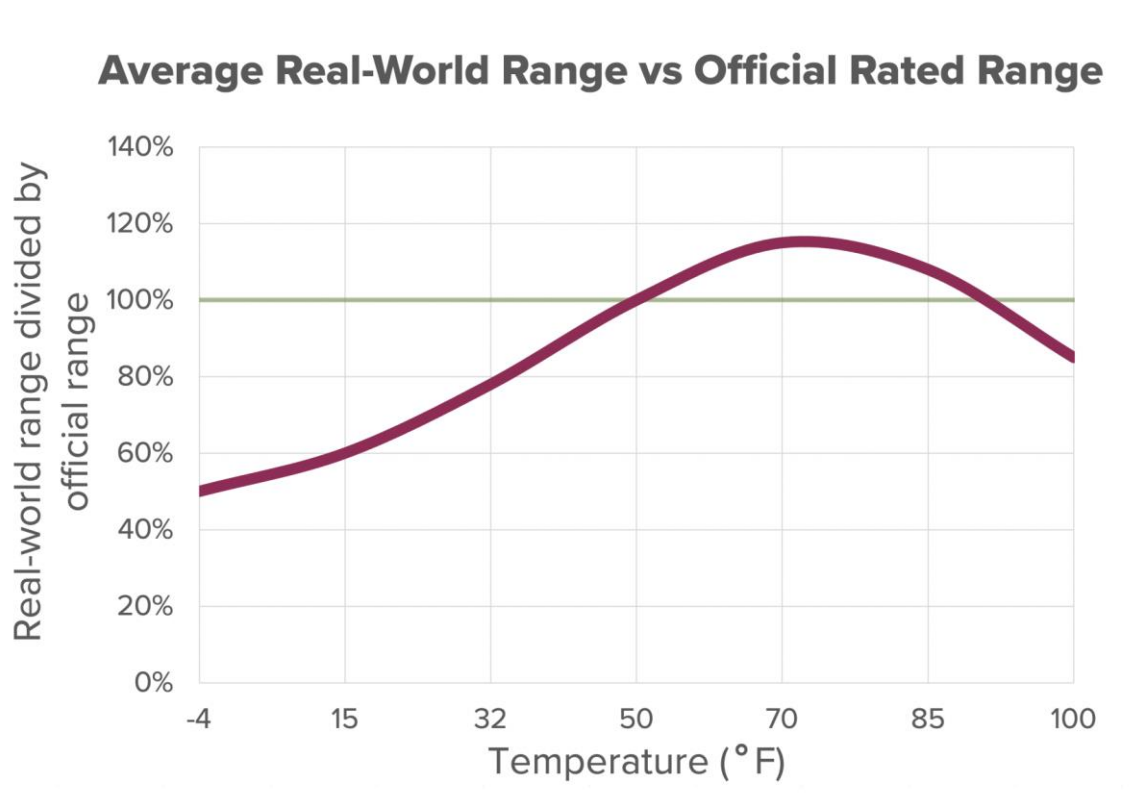
Cannonball! NY-LA EV Record Drops Below 40 Hours

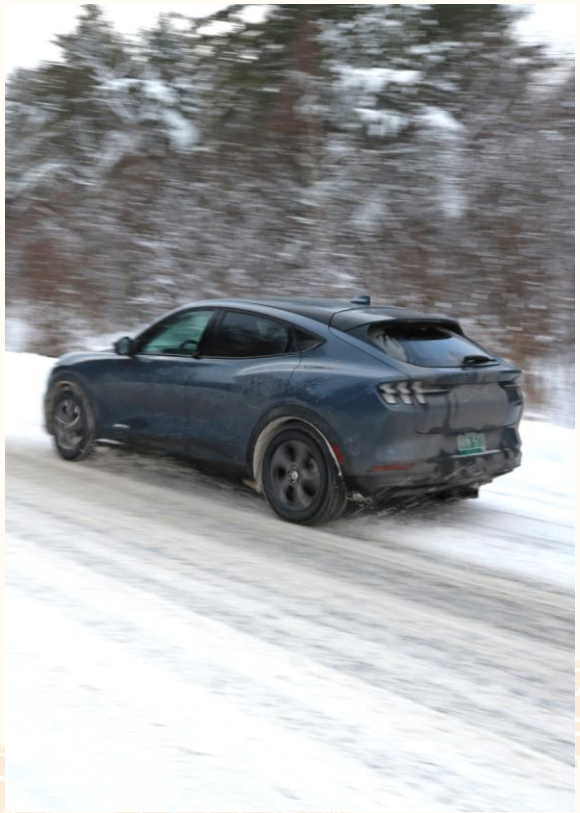
December 2024

[Cannonball! NY-LA EV Record Drops Below 40 Hours - CleanTechnica]

EVs in Winter Conditions

Cold weather reduces electric range 20-50%





Range Saving Tips

- Heated seats / steering wheels
- Heat pumps on some EVs
- Cold weather packages
- Preheating
- Drive slower / eco-driving

Other Considerations

- Slower fast charging and battery preconditioning
- Battery chemistry characteristics

https://www.driveelectricvt.com/blog/your-guide-to-electric-vehicles-in-winter

Towing with an EV

Towing reduces range from 30–50+%

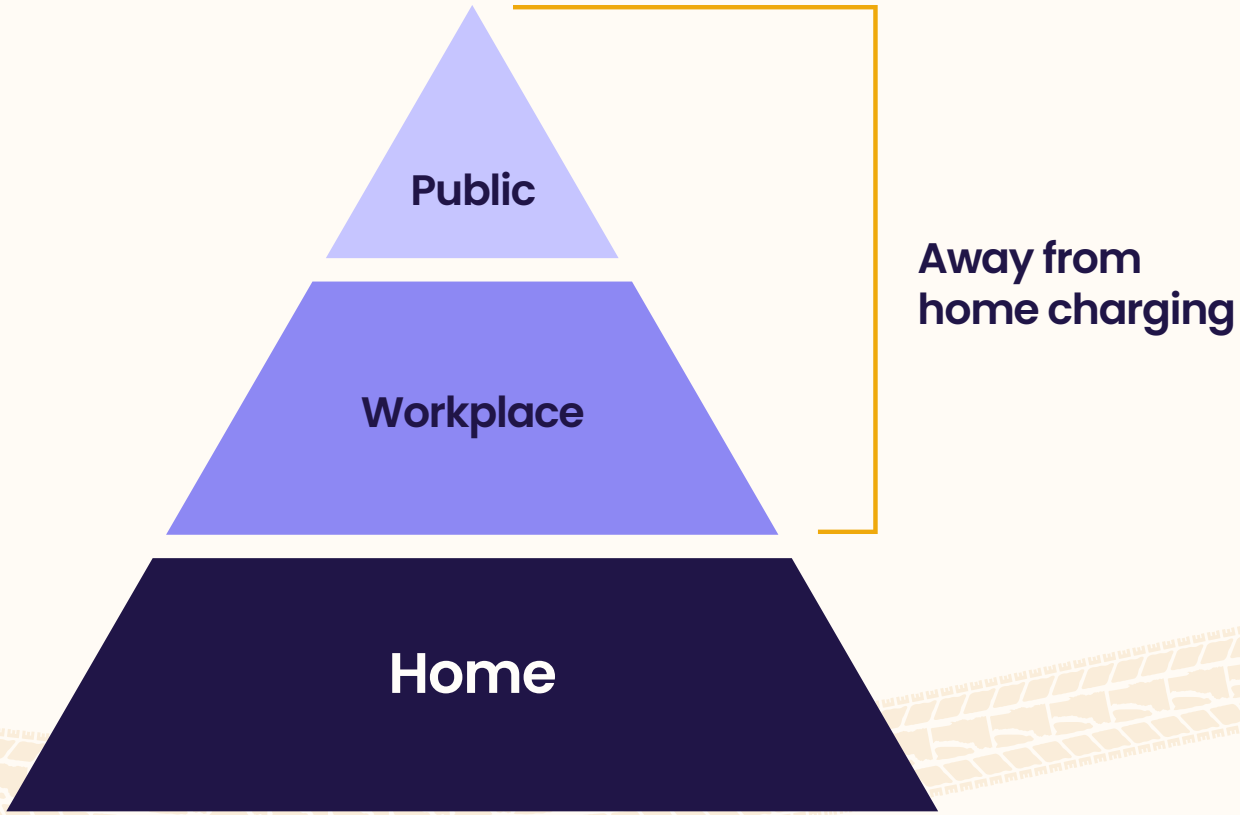
Range Saving Tips

- Aerodynamic trailer
- Reduce weight
- Drive slower

Other Considerations

- Pull-through charging options are limited

EV Charging



EV Charging Equipment

Level 1 Charging

120V

5 miles range / hr

Plug Types:

J1772

NACS / Tesla

Level 2 Charging

240V

10-20 miles / hr

Plug Types:

J1772

NACS

DC Fast Charging

480V

Up to 160 miles / 10 min

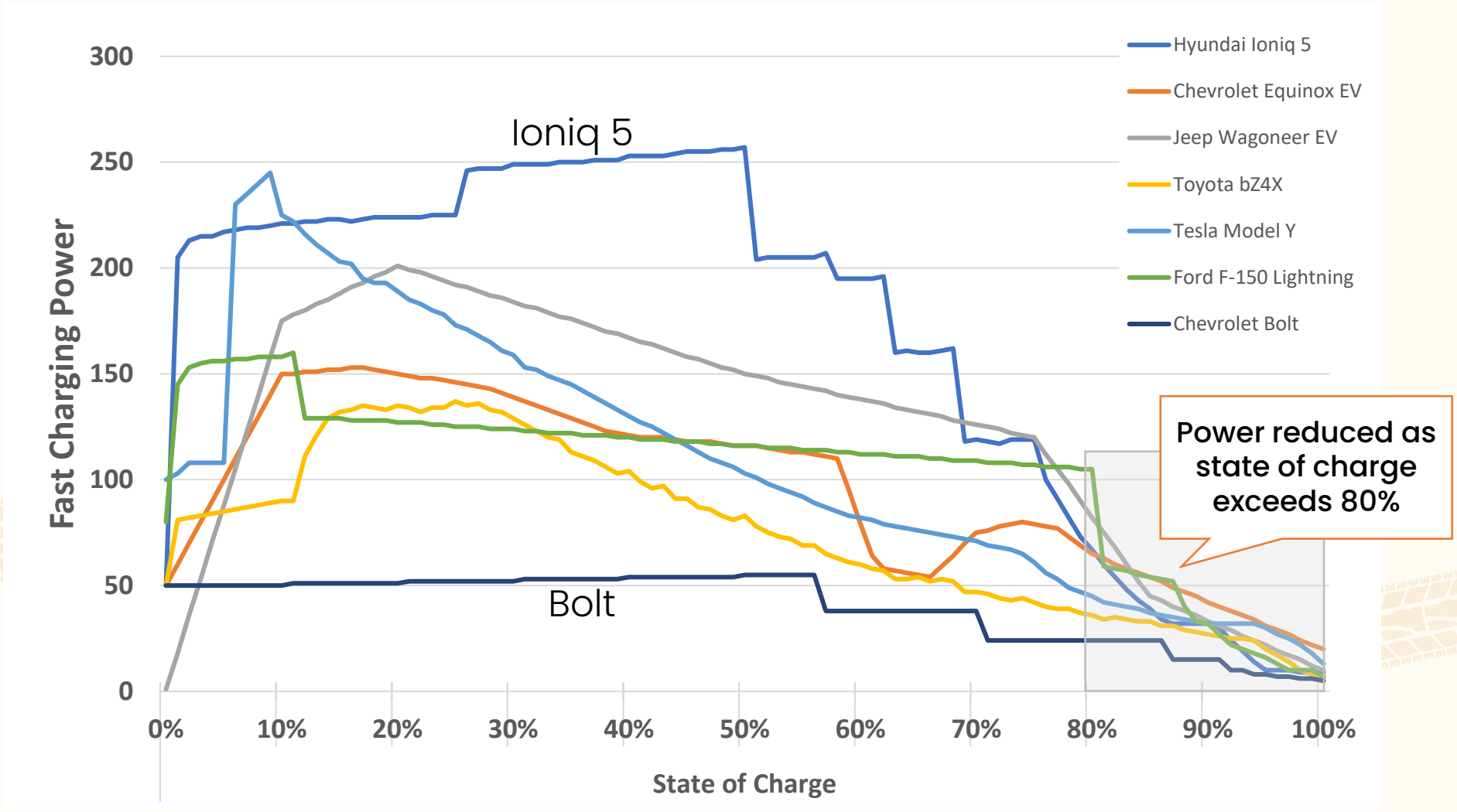
Plug Types:

CCS / Combo

CHAdeMO

NACS

DC Fast Charging Power by EV Model



Fastest charging when batteries are depleted

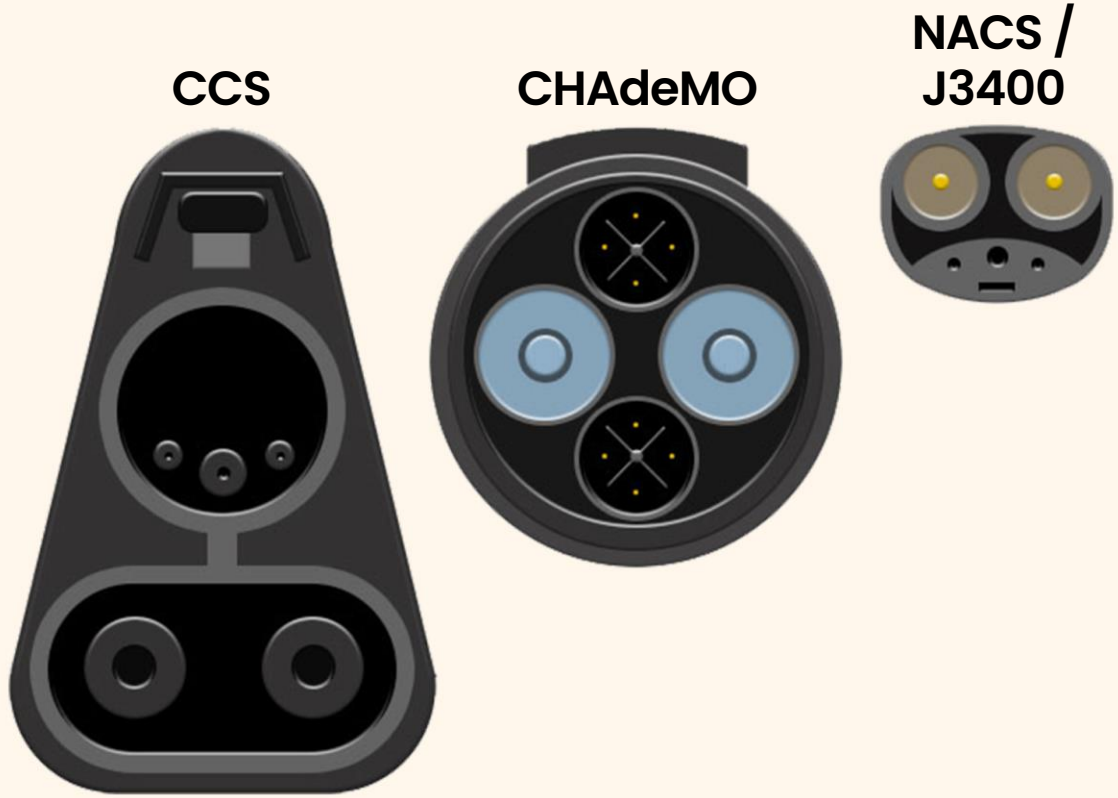
Not all charging equipment is capable of the highest power

Etiquette is to **move vehicle when 80% charge is reached**

Low temperatures slow down fast charging in most EVs available today. Preconditioning helps (if available).

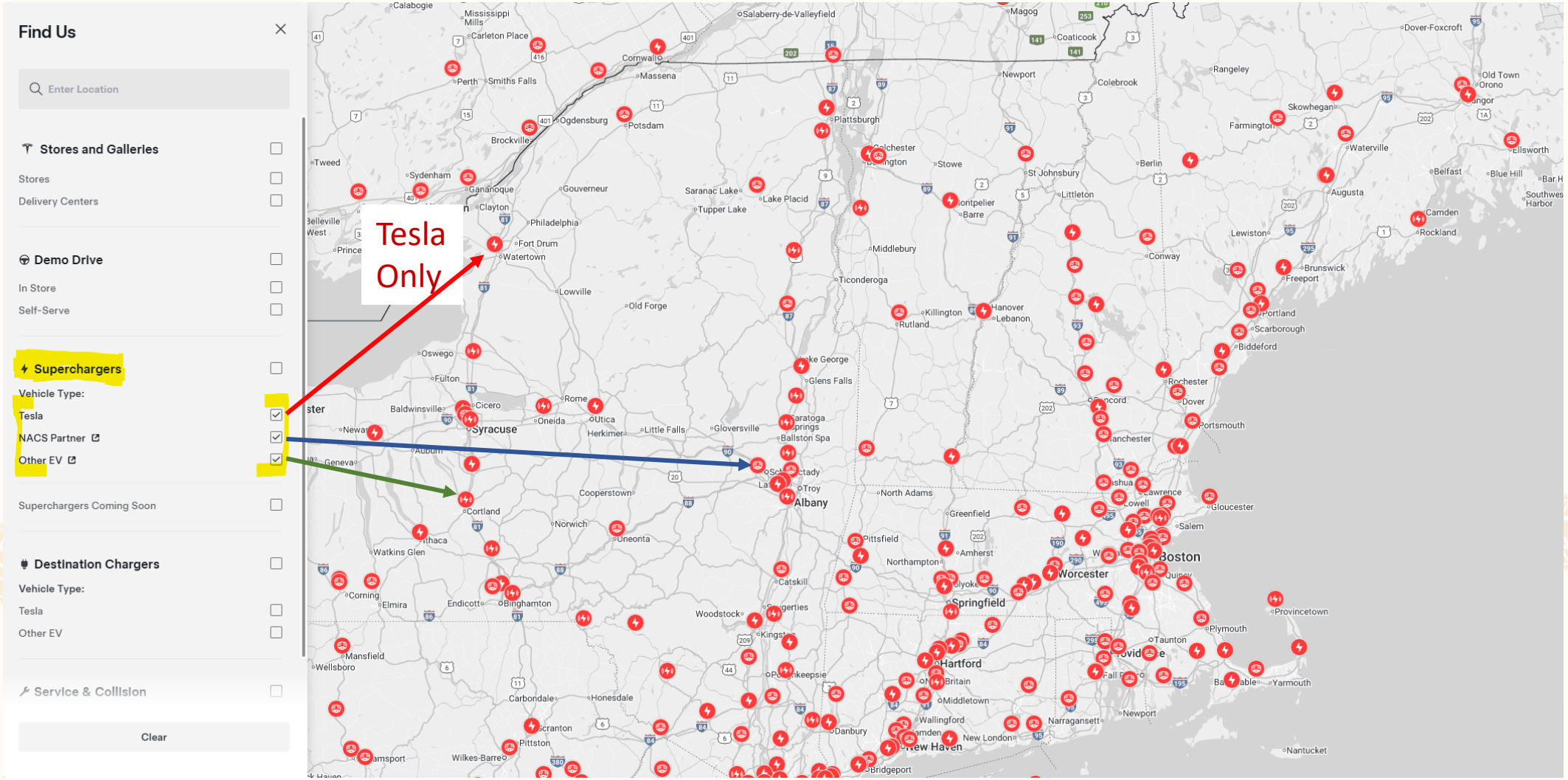
NACS (Tesla) Charging Port Transition

- Ford announced switch from CCS to North American Charging Standard (NACS), aka SAE J3400, in May 2023
- All other major automakers have followed
- Adapters available or coming soon for most existing vehicles
    - BMW & Subaru do not have Tesla access yet
- Uncertain future for older Nissan Leaf EVs with CHAdeMO
- New non-Tesla EVs with NACS built-in are shipping (e.g. Hyundai Ioniq 5)



https://www.tesla.com/support/charging/supercharging-other-evs

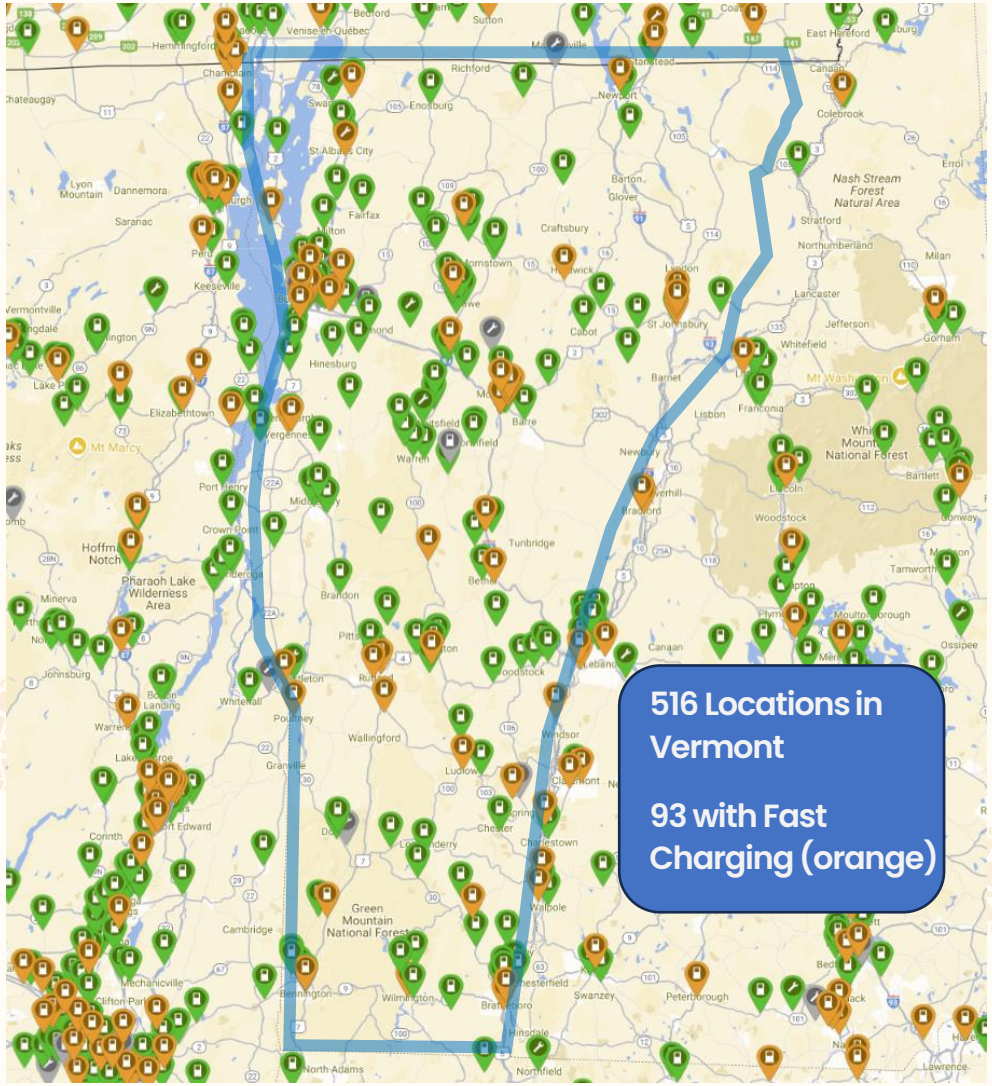
Tesla Supercharger Map



[Tesla "Find Us" Supercharger Map]

[Video: Charging a Non-Tesla Electric Car at a Tesla Supercharger]

Public Charging Availability

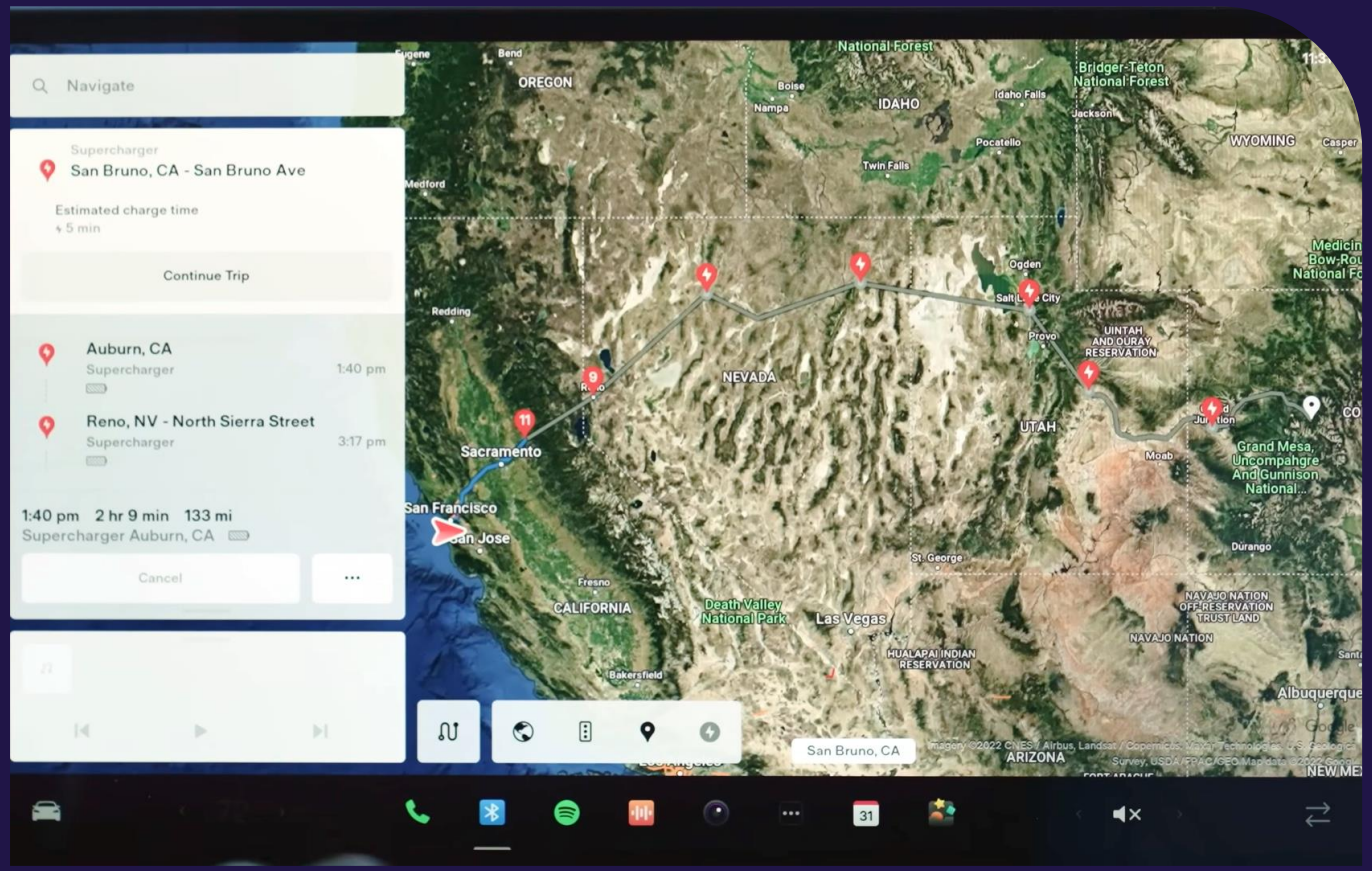


- Vermont and other states can now access federal National Electric Vehicle Infrastructure (NEVI) funds to build more charging
- Automakers continue supporting more charging
- Private investment also continues
- Federal tax credit for EV charging installations ends on 6/30/2026

[National Electric Vehicle Infrastructure Program | Vermont Agency of Transportation]

www.PlugShare.com

Trip Planning Tools



Tesla in-vehicle route planner

- In-Vehicle Navigation Systems
  - May pre-condition battery pack approaching fast chargers for optimal charging speed
- PlugShare
- A Better Route Planner
- Trip Advisor
- AirBnB

Choosing a Route

A. Consider your vehicle range, anticipated weather conditions, speed, and terrain
B. Have a back-up plan
C. Look for charging options when planning an overnight stay
D. Look for public charging locations with multiple ports
E. Avoid congestion at charging by traveling off-peak
F. Consider food and restroom breaks
G. If towing, prefer pull-through charging locations

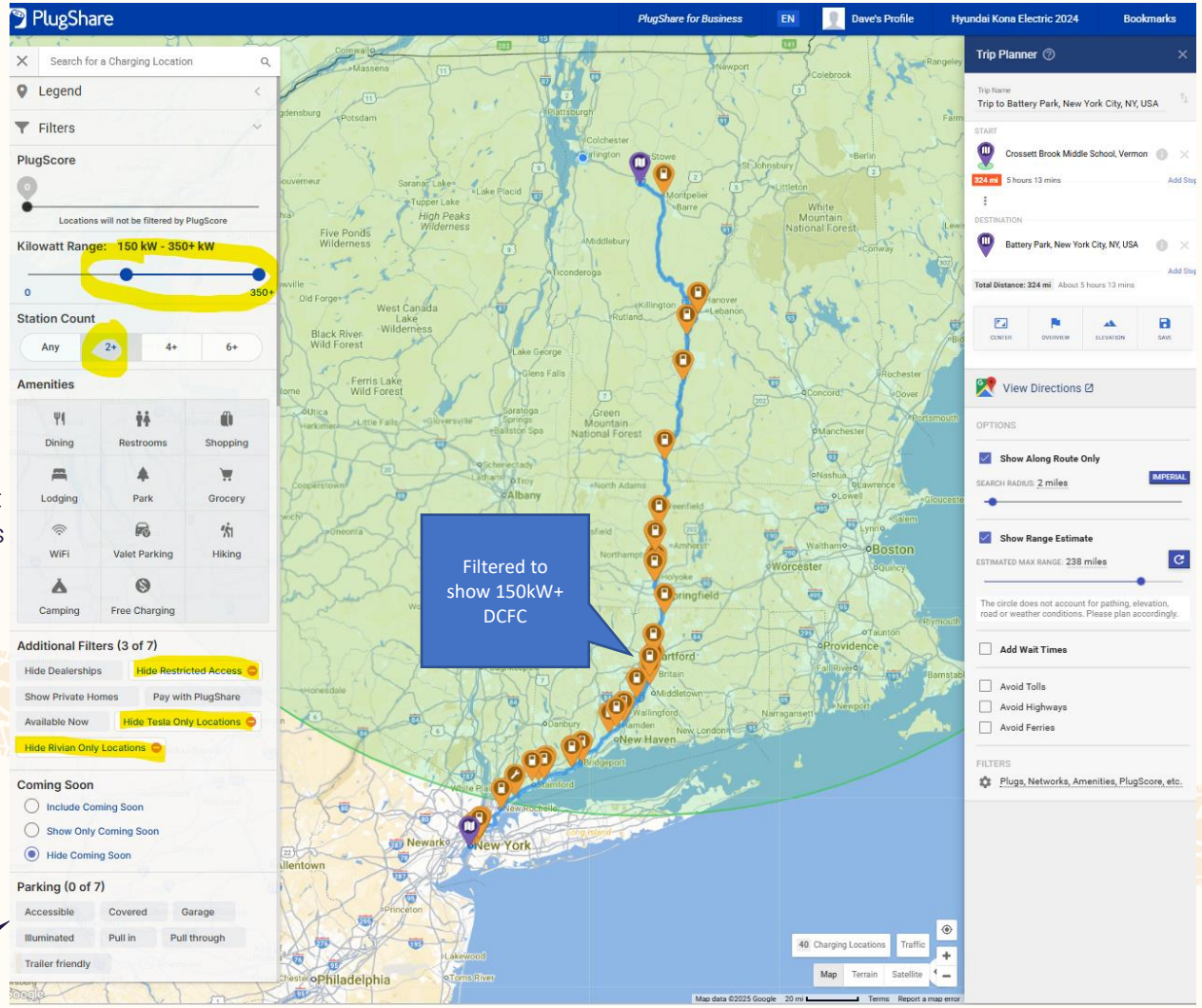
Rockland, ME Supercharger

EV Trip Planning – NYC examples

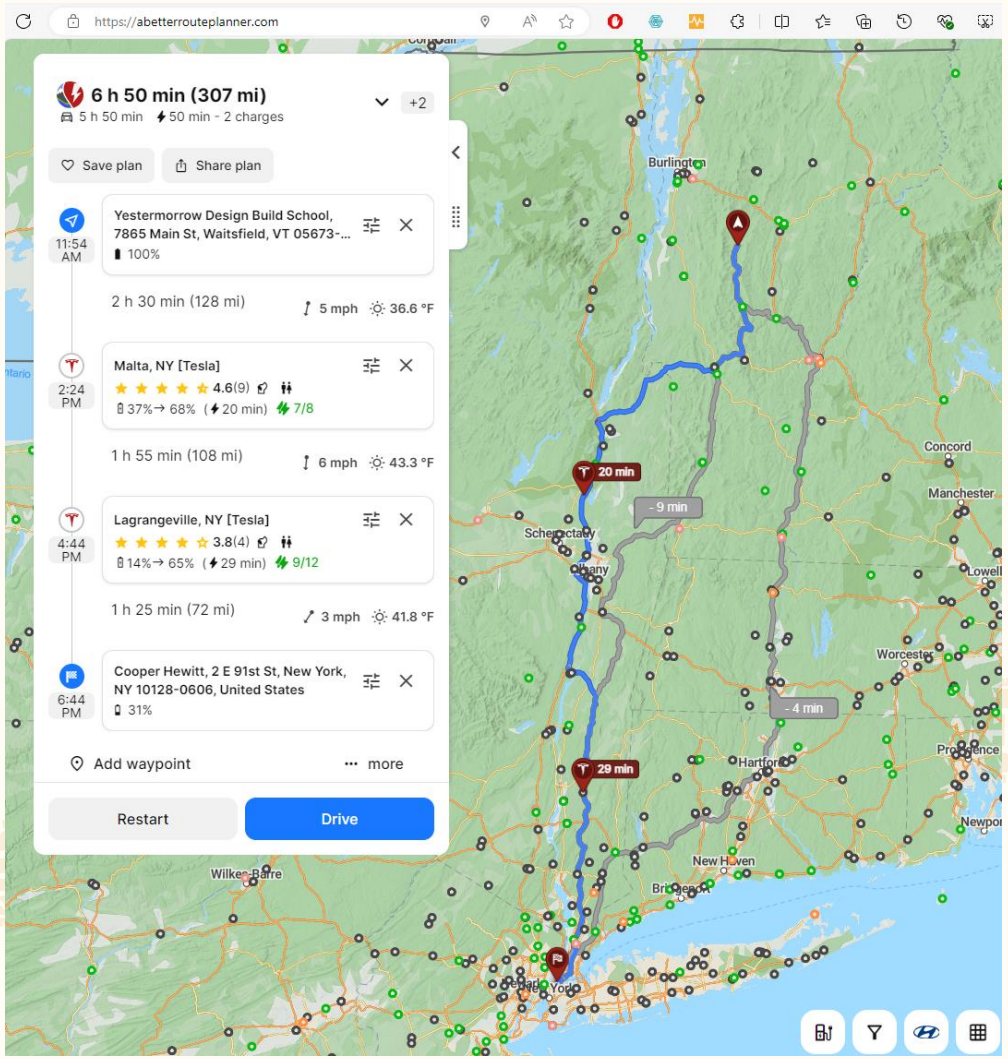
Tips

Check PlugShare before relying on charger

Don't fast charge past 80% if others are waiting

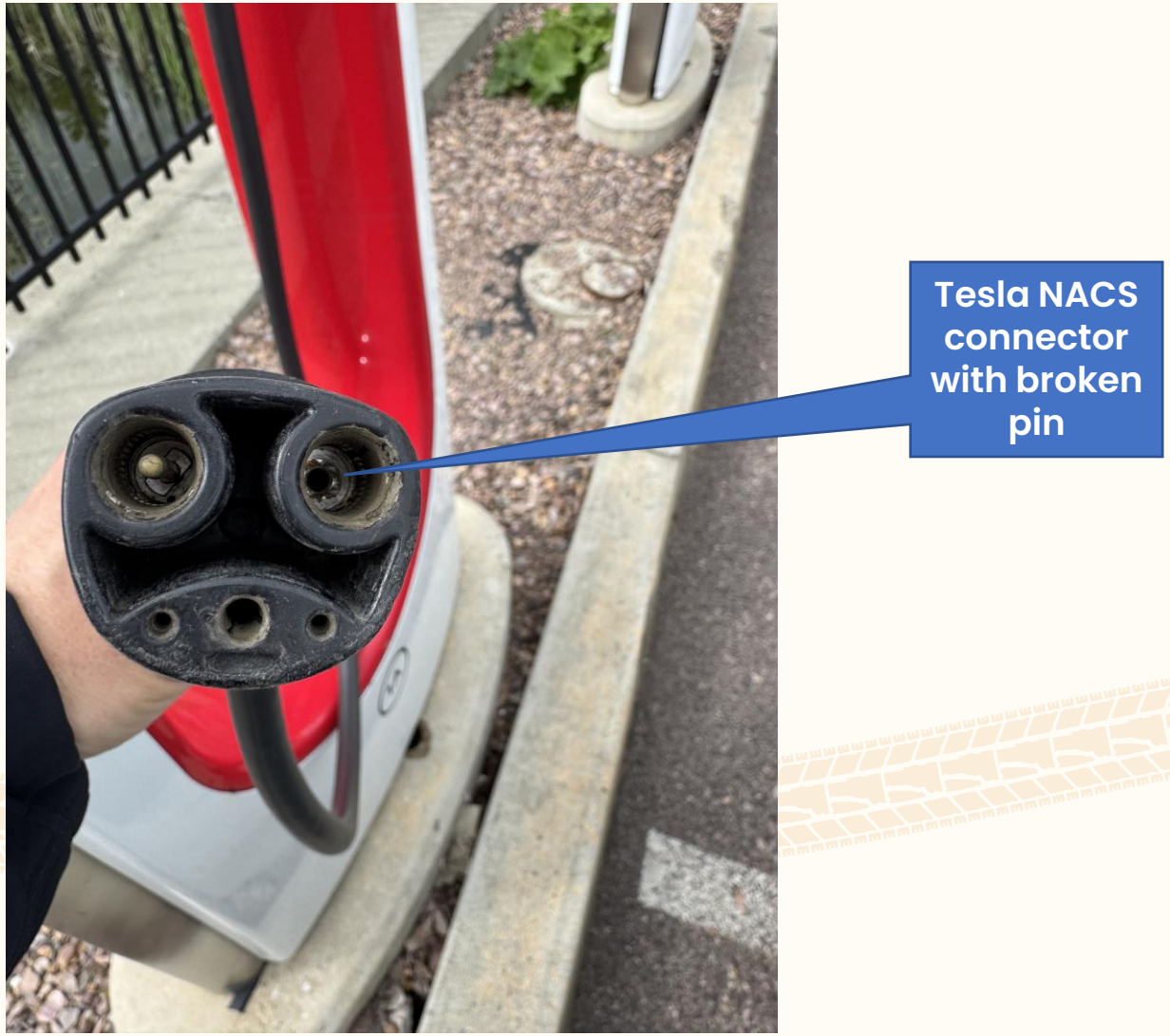


https://www.plugshare.com/trip-planner.html



https://abetterrouteplanner.com/

Tip: Check Charging Plugs Before Use



Public Charging Pricing & Payment Options

- Pricing is set by host location - usually around $0.25/kWh or $1/hour for level 2 charging
- Fast charging is more expensive $0.40-$0.60/kWh – about $25 per session
- RFID cards from charging companies offer the most reliable access
- Roaming agreements between charging provides can streamline access
- Payment options listed below not available at every location – sign up with charging networks before a trip!
- Plug & Charge may streamline access and payments in the future (Tesla already offers this)

Charging Company RFID Card

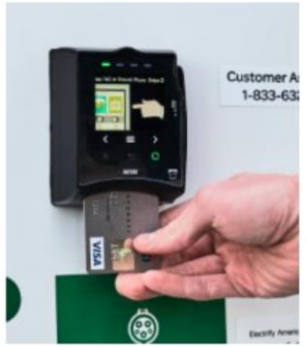
Charging Company Smartphone App

Phone Support

Android and Apple Pay

Contactless Credit Card

Chip / Swipe Credit Card



https://www.driveelectricvt.com/charging/on-the-road

Wrapping Up

- Consider a longer range and/or faster charging EV for regular long-distance travel
- Always Be Charging (ABC)
- Have a plan B and give yourself time
- Sign-up for charging networks in advance of a trip
- Use in-vehicle navigation and other tools to plan and track your travel
- Review online resources related to long-distance EV travel, including YouTube videos
- Chat with other EV owners to learn about their experience
- Plug-in hybrid or conventional hybrid options may work better for some drivers
- New technologies like solid state batteries should continue easing long distance travel in the future

Detroit, Michigan Electric Road Case Study | Electreon

MDOT, City of Detroit and Electreon unveil nation's first public EV-charging roadway at Michigan Central | City of Detroit

Driver Experience

- Known / repeat road trips are easier
- Unknown areas require more planning
- EV travel can help discovering new places you might not visit otherwise
- Trickle charging (level 1) can help in a pinch
- Rivian chargers are a great new resource – tap to pay with credit card

Freeport, ME Rivian Adventure Network

Discussion

Contact Us - Drive Electric Vermont

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Learn more online at
www.DriveElectricVT.com