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Increasing the Visibility of EV Charging Stations Through Signage and Other Strategies

California Energy Commission
September 6, 2022 | 1:00 p.m.

Jim McKinney
Senior Policy Analyst
Fuels and Transportation Division



Topics

- New Signage for EV Chargers
 - Freeways, highways, and within urban centers
 - Caltrans' role and regulations
- Green Paint on EV Charging Parking Spaces
- CA License Plates with Green Shading or Indicators
- The Clean Transportation Program will allocate up to \$1 million to implement these measures



Agenda

1. Introductions
2. Purpose of Workshop
3. Signage Discussion
 - CEC Introduction to Topic
 - Caltrans and CA MUTCD Regulations
4. Green Paint on EV Charge Spaces
5. License Plates
6. Stakeholder Perspectives and Public Comment



Signage Project Goals

- **Increase Internal Combustion Engine (ICE) Driver Awareness of Existing EV Charging Network Through Expanded Placement of EV Charging Signs**
 - Enhance Consumer Awareness of California's vast charging network and the viability of EV use
 - Decrease Concerns About Range Anxiety
- **Help Meet State Policy Goals for EV Adoption**
 - 1.5 million ZEVs by 2025
 - 5 million ZEVs by 2030
 - Shift to 100% ZEV sales by 2035
 - Current On-Road ZEV Count: 837,887 through Q4 2021
 - Total Cumulative Sales: 1.2 million through Q2 2022
 - ZEVs account for 16.5 percent of new LD vehicle sales



EV Charger Network: Perception and Reality

- **Total Installed Chargers: 78,394***
 - L2: 71,236
 - DC Fast: 7,158
- **Existing Signage Estimates****
 - About 230 total freeway signs
 - About 40 indicate Fast Chargers
- **Significant Imbalance between Chargers and Signs**
 - Fossil fuel drivers do not use on-line charger locator maps. No awareness of large existing charger network. Just physical cues like stations and signs.

In Comparison:
Over 8,000 Retail Gas Stations

* Source: CTP 2022-23 Investment Plan Update

**Source: Caltrans Staff Data



Increasing Interest in Signage

DOE's Alternative Fuel Data Center:

- ‘Signage for electric vehicle (EV) charging stations is an important consideration at workplaces, public charging stations, [and] parking garages. Appropriate charging station signage can:
 - Help EV drivers navigate to and identify charging stations
 - Enable uptake of EVs by providing visibility for charging infrastructure to prospective EV drivers”

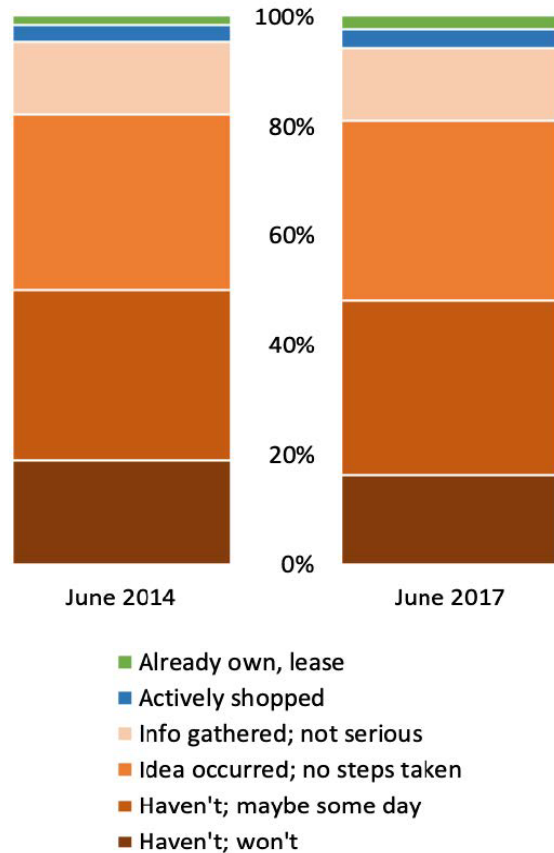
National Electric Vehicle Infrastructure Program – NEVI

- Signage is an authorized use of NEVI funds
- FHWA evaluating how to treat signage in Notice of Proposed Rulemaking for NEVI



Ken Kurani's Attitudinal Survey Research on EV Ownership (UC Davis ITS)

Intent to Buy EV Unchanging



Findings

- More than 50% of California drivers have little to no intent to buy an EV
- Findings holding steady from 2010 to 2020
- Reconfirmed in 2022 Study, *Hoogland et al*
- As consumer awareness of ZEVs grows, *perception* of charging infrastructure grows as well
- Investments to increase consumer awareness and knowledge of ZEVs can complement infrastructure development in growing ZEV markets

Source: "The State of Electric Vehicle Markets, 2017: Growth Faces an Attention Gap." NCST Policy Brief, 2019.



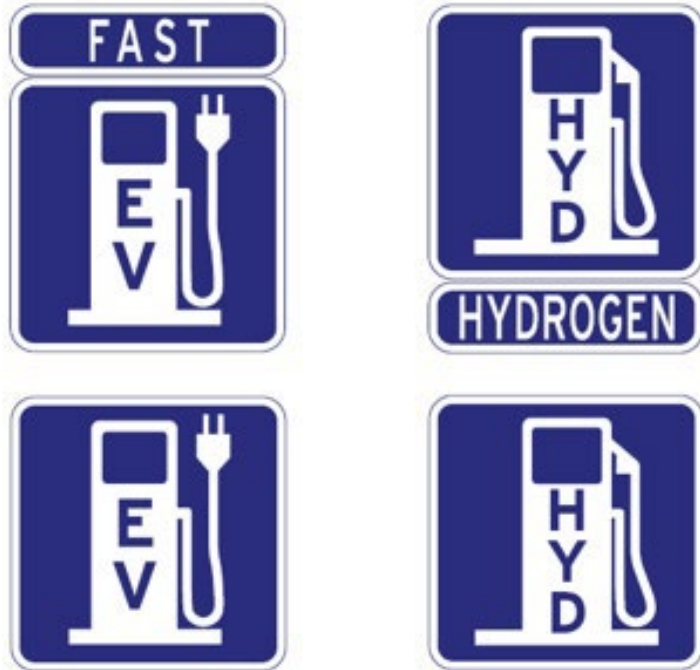
CTP Tools for Signage Augmentation

- **Regional Readiness Grants**
 - Planning grants issued to city and county governments to fund EV and H2 infrastructure planning
 - Could be issued to local governments, EVSPs, or third-party contractors to fund planning and installation of wayfaring signage for previously installed chargers
 - Main tool for retroactive signage
- **Charging Infrastructure Grants**
 - CTP could issue follow-on Regional Readiness-type grants to EVSPs to enable willing grantees to install signs as they develop their charger installation projects.
 - Recipients would need to work with Caltrans for General Service signage opportunities as allowed by Caltrans regulations
- **NEVI DC Fast Charge Stations** are allowed to include signage



Caltrans and FHWA-Authorized Signs

General Service Signs for Freeway Installation



Alt Fuel Corridors



Surface Street Locator Sign





Specific Service Logo Signs





Zero Emission Vehicle Signage

CALTRANS PRESENTATION



Office of Safety Systems & Devices
Division of Safety Programs



Zero Emission Vehicle (ZEV) Signage

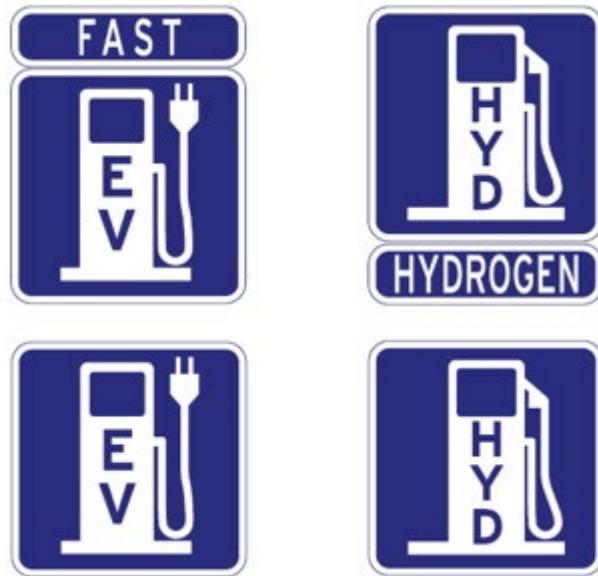
Overview of Policies & Efforts

09/06/2022

Sarah Horn, Chief
Bang Hua, PE
HQTraffic Signs Branch

ZEV Charging Signage Options in the California Manual on Uniform Traffic Control Devices (CA MUTCD)

General Service Signs (CA MUTCD Chapter 2I)



Specific Service Signs (CA MUTCD Chapter 2J)



Caltrans ZEV Signage

General Service Signs - CA MUTCD Chapter 2I

- Provide general information about services and facilities near the highway
- No population requirement. However, the signs are meant for locations where these services are infrequent and not readily apparent from the State Highway System (SHS) (i.e. rural areas or industrial/residential urban areas)
- Eligibility Criteria for Freeways & Expressways:
 - Located within 3 miles of a SHS interchange
 - Available 16 hours per day, 7 days per week
 - If not visible from the off-ramp, trailblazer signs must be installed on the local roads before they are installed on the SHS
- Caltrans pays to install these signs on the SHS
- As of October 2020, ~230 General Service ZEV charging signs installed on SHS for ~40 ZEV Charging Stations



Caltrans ZEV Signage

Specific Service (Logo) Signs - CA MUTCD Chapter 2J

- Provide road users with business identification and directional services in rural areas
- New Logo signs can only be placed in rural areas with populations less than 5,000
- Eligibility Criteria for Freeways & Expressways is the same as for General Service Signs
- Fuel, Food, Lodging, and Camping businesses with a Logo sign may include an EV Charging supplemental message if they meet the eligibility criteria
- The business pays an annual fee for their Logo signs.
 - Each sign costs \$470 per year. Signage in both freeway directions and both off-ramps, for a total of 4 signs, costs \$1880 per year.
- There is currently only one ZEV Logo sign on the SHS at the I-5 / SR-198 interchange near Coalinga.



Caltrans ZEV Signage

Questions?

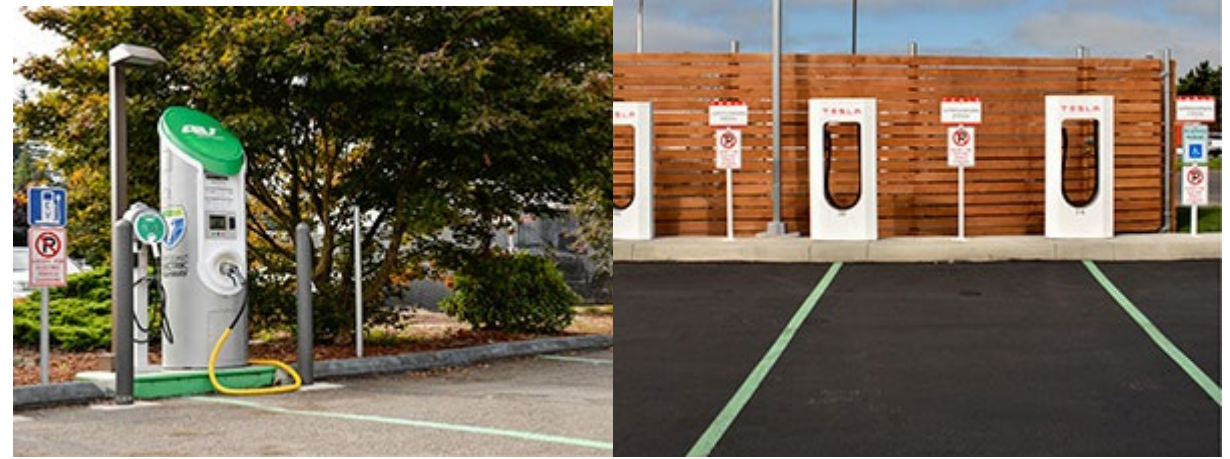


Caltrans ZEV Signage



Green Paint for EV Charge Spaces

- Required by State of Washington. Encouraged in Minnesota and Massachusetts
- Blink: “Similar to signage, painting, or striping, it is intended to bring attention to charging spots for electric vehicles. Green is the paint color of choice and has become the industry standard for EV charging locations.”
- CEC wants to understand pros and cons of using green paint in California



Washington State



Massachusetts



Specialty EV License Plates in the US and Europe

Can They Help Raise EV Visibility in California?



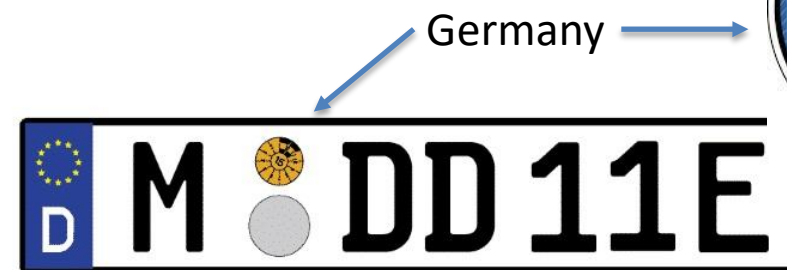
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United Kingdom

MY02 ZR0



Norway



Germany





Questions for Stakeholders

1. Do you have experience or lessons-learned from signage installations with local and state governments in California or other states?
 - A. Have you engaged with any CalTrans District Offices on signage?
 - B. Do you have recommendations on how to increase signage permitting efficiency?
2. Do you have cost data to share from sign installations? When designing a funding solicitation, what cost categories should we consider and what dollar values should we use for the various tasks?
3. How useful would Specific Service signs – with a company logo and name – be to increasing brand value for an EVSP or other EVSE hosting entity?
4. What is your perspective and/or experience with green painted charge spaces?
5. What is your perspective on specialty license plates for California vehicles?



Next Steps

- Written Comments Due: October 14, 2022
- Pre-Solicitation Workshop: Q4, 2022
- Solicitation: Q1, 2023