

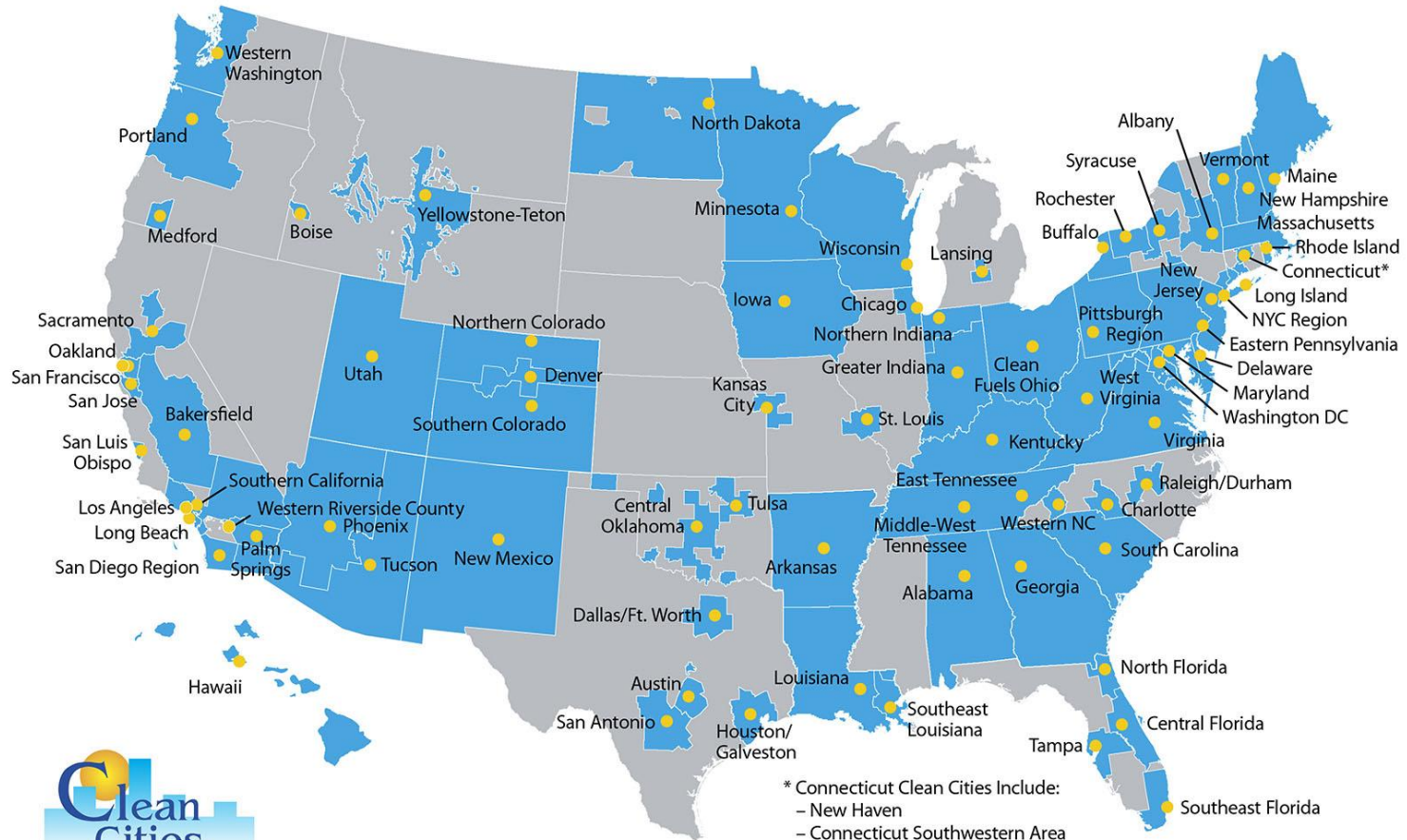
Electric Vehicles In Iowa



MK Anderson, Iowa Clean Cities Coalition

Iowa Clean Cities: Who We Are, What We Do

Clean Cities Coalitions



U.S. Department of Energy

* Connecticut Clean Cities Include:
 - New Haven
 - Connecticut Southwestern Area
 - Capitol Clean Cities (Hartford area)

Map Date: 04/16/19

Electric Vehicle Overview

Plug-In Hybrid Electric Vehicle

- » Powered by an electric motor and engine as back-up
- » Uses Electric Vehicle Supply Equipment (EVSE) to charge battery



All Electric Vehicle

- » Powered by an electric motor
- » Uses Electric Vehicle Supply Equipment (EVSE) to charge battery



Electric Vehicle Charging Overview

Types of Electric Vehicle Charging

Type of Charging	Level 1 - 110V (~1.4kW)	Level 2 - 220V (~7.2kW)	DC Fast Charger (50 kW and above)	Extreme Fast Charging (350kW and above)
Charging Station 101	Provides same electricity as a regular electrical outlet	More powerful than Level 1; Comprises majority of the stations in U.S.	DC current directly supplied to vehicle; Commonly adds 60-80 miles of range in ~20 minutes	Power output can decrease to match EV battery capacity; Higher power output may be fully realized by EVs within 10 years
Range gained per hour of charge	2-5 miles	10-20 miles	Up to 180 miles	787.5 miles (more than today's EV range)

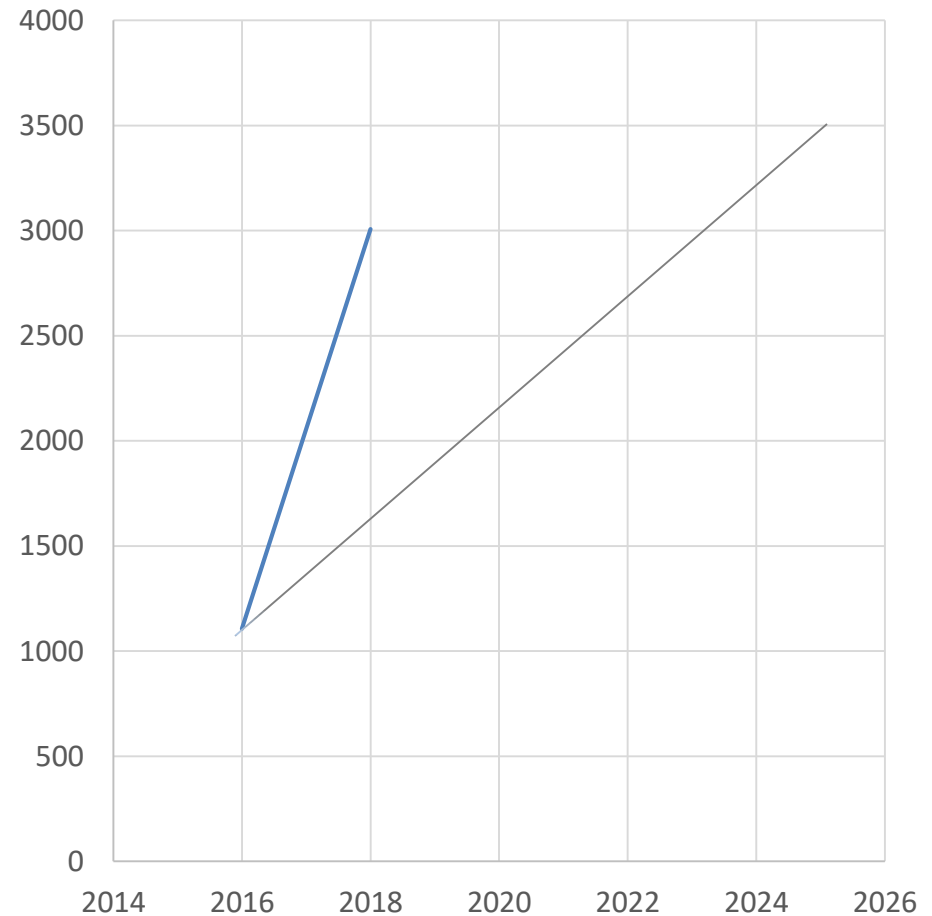
EV Charging Unit Costs

TYPE	COST RANGE
Level 1	\$300 - \$1,500
Level 2	\$400 - \$6,500
DC/Fast Charging	\$10,000 - \$40,000

Based on units available in 2015, does not include installation costs²

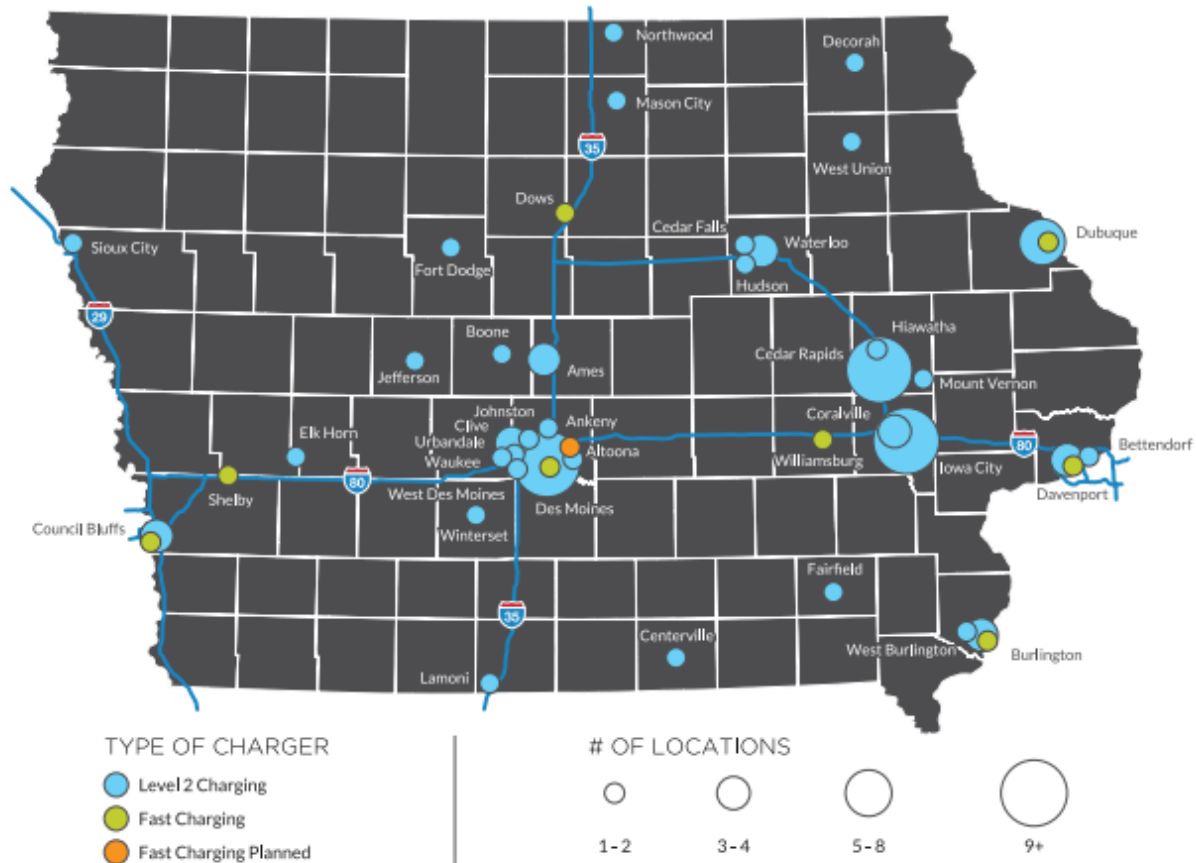
Electric Vehicles In Iowa

- » June 2016: 1,107 Registered EV's
 - IEDA's projected high-adoption scenario for 2025 was 3,500 EV's
- » December 2018: 3,007 Registered EV's
 - 1/3 All-Electric



Electric Vehicle Charging in Iowa

EV Charging Stations in Iowa



Opportunities for EV Adoption in Iowa

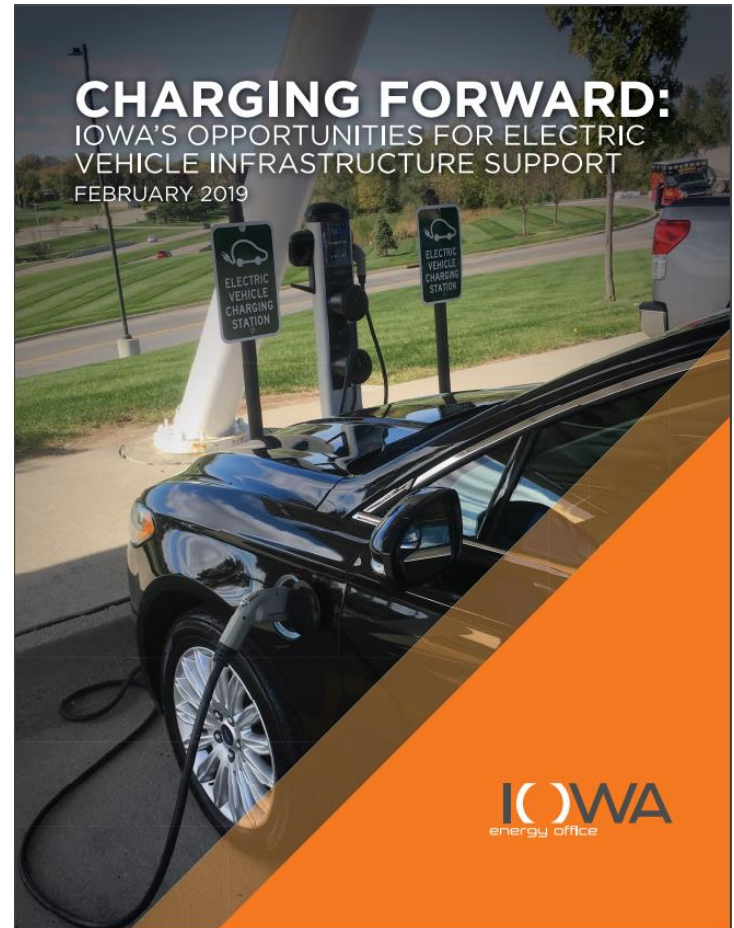
- » Iowa EV drivers
 - Economic – steady fuel prices
 - Environmental – reduced emissions
- » Regional EV drivers
 - Tourism
 - Increased time spending \$ while charging vehicle
- » Infrastructure
 - Charging overnight makes efficient use of grid and wind energy
- » Attract residents and companies
 - Workplace charging
 - Inclination toward green/ sustainable transportation choices

Challenges to EV Adoption in Iowa

- » Limited consumer awareness
- » Longer distance travel, gaps in station availability
- » High cost of fast charging stations
- » Evolving charging station capabilities / technology
 - Questions on interoperability, inconsistent functions, varying consumer experiences, and avoiding “stranded assets”
 - Differing abilities to process payments
- » Rural areas, longer commutes
- » Outdated policies, procedures and programs

IEDA Report

- » Directed by SF2311 to conduct study to investigate support needed for infrastructure
- » Collaborative approach
- » Steering committee with utility partners and DOT
- » Hosted working group meeting with over 50 Iowa stakeholders



IOWA
energy office

Clarify and Update State Policies & Procedures

- » Allow Resale of Electricity for Vehicle Charging
- » Enable Regulatory Oversight of Charging Stations
 - Iowa Utilities Board
 - Weights and Measures
 - Dept. of Public Safety
- » Address EV-Related Shortfalls to Road Use Tax Fund

“Caution should be taken to avoid unintended consequences of making long-term decisions at an early stage in this market’s development.”

“Electricity as a motor fuel is a completely different paradigm, requires a new lens through which to view it and new strategies for adaptation.”

Advance Planning & Development of Charging Stations

- » Improve Local Codes and Permitting
 - Zoning, parking and building codes & inspections
 - Electrical permitting and inspections
- » Support Fast Charging Station Feasibility and Profitability
 - Assist with up-front costs
 - Flexibility in business models, utility involvement and/or ownership
- » Plan and Develop Electric Charging Corridors
 - Multi-state initiatives
 - Signage

“Removing barriers to station development and creating a supportive local policy and regulatory framework will have long-term benefits.”

“Developing charging corridors serves a broader public purpose than the interest of a single geographic area or station host.”

Maximize Benefits for Consumers

- » Plan for Additional Electricity Demand
 - Notify and coordinate with the local utility
 - Understand potential impacts to distribution infrastructure
- » Incentivize Charging at Beneficial Times
 - Voluntary vehicle settings
 - Time of Use rates
- » Enhance Consumer Access and Usage
 - Open standards
 - Universal payment methods
- » Electrify Transportation Choices
 - Transit and school buses
 - Multi-unit residential dwellings
 - Ridesharing and carsharing

“Delaying charging until off-peak times provides a variety of benefits.”

“By 2029, predictions are that most EVs will reach cost parity with internal combustion vehicles.”

Contact Information

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