

A close-up photograph of a white electric vehicle charging station. A blue charging cable is plugged into the port. The background is blurred, showing warm lights and the structure of the station.

ChargerHelp Annual Reliability Report

The State of EV Charging and the Driver Experience





The Journey of EVSE Expansion in the US



Number of public EV Charge Ports Doubled in 3 years



175,000 + Ports nationwide as of April 2024



Driver Experience

EnergyTech
MANY PATHS TO NET ZERO

LOGIN JOIN

E-MOBILITY

Charger Reliability: The Greatest Threat to EV Adoption

Despite increased availability, J.D. Power with EV chargers continues to decline, as without charging

Breanna Sandridge, Senior Editor

Washington Post

This company was ordered to spend \$2 billion on EV chargers. Many of them don't work.

After "Dieselgate," Volkswagen created an EV charging company to make amends. Does it matter that its chargers are faulty?

Dec 13, 2023

SO WE ASKED THE QUESTION

**What does true uptime look
like in the US, today?**

Data Sources for the EVSE Analysis

We leveraged five primary data sources for this report

- 19 million data points
- ChargerHelp direct EVSE O&M Service and Charger assessment Data
- 3rd Party Data from Paren, Inc.
- Public Data from US DOE's AFDC Database



AFDC Data



64,653

TOTAL STATIONS AS OF EOY 2023



168,381

TOTAL PORTS (L2 + DCFC)

Paren Data



9,783

DCFC PEDESTALS AS OF EOY 2023



12.8M

ATTEMPTED CHARGES DURING H2 2023

ChargerHelp's EMPWR data



32,000

ASSETS SERVICED (STATIONS+)



2,200

ISSUES ADDRESSED



12,000

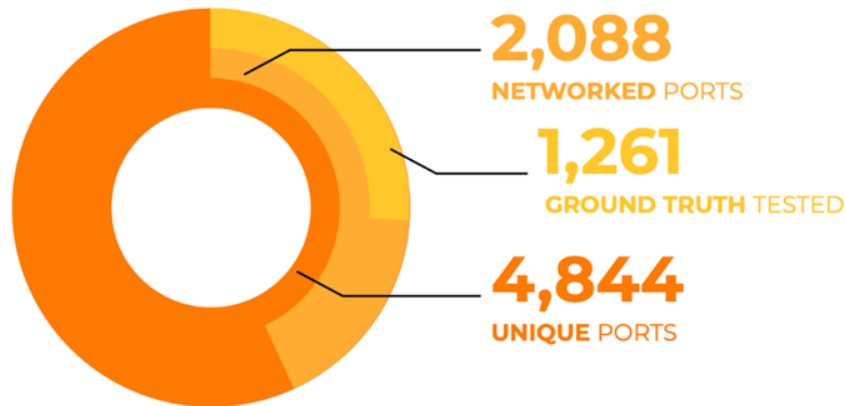
WORK ORDERS PERFORMED



47

STATES COVERED

ChargerHelp's NEVI campaign assessment





The report explores...

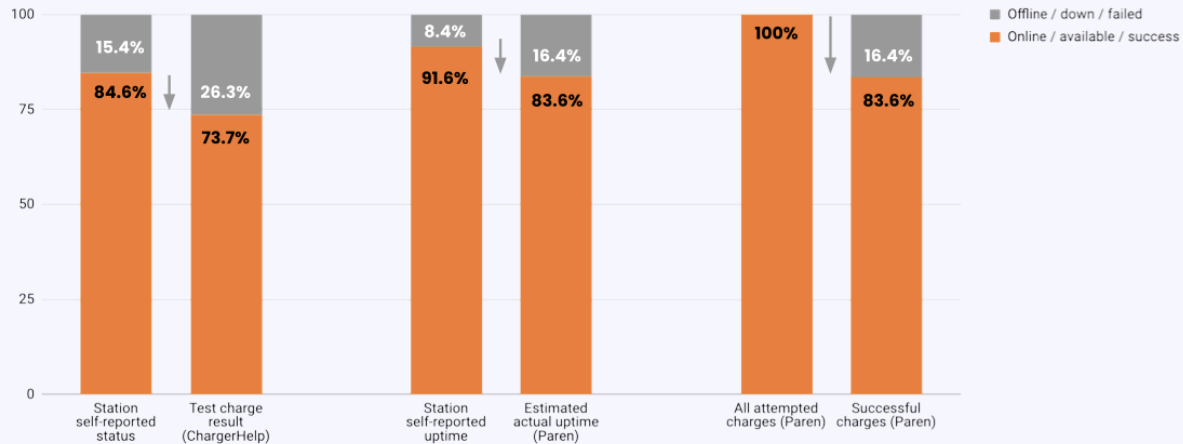
- The discrepancy between reported uptime and true uptime.
- How reliability varies by EVSE age, state, and network.
- The drivers of downtime and what it takes to improve Uptime.

DEFINING TRUE UPTIME

“True uptime” refers to EV drivers’ actual, on-the-ground experience attempting to charge their electric vehicles on a given port. This is in contrast to a station’s or a network’s self-reported status via OCPP, an app, or software API.

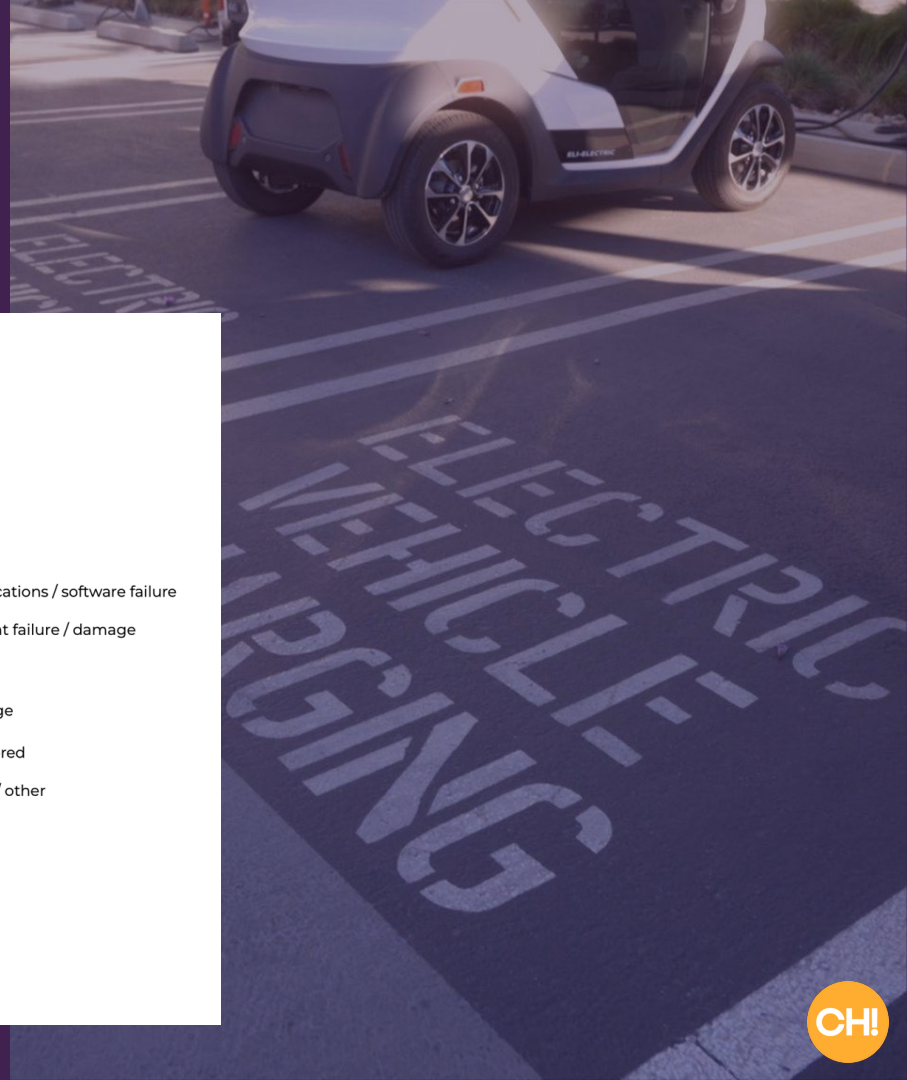
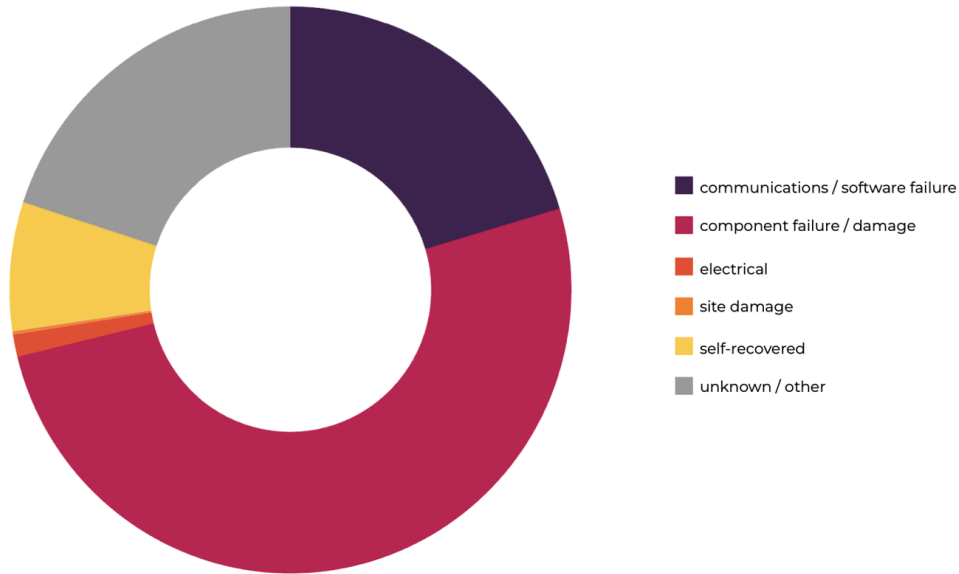
What is the discrepancy between Reported Uptime and True Uptime?

FIGURE 2: comparing expected vs. actual station status, uptime, and charging success



What are the drivers of downtime and what does it takes to improve Uptime?

FIGURE 21: charging station symptoms as fraction of all symptoms



What are the Drivers of Downtime and what does it takes to Improve Uptime?

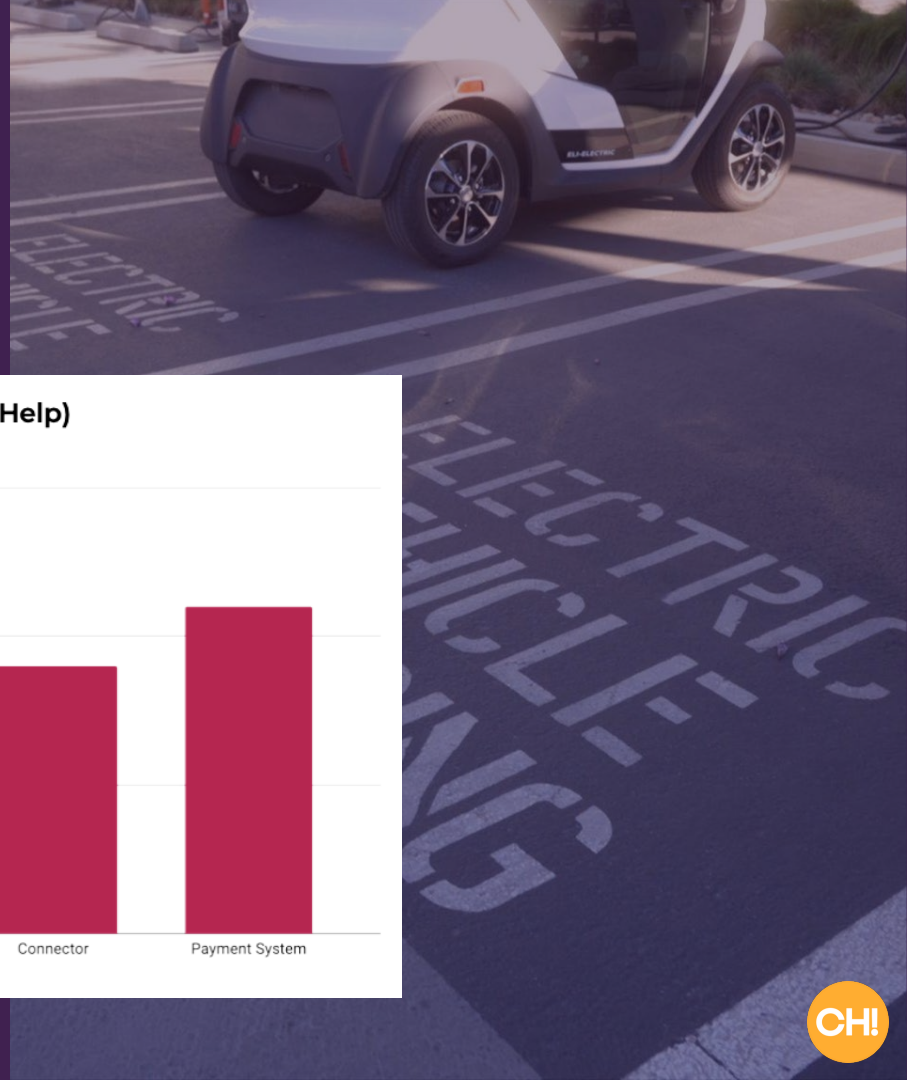
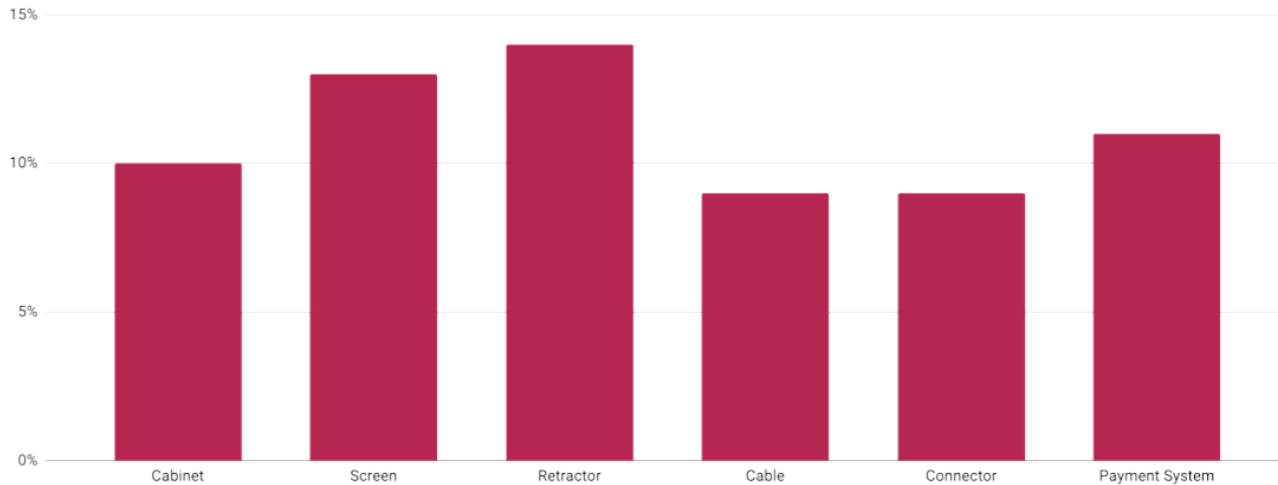


FIGURE 19: rates of observable charging station damage (ChargerHelp)



Report Findings

- ★ True Uptime is often lower than reported
- ★ Software inaccuracy compounds reliability issues
- ★ Reliability varies dramatically by Network
- ★ Equipment age correlates with downtime and how reliability varies geographically
- ★ The causes of downtime are multifaceted, addressing “problem” stations can reduce O&M burden



RECOMMENDATIONS

- 1 Ensure Data Accessibility**
- 2 Measure Uptime effectively** with standardized data reporting protocols
- 3 Allocate O&M Specific funding** to maintain and renew EVSE infrastructure
- 4 Implement Comprehensive Warranty Coverage and Standardized troubleshooting protocols**
- 5 Promote leading practices** and expand technician training and certification



EXAMPLES



1

Ensure Data Accessibility

INDUSTRY EXAMPLES

AMPECO'S backend solution

- Supports OCPP 1.5, 1.6, and 2.0.1
- Integrates with over 70 leading charging station manufacturers,
- Features a robust API

California Energy Commission's 2023 guidance mandates real-time data sharing for all publicly funded chargers installed from January 1, 2024



2

Measure Uptime effectively

INDUSTRY EXAMPLES

Maryland PSC Initiative: The Public Service Commission of Maryland's Electric Vehicle Work Group is working to establish a standardized uptime definition.

Fractal EV: This manufacturer is enhancing charger interfaces to better capture EV driver feedback.

Rivian: The EV OEM has introduced reliability scores that reflect the collective experiences of drivers at charging stations.

Joint Office's EV-ChART: Launched in February 2024, this web-based data portal and analytics platform provides standardized data formatting for EV charging.

3

Allocate O&M Specific funding

INDUSTRY EXAMPLES

NEVI Program: Grants to repair or replace non-operational EV charging ports, with \$149 million awarded in FY 2022 and 2023 to 20 states, covering over 4,400 ports.

Colorado State Funding: January 2024 grants dedicated to EV charging O&M, supporting nearly 200 locations statewide.

Southern California Edison: Their Approved Product List for EV Hardware could inspire similar initiatives for EVSE O&M.



4

Implement Comprehensive Warranty

INDUSTRY EXAMPLES

ChargeX Consortium: Proposed minimum required error codes under Idaho National Laboratory.

ChargerHelp RaaS: Provides unlimited maintenance, technician support, and proactive monitoring for Level 2 and DCFC stations, ensuring reliability and uptime across 25+ EVSE companies.



5

Promote industry-wide leading practices

INDUSTRY EXAMPLES

EV Connect's 24/7 customer service

provides a more-direct connection to both remote support as well as technician dispatch into the field, when necessary.

Tritium Academy is one of the industry's best examples of technician training programs, even though the company overall declared insolvency in April 2024.

SAE International's EVSE Technician Certification is expanding the pool of skilled professionals in the field.

THANK YOU!

CH!

Join the charge and download the report to dive into the data, insights, and recommendations!



SCAN TO
LEARN MORE



How does reliability vary by EVSE Age, State, and Network?

Percentage of L2 ports down, EOY 2023 (AFDC)

