

Electric Vehicles and Alternative Fuels Corridors in Wisconsin

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Electric Vehicle Basics

Vehicle Options



HEVs use both gasoline and electricity recharged by the engine for improved efficiency

Fossil Fuel Dependent



PHEVs use both gasoline and electricity from the engine and from the electricity grid



EVs only use battery power by connecting to the electricity grid

Electricity Dependent

Electric Vehicle Basics

Charging Infrastructure



Level 1
120V AC

2-5 miles of range per hour of charging



Level 2
240V AC

10-20 miles of range per hour of charging



DCFC

208/480V 3-phase AC
60-80 miles per 20 minutes of charging

Less Power

More Power



Transportation Electrification

- The transportation sector is the 2nd largest greenhouse gas emitter in Wisconsin
- Particulate matter and NOx have negative health impacts particularly for low income and minority populations
- Operating costs of EVs are typically lower than ICE vehicles over the vehicle lifetime



EV Trends and Developments

- Rapid growth in previous decade
- Increases in model offerings
- More range, faster charging
- Battery costs
- Possible increases in federal funding support for charging infrastructure

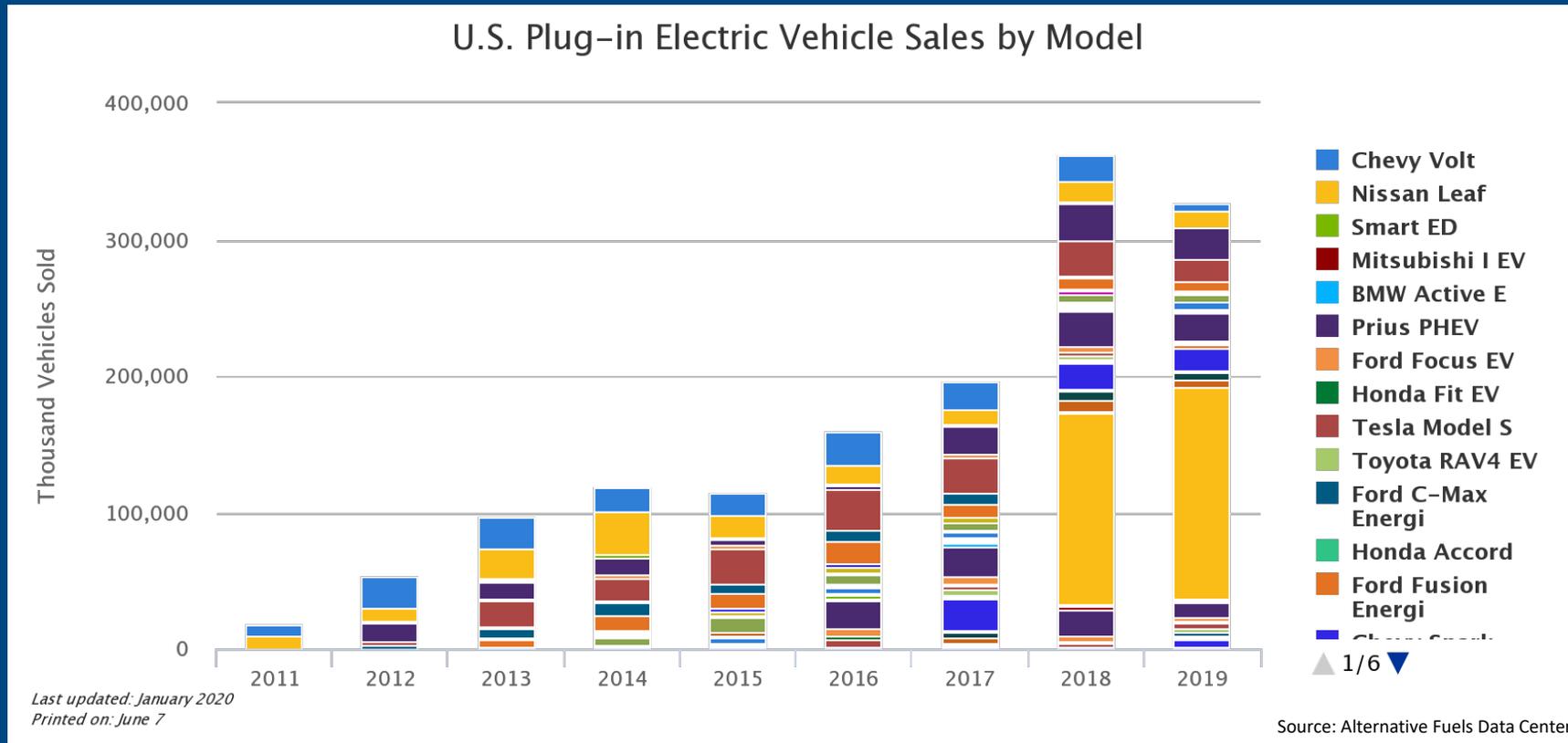


Source: Ford Motor Company



Electric Vehicle Growth

PEV Sales



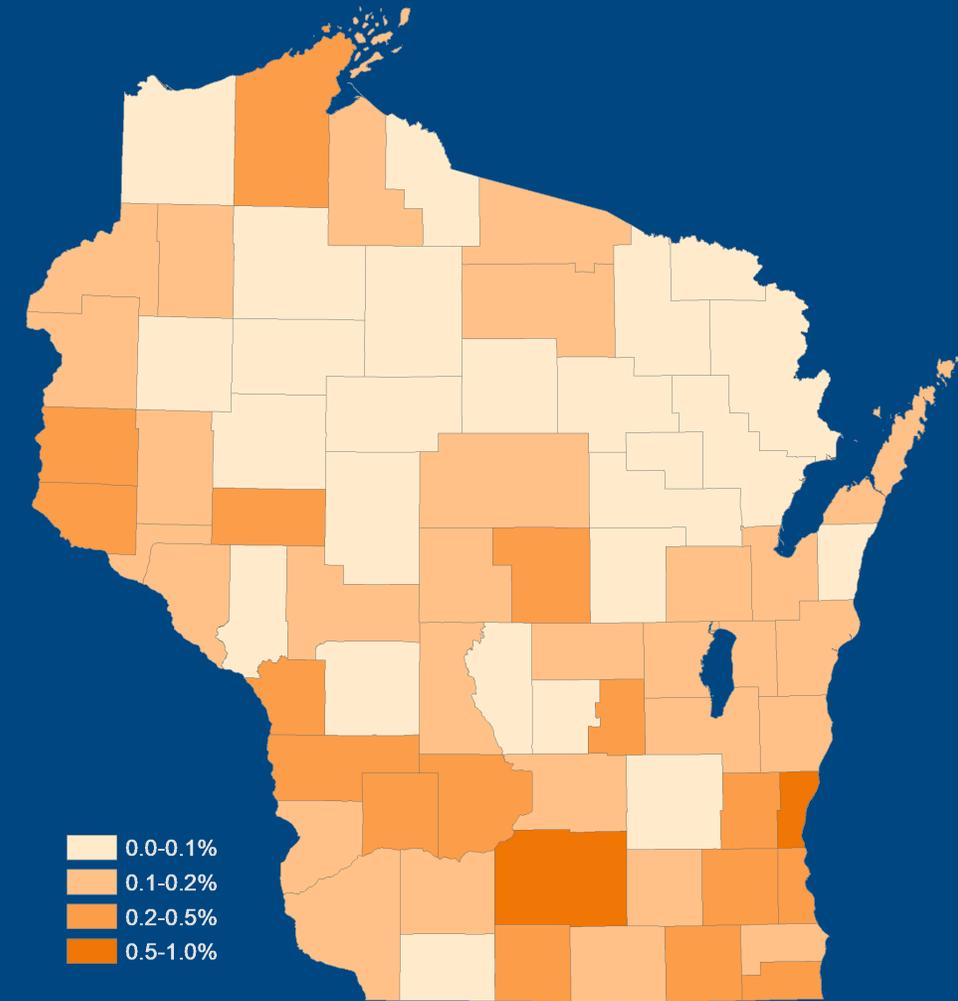
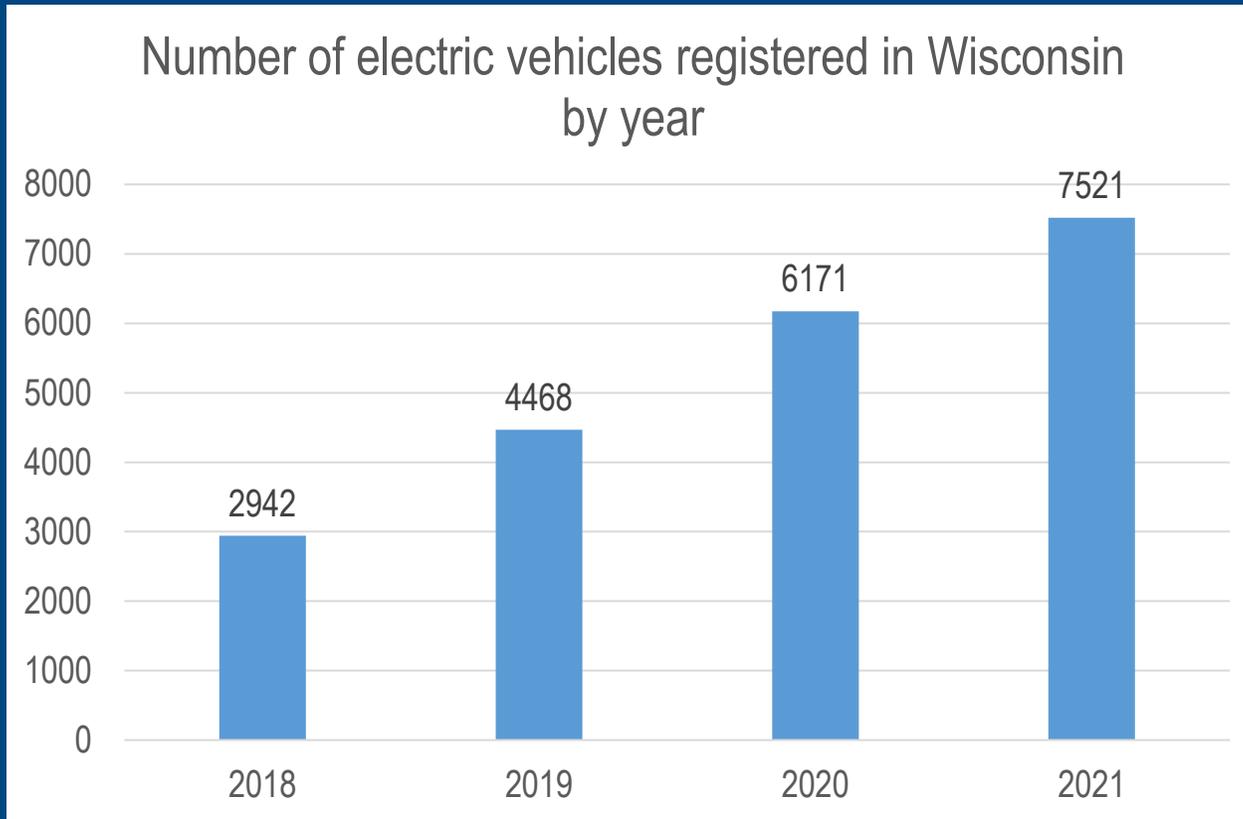
EVs in the U.S.

2018 Market Share



EVs in Wisconsin

Proportion of EVs by County, 2020



EV Charging Stations

Level 2

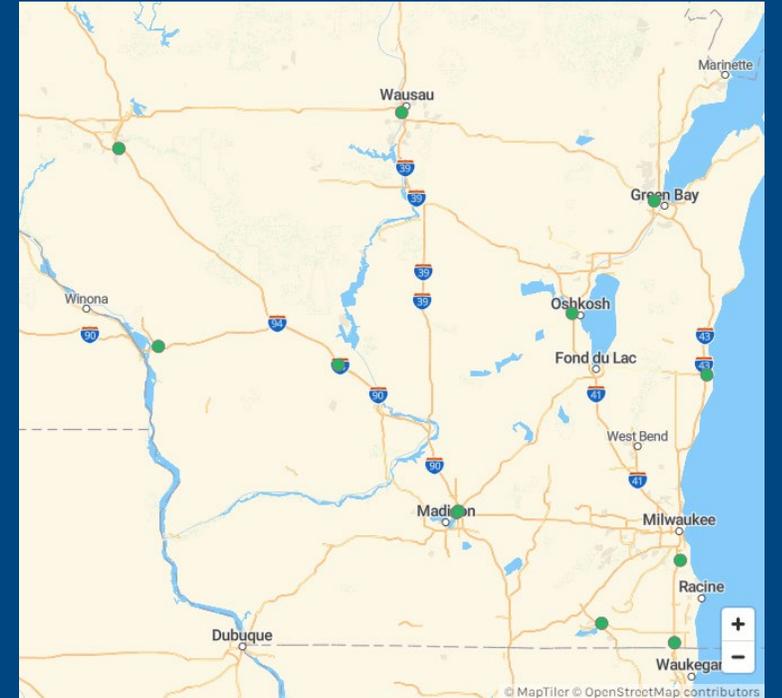
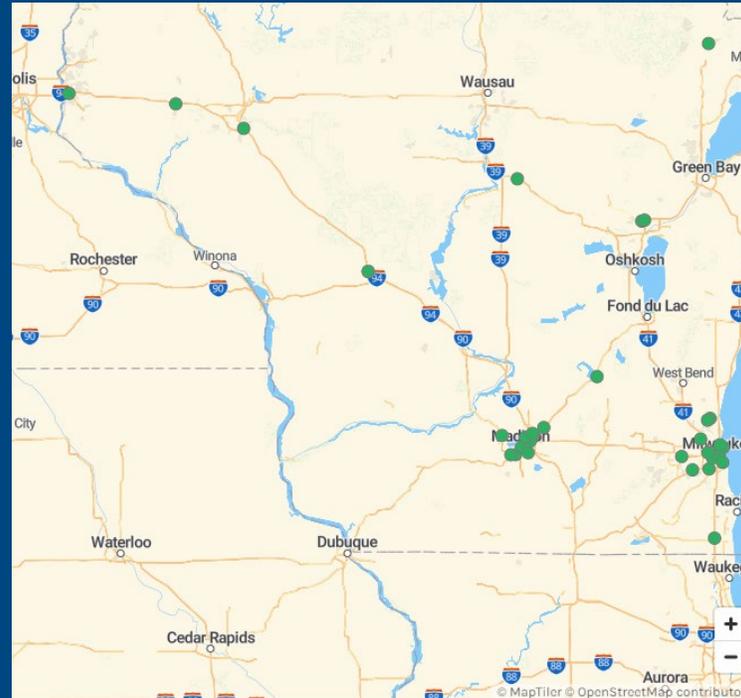
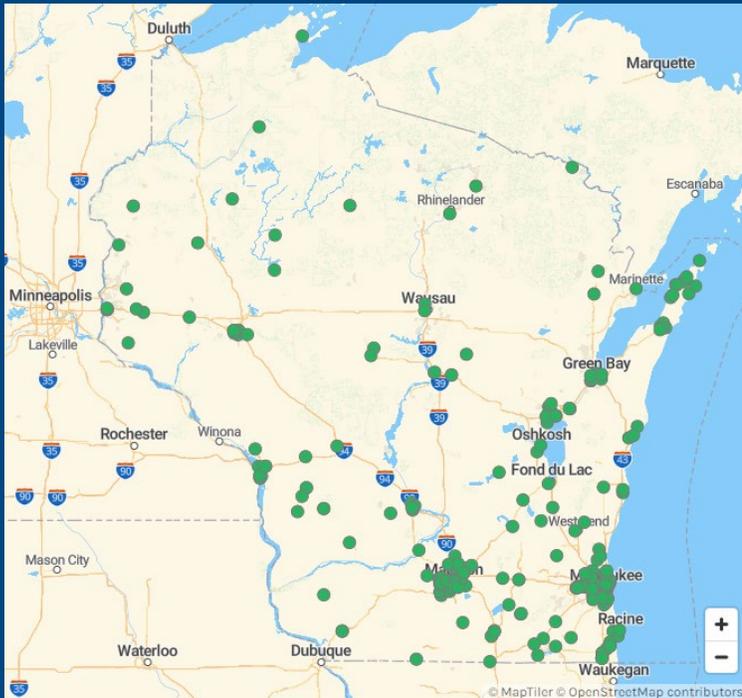
326 station locations (60 Tesla)
650 EVSE ports (131 Tesla)

DC Fast

48 station locations
140 EVSE ports

Tesla Supercharger

12 station locations
83 EVSE ports



State Efforts

Wisconsin

- Grants & Funding for EVCS
 - VW Mitigation Program – DOA
 - Energy Innovation Grants – OEI
 - Congestion Mitigation and Air Quality (CMAQ)
 - Other Federal formula/competitive programs
- Utility Incentives and Time of Use Rates
 - Utilities including MG&E, WPS, Xcel, We Energies
- Corridor Planning
 - FHWA Alternative Fuels Corridors
 - Multi-state corridor planning coordination
 - Michigan to Montana (M2M) Alternative Fuels Corridor (I-94)

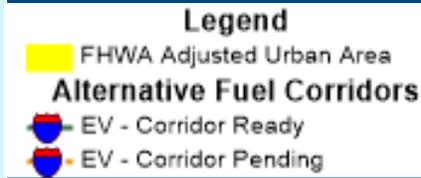


Alternative Fuels Corridors

Electric Vehicle



ALTERNATIVE
FUELS
CORRIDOR



Challenges to EV Adoption and Alternative Fuel Corridors

- Infrastructure
 - Costs (DC Fast Charging)
 - Responsibility
 - Regulatory barriers for infrastructure
 - Rapidly changing technology
 - Charging options and equity
- Vehicles
 - Model availability
 - Upfront costs compared to ICE vehicles
 - “Range anxiety”



Going Forward

WisDOT Role

- Corridor Planning
 - Continuing to evaluate and possibly propose new corridors for AFC – EV designation
 - Exploring options for EVCS placement along corridors
- Signage
 - AFC signs on newly completed EV ready segments of the I-94 corridor (and other corridors)
- Funding
 - Obligation of Federal funding programs



Going Forward

WisDOT Role

- Participation & Collaboration
 - Interagency Collaboration, including the PSC, DOA, and WEDC
 - Regional Electric Vehicle (REV) Midwest
 - Central Region Corridor Collaboration
 - Coordination with Wisconsin Clean Cities Coalition
 - Mid America Freight Coalition and the WisDOT Freight Advisory Committee
 - Mid-America Association of State Transportation Officials (MAASTO)



EV and EVCS Planning Resources

- Department of Energy - Alternative Fuels Data Center
 - **EVI-Pro Lite estimate tool** - <https://afdc.energy.gov/evi-pro-lite>
 - **EV station locator** - <https://afdc.energy.gov/stations/#/find/nearest>
 - **PEV readiness planning** - <https://afdc.energy.gov/pev-readiness.html>
- Registration data
 - **Wisconsin DMV vehicle registration data**— <https://wisconsindot.gov/Pages/about-wisdot/newsroom/statistics/veh-info.aspx>
 - **Atlas EV hub, EV registration data** - <https://www.atlasevhub.com/materials/state-ev-registration-data/>
- Federal Highway Administration
 - **Alternative Fuels Corridors** - https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/
 - **FHWA EV funding report** - <https://dmampo.org/wp-content/uploads/2021/04/Federal-Funding-for-Electric-Vehicle-Charging-Infrastructure-FHWA-2021.pdf>
- Organizational Resources
 - Wisconsin Clean Cities Coalition
 - Electrification Coalition
 - RENEW Wisconsin



Thank you

Questions

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