



Department  
of Public Service

# EVSE Plug Standards Technical Conference

Case 18-E-0138

January 15, 2025

# EV Charging Regulatory Proceedings

## Passenger Vehicle Charging Infrastructure (18-E-0138)

- Make-Ready Program: Primarily funding electrical infrastructure needed to install EV charging with programs targeted to disadvantaged communities
- Residential Managed Charging: Incentivizing customers to charge their vehicles off-peak at home when there are less impacts on the grid

## Beneficial Rates for EVs (22-E-0236)

- Commercial Managed Charging: Incentivizing customers to charge their vehicles off-peak with focus on fleets and public stations
- Demand Charge Rebate: Rebate to reduce the demand portion of a customer's bills by 50% for some EV charging use cases
- EV Phase-in Rate: Time-of-use rate with demand charges blended in over time as a customer's load factor increases

## Medium- and Heavy-Duty Vehicle Proceeding (23-E-0070)

- TBD: Initiating Order on April 20, 2023, establishing a proceeding to address challenges to truck and bus electrification

## Proactive Planning for Upgraded Electric Grid Infrastructure (24-E-0364)

- TBD: Initiating Order on August 15, 2024, directing Joint Utilities to file urgent project proposals and a long-term proactive planning framework. Filings are currently ongoing

# Background

In the Midpoint Review Order, the Commission stated:

- “[T]he current lack of codification of NACS and limited current use of the standard by automakers merits maintaining NACS's classification as proprietary. However, the Commission agrees with the JU that changes should be considered if there are drastic changes in charger technology” (pg. 55).

The Commission directed Staff to:

- “[C]onvene a technical conference ... to consider interoperability and universal accessibility of charger hardware, such as plug type, charger design, charging adapters, and software as it pertains to Make-Ready Program eligibility” (pg. 55).

# Agenda

1. Introduction and Opening Remarks from DPS Staff
2. Remarks from NYSERDA
3. Presentation from Tesla
4. Presentation from EVgo
5. Presentation from California Energy Commission
6. Facilitated Roundtable Discussion

- Use chat or raise hand functions
- When hand is raised and called upon, you will receive a pop-up to unmute
- There will be an opportunity to ask clarifying questions following the presentations
- Please reserve more detailed comments for the roundtable discussion
- Today's recording and presentation materials will be posted on DMM

**Adam Ruder,  
Director of Clean  
Transportation,  
NYSERDA**

T E S L A

# J3400 - North American Charging Standard (NACS)

January 15, 2025

## NOTICE

The information contained in this documents is confidential, privileged and only for the information of the intended recipient and may not be used, published or redistributed without the prior written consent of Tesla, Inc.

## LAST EDITED

January 2025



# Tesla's Charging Philosophy

Customer experience is key

- **Objective:** Create a convenient and seamless customer charging experience that is always reliable
- **Pathways:**
  - Simple and efficient designs
  - Plug and Charge
  - 99%+ uptime
  - Larger sites as customer adoption grows
  - Ubiquitous charging
  - Dynamic trip planner



# Topics

As prompted by NY DPS

- Timelines
- Non-proprietary classification
- Make-Ready program design
- Native J3400 charging inlets
- Current outlook on combined/dual connectors
- The role of adapters in the transition
- J3400 for Medium-Heavy Duty applications





# NACS Market Adoption Timeline

A reliable nationwide network

2022 – NACS discussions among OEMs

2023 – NACS agreements completed

2024 – OEMs gain access to Supercharger Network

2025 – OEMs release first non-Tesla native NACS vehicles

2026 – Expected new EV offerings released w/ native NACS

2027 – Full NACS market adoption.

NACS adoption timeline

Company ↕	Announced ↕	Supercharger access ↕
Ford	May 25, 2023	February 29, 2024
General Motors	June 8, 2023	September 18, 2024
Rivian	June 21, 2023	March 18, 2024
Volvo	June 27, 2023	October 29, 2024
Polestar	June 29, 2023	October 29, 2024
Mercedes-Benz	July 7, 2023	Coming soon <sup>[39]</sup>
Nissan	July 19, 2023	December 10, 2024
Honda	August 18, 2023	Planned
Jaguar Land Rover	September 21, 2023	Planned
Hyundai/Kia	October 5, 2023	Planned
BMW Group	October 17, 2023	Planned
Toyota	October 19, 2023	Planned
Subaru	November 1, 2023	Planned
Lucid	November 6, 2023	Planned
Volkswagen Group	December 19, 2023	Planned
Mazda	January 16, 2024	Planned
Stellantis	February 2, 2024	Planned

# Non-Proprietary

## SAE J3400 Technical Standard

**June 2023** – SAE announces it will standardize NACS.

**July 2023** – SAE creates a task force to handle development of “SAE J3400”

**December 2023** – J3400 Technical Information Report (TIR) published by SAE

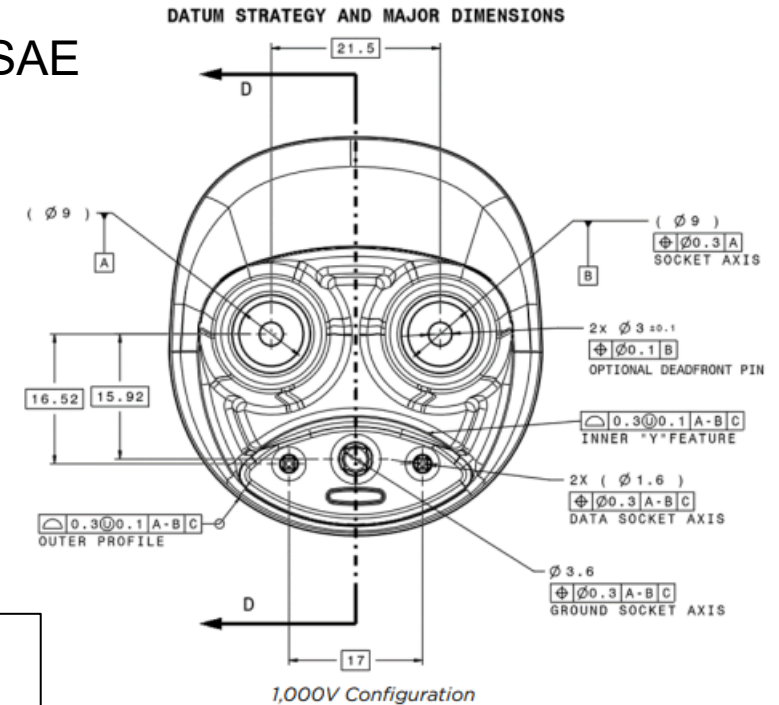
**September 2024** – J3400 Recommended Practice (RP) published by SAE

**2025** – Full standard expected to be finalized through SAE process.

**2026** – Full NACS market adoption with finalized SAE J3400 standard.

**2027** – From a California Energy Commission memo in October 2024:

*“CEC staff encourages industry entities to prepare for widespread use of J3400 as the default connector for passenger vehicle charging by 2027.”*

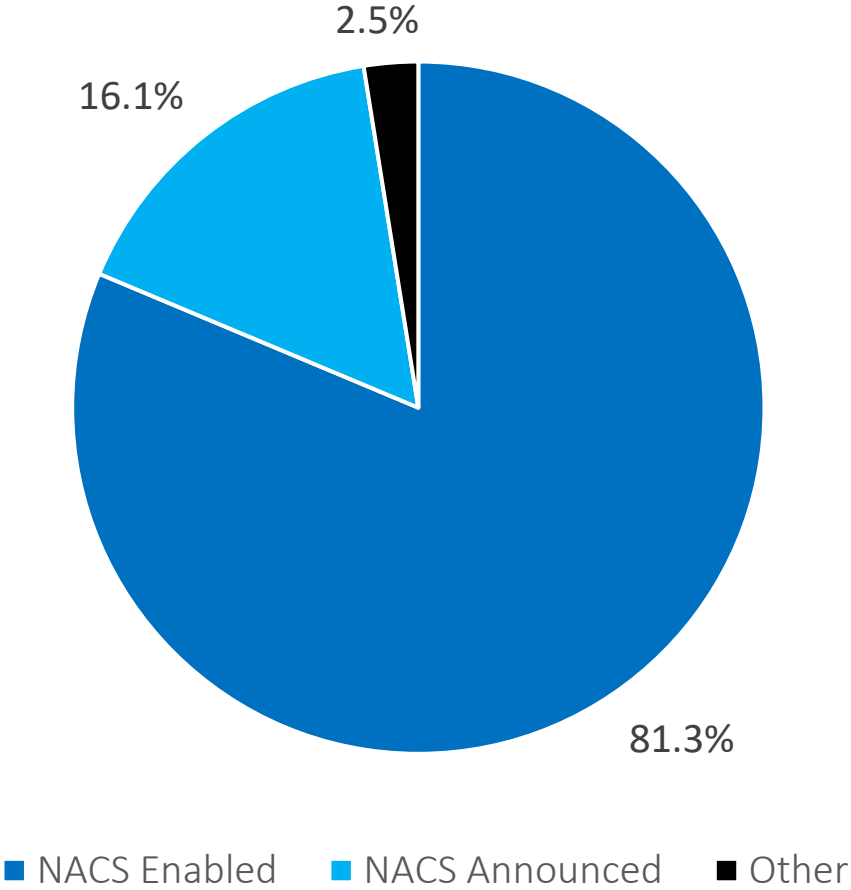


# Make-Ready Program Design

81% of BEVs in New York are already NACS enabled

- Supported
- Ford
- Rivian
- General Motors (GM)
- Volvo
- Polestar
- Nissan

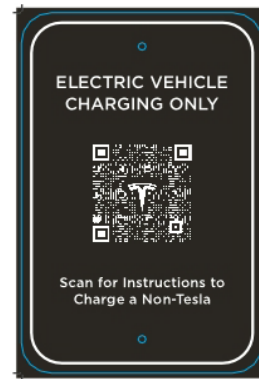
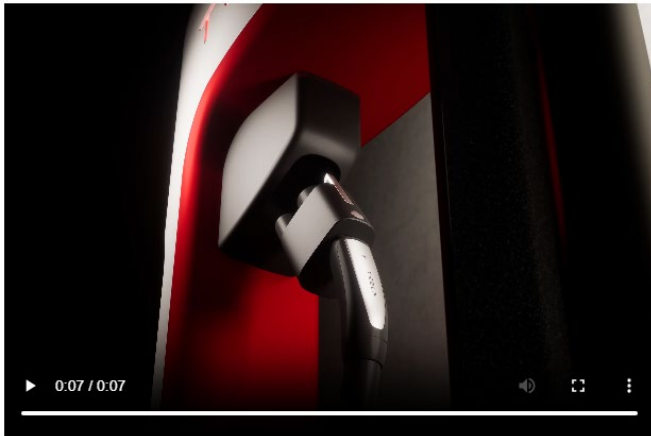
- Coming Soon
- BMW
- Genesis
- Hyundai
- JLR
- Kia
- Lucid
- Mercedes-Benz



# Current Outlook on Combined/Dual Connectors and Adapters

OEMs are responsible for distributing adapters to their customers

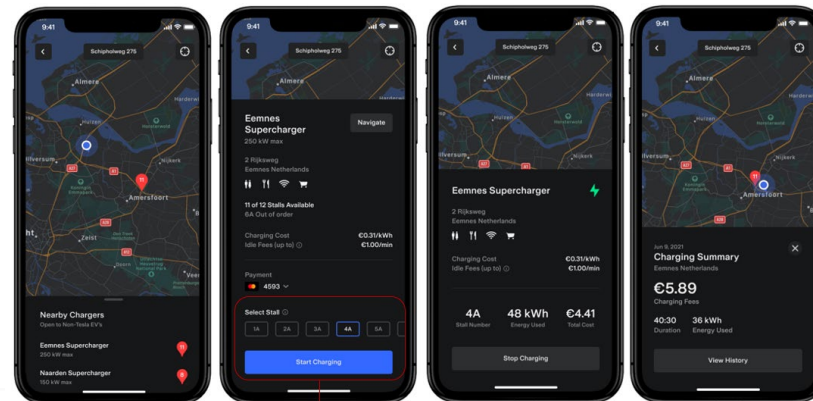
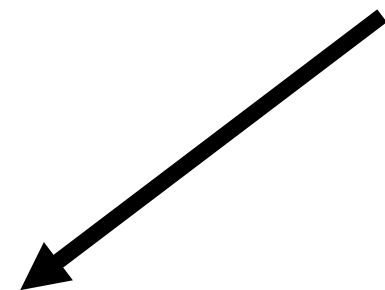
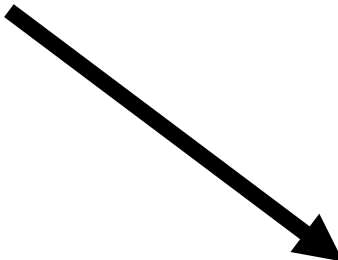
## “MagicDock” integrated adapter



## Customer-owned adapter



Same app-based initiation\*



User selects Supercharger post by label ID

*\*Plug-and-Charge is available to NACS partners.*

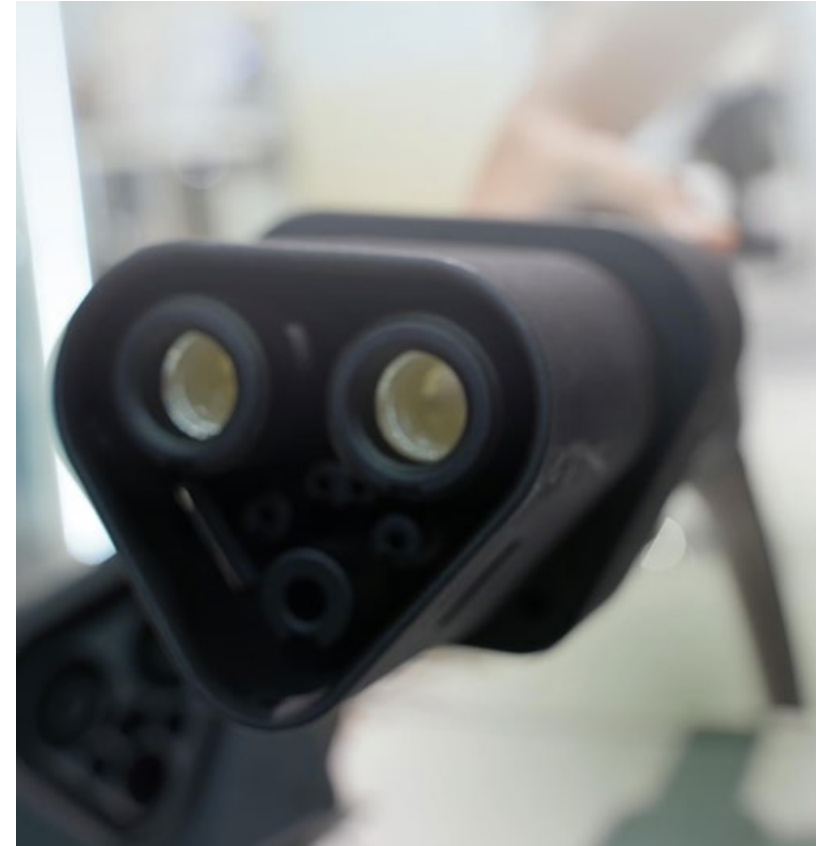
## Medium-Heavy Duty Applications – Megawatt Charging System (MCS)

J3400 is only rated up to 1 MW → MCS is rated up to 3.75 MW

Megawatt Charging System v2.4



Megawatt Charging System v3.0



# Conclusions

## SAE J3400 / NACS

- The light-duty BEV market has aligned around the J3400 standard.
- 81% of BEVs in New York are already NACS-enabled today.
- NACS native vehicles expected from other OEMs beginning in 2025.
- J3400 Recommended Practice published by SAE in October 2024.
- By end of 2025 full NACS market adoption with finalized SAE J3400 standard is expected.
- Other states have already begun making adjustment plans for incentive programs to consider J3400 the default connector for passenger vehicle charging.
- J3400 connector chargers are non-proprietary and serve the majority of New York's BEV market.
- J3400 connectors deserve equal treatment in New York's Make-Ready programs.

# EVgo<sup>®</sup>

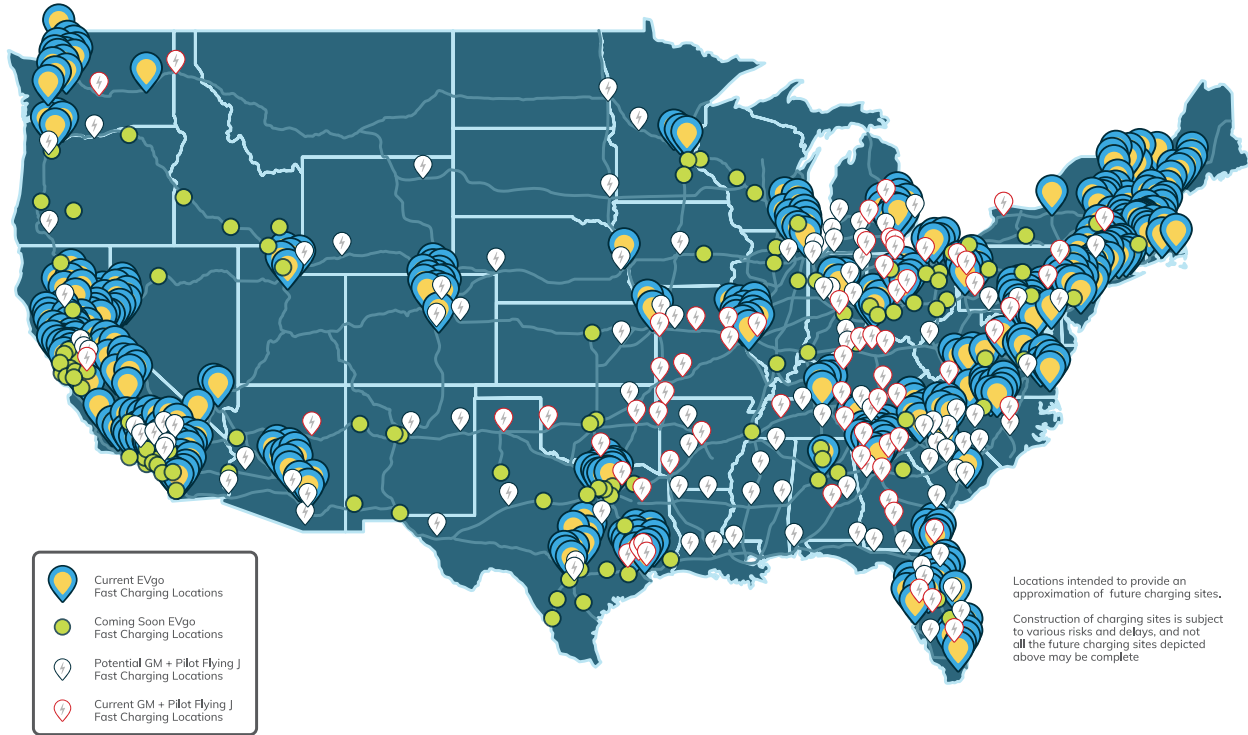
## SAE J3400 Market Outlook

JANUARY 15, 2025

EVgo  
FAST CHARGING ONLY  
VEHICLE MUST BE CHARGING  
VACATE STALL WHEN COMPLETE



# EVgo IS ONE OF THE NATION'S LARGEST PUBLIC EV FAST CHARGING NETWORKS



1,000+ **Locations**

40 **States**

145M+ **Americans**  
Within 10 miles of an EVgo station

1M+ **Customer accounts**

50+ **National strategic site host partnerships**

Source: Company estimates  
All figures as of 09/30/24 unless otherwise noted  
Stall and location counts include EVgo eXtend sites



# Supporting Electric for All

## EVgo Innovation Lab El Segundo, CA

At the lab, we invite automakers to test their vehicles with all our charging equipment to promote and enhance vehicle interoperability as well as to help ensure safety and reliability of charging equipment. This testing also informed the SAE process.



# Supporting Electric for All

## Industry Efforts



### **SAE J3400 Committee**

EVgo is a voting member working to ensure the connector is safe, reliable and interoperable.

### **ChargeX Consortium**

EVgo works with partners in this group to ensure safety and reliability.

### **CharIN**

EVgo participates in CharIN's Festivals and supports CharIN's North American Interoperability Task Force.

### **UL**

EVgo is a voting member of UL to promote product safety and certification.

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For more information, please contact





# California Energy Commission

Improving the charging experience in California – J3400 Update

Vincent Weyl, Fuels & Transportation Division

January 15, 2025



# California by the numbers

- In 2024, CA achieved key milestones
  - Over **2.1 million Zero Emission Vehicles** sold to date (as of Q3/2024)
  - Over **25% of new car sales** are ZEV (>1,300/day)
  - **1 out of 6 MHD vehicles** is a ZEV
  - Over **152,000 public and shared private chargers** (as of mid-year)
- **\$1.4 billion funding** for the [Clean Transportation Program](#) approved in December 2024

## Zero Emission Vehicle and Infrastructure Statistics - Collection

The California Energy Commission (CEC) has partnered with the Department of Motor Vehicles (DMV) to track the sales and population of light-duty zero emission vehicles (ZEVs) in California. ZEVs include battery-electric, plug-in hybrid electric, and fuel cell electric vehicles. The DMV vehicle registration database contains data on all registered vehicles in California. These data are cross-referenced with a secondary database that translates each Vehicle Identification Number to a specific make, model, year, and fuel type. The CEC also tracks the number of plug-in electric vehicle chargers and hydrogen refueling stations serving light-duty vehicles in California.

The California Energy Commission has also teamed up with Veloz to deliver quarterly electric car sales data to support [Veloz's sales dashboard](#) that provides California electric car sales, national electric car sales, electric car chargers, hydrogen stations and the current number of electric makes and models available in the state. Shop and save on your next electric car with [ElectricForAll.org](#)

### COLLECTION



#### Light-Duty Vehicle Population in California

Explore California's light-duty vehicle population. Light-duty vehicle population reflects the number of vehicles "on the road."



#### New ZEV Sales in California

Explore how many new zero emission vehicle are registered.



#### Medium- and Heavy-Duty Zero-Emission Vehicles in California

Learn about zero-emission medium- and heavy-duty vehicle deployment in California.



#### Electric Vehicle Chargers in California

Explore how many electric vehicle chargers are available in California.

### ENERGY ALMANAC

California Electricity Data

California Power Plants

California's Natural Gas Market

California's Petroleum Market

Data on Renewable Energy Markets and Resources

Transportation Energy

Zero Emission Vehicle and Infrastructure Statistics

### CONTACT

Media and Public Communications Office  
[mediaoffice@energy.ca.gov](mailto:mediaoffice@energy.ca.gov)

### SUBSCRIBE

Zero Emission Vehicle and Infrastructure Statistics Dashboards

Email \*

Email

SUBSCRIBE

<https://www.energy.ca.gov/zevstats>



# Improving the Driver Experience

The CEC is committed to improving the charging experience through:

- Regulatory requirements
  - AB 2061 reliability
  - SB 123 payment
  - AB 2697 roaming
- Funding
  - Harmonization of interoperability and performance requirements across all grant solicitations
  - ViGIL and upcoming Charge Yard solicitation
- Spurring and supporting industry efforts
  - Interoperability
  - Plug and Charge
  - One-connector vision for LD charging

## Improving the Electric Vehicle Driver Experience

The California Energy Commission is working to improve the electric vehicle (EV) driver experience for all Californians. Increasing the adoption of EVs requires a charging network that is reliable, accessible, and convenient. An improved driver experience with charging can increase EV adoption while creating an attractive marketplace for vehicle manufacturers and charging station operators.

Expand All

Increasing EV Charger Station Reliability	+
Helping Drivers Find Reliable EV Chargers	+
Improving Charging Communication	+
EV Charger Payments Regulations	+
The Benefits of Plug and Charge	+
Network Roaming: Creating a Connected Network	+
Supporting a One-Connector Future for EV Charging	+
Additional CEC Efforts	+

**CONTACT**  
 Fuels and Transportation Division  
[FTD@energy.ca.gov](mailto:FTD@energy.ca.gov)

**RELATED LINKS**  
 National Electric Vehicle Infrastructure (NEVI) Formula Program  
 Clean Transportation Program  
 Electric Vehicle Charging Infrastructure Reliability Reporting and Performance ...  
 Electric Vehicle Chargers in California

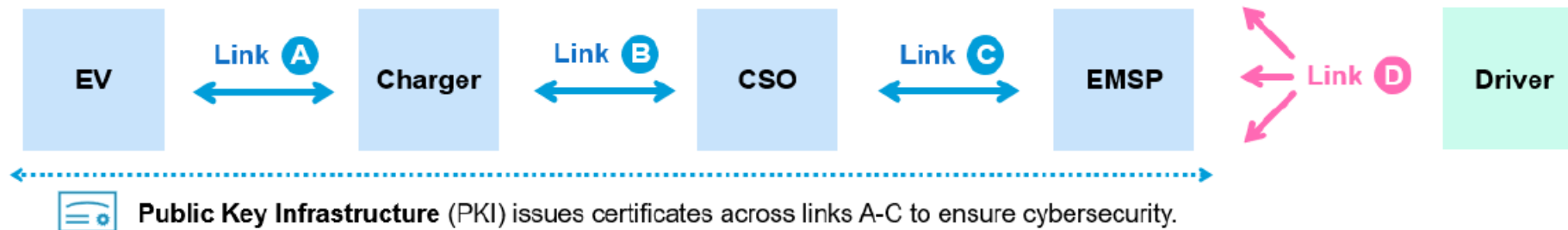
**CATEGORIES**  
**Topic**  
 Transportation  
**Division**  
 Fuels and Transportation  
**Program**  
 Clean Transportation Program

<https://www.energy.ca.gov/programs-and-topics/topics/transportation/improving-electric-vehicle-driver-experience>



# CEC Vision for Broad Interoperability

- The CEC issued a statement (last updated in November 2023) outlining a broad interoperability vision of **a future where any driver with any EV can easily charge at any charger on any network.**



- Consistent with the above, the CEC supports a **one-plug future for EV drivers**, particularly in the Light Duty space.



# CEC Position on SAE J3400 NACS

- In **September 2023**, the CEC issued a [statement regarding J3400](#).
  - Acknowledging standardization process
  - Urging for alignment with CCS communications standards and conformance tools (ISO 15118 in particular, including -20 for bidirectional charging)
- In **October 2024**, the [statement was updated](#) following the publication of the Recommended Practice by SAE:
  - RP considered as a “substantially complete specification”
  - CEC to update programs\* to allow both J1772 and J3400 connectors (e.g., REACH 3, FAST, REDWDS, etc.)
    - \*May still require a minimum number of J1772 ports*
  - May fund only J3400 for passenger car chargers, potentially starting mid 2027
  - Continue to monitor market adoption of both EVs and EVSEs natively supporting J3400.
- The CEC may issue additional update(s) and/or revisit timeline based on market evolution.





# CEC Position on J3400 Adapters

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- The CEC **does not** mandate nor prevent the use of charging adapters.
- The CEC monitors the development and evolution of J3400/1 and UL 2252 standards and **may require** that any adapters used by or provided by EVSE manufacturers and/or Charging Station Operators be UL certified for safety purposes.

# Thank You



Vincent.Weyl@energy.ca.gov

# Facilitated Roundtable Discussion

# Topic 1: Market Outlook

- 1) What is the anticipated timeline for the standardization and market readiness of J3400 EVSE products?
  - a) Is there anticipated to a difference in the market supply or developer interest in J3400 EVSE for L2 vs DCFC charging?
  - b) What is the feasibility and/or practicality of retrofitting existing EVSE to a different connector?

# Topic 2: Non-Proprietary Classification

- 2) At this time, which plug types should be considered non-proprietary in the context of Make-Ready Program design?
  - a) Do you consider J3400 to be non-proprietary at this time, given expected timelines for standardization and adoption?
  - b) Should all non-proprietary plugs such as J1772 and CCS continue to be eligible for incentives? If so, at what level and until what point?
- 3) How should Make-Ready Program design reflect the current state of EV deployments and charger availability?
  - a) Should program design differ between L2 and DCFC?

# Topic 3: Automaker Adoption Timelines

- 4) What is the currently anticipated timeline for the adoption of native J3400 charging on future electric vehicle models?
  - a) Have there been any challenges that may impact the currently announced automaker timelines?

# Topic 4: Combined Connectors and Adapters

- 5) What is the current outlook on the use of combined connectors?
  - a) What additional costs are incurred in the installation and maintenance of EVSE with a combined connector in comparison to equivalent non-combined connector EVSE
  
- 6) What is the anticipated role of adapters in the transition to J3400?
  - a) What is the anticipated timeline for the full standardization of J3400 adapters including safety certification and availability on the market?

# Topic 5: Medium- and Heavy-Duty Vehicles

- 7) What are the expectations on the use of J3400 for medium- and heavy-duty vehicle (MHD) charging?
  - a) What is the current outlook on charging in the medium- and heavy-duty market as a whole? Do MHD automakers anticipate coalescing around one connector type?



# Instructions for Submitting Written Comments

- Written comments due on January 22<sup>nd</sup>, instructions to file:
  - Visit the [case search page](#) - enter the case number 18-E-0138 to access the Make-Ready Program Proceeding.
  - Once on the case files page, click on the "Post Comments" button in the upper right-hand corner (below the navigation).
  - You must fill in your name, address and email address to post your comment.
  - You have the option to add an attachment with your comment.

# Next Steps

- Upcoming Make-Ready Program Review (18-E-0138)
- Updates on Medium and Heavy Duty Proceeding (23-E-0070)
- Contact Staff at [EVSE@dps.ny.gov](mailto:EVSE@dps.ny.gov)