

California Department of Food and Agriculture, Division of Measurement Standards (DMS)

The DMS promotes accuracy in metering technology and other related fields in weights and measures for both electricity and hydrogen. They work within the national system, and often blaze the trail for other states and the nation to follow.

Equity: Ensure fair and accurate transactions.

DMS ZEV MARKET DEVELOPMENT OBJECTIVES

Objectives	Vehicles	Infrastr.	End User	Workforce
Consumer/Vendor Protection: Establish/enforce fuel quality and weights and measures laws and regulations that meet market needs and ensure accurate pricing and marketplace transparency.	-	Direct	-	-
Workforce Training: Put systems in place to help ensure weights and measures testing does not become a bottleneck in the system.	-	Direct	-	Indirect

- Consumer / Vendor Protection:
 - California Laws and Regulations protect both ZEV owners and businesses that own and/or operate ZEV Fueling Devices. CDFA-DMS continues its ongoing efforts to educate stakeholders about commercial EVSE requirements and enforce ZEV fueling device regulations. The Legislature has charged the California Department of Food and Agriculture, Division of Measurement Standards (CDFA-DMS) with authority to adopt regulations that set the specifications, tolerances, and other technical requirements of all weighing and measuring devices used for commercial purposes in the state, including devices that dispense zero-emission vehicle (ZEV) fuel for commercial purposes. Offering weighed or measured ZEV fuel for a fee qualifies the device as being used for commercial purposes. In 2014, CDFA-DMS promulgated a regulation for hydrogen gas-measuring devices and through rulemaking in 2020 amended it to include expanded device acceptance and maintenance tolerances. Also, CDFA-DMS adopted a regulation for alternating current (AC) and direct current (DC) Electric Vehicle Supply Equipment (EVSE) in 2020. The EVSE regulation has specific phase-in periods for both AC and DC EVSE to lessen the impact to EVSE manufacturers that have already installed these devices. AC EVSE installed prior to January 1, 2021 do not have to comply with the regulation. AC EVSE installed after January 1,

2021 are now required to comply. They require all AC EVSE used for commercial purposes installed after January 1, 2021, to comply.

- CDFA-DMS advocates for, and promotes, California's weights and measures laws and regulations at the national level. For example, the California EVSE regulation is very similar to the national model regulation for EVSE that is still being refined by the National Conference on Weights and Measures (NCWM). California's regulation went into effect in 2021 and is now being enforced across the state by many county offices of weights and measures. CDFA-DMS' expertise and real-world data is relied upon and necessary for the adoption of a permanent model regulation by NCWM. An enforceable regulation in California ensures statewide uniformity in transactions of electricity as a retail motor vehicle fuel. California's fuel-related regulations provide vehicle owners with a basis of value comparison and provides retail businesses a fair and competitive marketplace for electricity, hydrogen, and all other motor vehicle fuel sold in the state.
 - CDFA-DMS also regularly participates with other national and international consensus organizations that develop motor vehicle fuel quality specifications and commercial device specifications, tolerances, and other technical requirements. Such organizations include ASTM International, SAE International, International Organization for Standardization (ISO), International Organization of Legal Metrology (OIML), International Bureau of Weights and Measures (BIPM), and others.
 - CDFA-DMS promulgated a regulation in April 2021 for many device types used for commercial purposes including low- and zero-emission motor vehicle fueling devices. This regulation established the first-ever inspection frequencies for the oversight of hydrogen fueling devices and EVSE, i.e., annual and biennial, respectively. Established inspection frequencies allow state and local officials to determine whether the device is labeled and dispensing fuel correctly, and whether the business is adhering to the officially adopted method of sale and unit prices, e.g., the kilogram for hydrogen dispensers and the kilowatt-hour for EVSE.
- California Type Evaluation Program (CTEP) – Devices placed in service for commercial purposes are first required by law to be type approved by CTEP. CDFA-DMS continues to administer this program and accepts for approval any weighing or measuring device used for commercial

purposes, including those that dispense zero-emission vehicle (ZEV) fuel. Hydrogen fuel dispensers and alternating current (AC) Electric Vehicle Supply Equipment (EVSE) evaluated by this program will have been found to be correctly marked with required labeling and pricing information, are appropriate for their intended commercial use, and provide an accurate delivery of ZEV fuel. All Californians benefit from a commercial fueling device approved by CTEP because it provides for a fair, uniform, and transparent purchasing experience for both the owner of the ZEV and the device owner. Additionally, owners of commercial fueling devices can feel confident they are conducting business in a marketplace that is uniformly regulated statewide, and that other ZEV fueling device owners are also required to comply with applicable laws and regulations.

- CDFA-DMS works closely with each CTEP applicant during the type evaluation process. EVSE devices used for commercial purposes are no exception to the requirement to be type approved. As of December 1, 2021, eleven (11) EVSE manufacturers have received CTEP Certificates of Approval. CDFA-DMS posts copies of issued Certificates of Approval on its website at: <https://www.cdfa.ca.gov/dms/programs/ctep/ctep.html>
- County Offices of Weights and Measures – CDFA-DMS and county officials are required by law to periodically inspect and test all devices used for commercial purposes after they have been placed into service. This oversight of ZEV fueling devices is ongoing and ensures that over time the device is still properly marked and remains accurate with delivering ZEV fuel.
 - Hydrogen Devices and Fuel Quality Testing
 - The California Fuel Cell Partnership (CAFCP) compiles hydrogen station information in a database called CAFCP Station Map. This information is publicly available at: <https://cafcp.org/stationmap>
 - As of December 3, 2021, the CAFCP database reports that there are 48 hydrogen stations currently open for retail sales with 5 more expected to open in the coming months for a total of 53 stations soon to be available to the public. There are an additional 54 hydrogen stations in the planning, construction, or permitting phases of development that are expected to open sometime next year.
 - In cooperation with county weights and measures jurisdictions, CDFA-DMS has inspected, tested, and sealed

hydrogen fueling dispensers for nearly six years. During that timeframe, 61 individual hydrogen dispensers at the 53 possible hydrogen fueling stations have been inspected and sealed statewide.

- CDFA-DMS collected and analyzed 104 hydrogen fuel samples to ensure adequate fuel quality. There is a 100% compliance rate with the hydrogen fuel quality specifications adopted by CDFA-DMS.
- EVSE Devices and Testing
 - The United States Department of Energy compiles EV charging station information in a database called the Alternative Fuels Data Center (AFDC). This information is publicly available at:
https://afdc.energy.gov/fuels/electricity_locations.html#/analyze?fuel=ELEC
 - According to the AFDC, in January 2021 there were a total of 30,349 EVSE in California. As of December 1, 2021, there were a total of 34,835 EVSE. This includes all makes and models of EVSE whether used commercially or not. The data reflects an approximate 15% increase of new EVSE in a one-year period. CDFA-DMS estimates that the majority of EVSE in California are used for commercial purposes and will require continued and increasing weights and measures resources for marketplace oversight.
 - State and county officials have begun inspecting and testing EVSE used for commercial purposes. Since the EVSE regulations became effective in January 2021, county officials have inspected and tested just over 100 EVSE; however, county offices of weights and measures are quickly ramping up their efforts to inspect the ever-increasing number of EVSE.
- Workforce Training:
 - County Offices of Weights and Measures – CDFA-DMS provides recommendations and suggestions in monthly reports to county sealers on how they may register and track certain ZEV fueling devices that are now required to comply with applicable state laws and regulations. CDFA-DMS supports county sealers by providing information and resource links to identify all ZEV fueling dispensers in their jurisdiction such as using the Department of Energy’s Alternative Fuels Data Center website. CDFA-

DMS recommends that county sealers identify and track the AC EVSE that were installed in their jurisdiction prior to January 1, 2021 as those are not required to comply with the regulation until January 1, 2031.

Conversely, CDFA-DMS also recommends county sealers to register any newly installed AC EVSE, using the same data base, as those are now required to comply with the regulation. CDFA-DMS also offers ongoing training courses for county officials on the use of certified EVSE test standards so that as counties acquire their own certified test standards, they will be familiar with its operation and prepared to begin inspecting and testing ZEV fueling devices for both hydrogen and electricity and ZEV fuel. Ensuring county officials are trained will reduce the total time it takes to inspect and test the commercial device. This will allow all Californians to having greater access to approved, properly marked, and accurate ZEV fueling devices.

- Hydrogen Devices and Fuel Quality Testing
 - CDFA-DMS conducted four training sessions regarding hydrogen fueling dispenser testing and fuel sampling techniques with county offices of weights and measures.
 - In Calendar Year (CY) 2021, CDFA-DMS conducted an international training presentation to Norwegian officials regarding hydrogen sampling techniques.
 - In CY 2021, CDFA-DMS coordinated a field study comparing different techniques and equipment needed to analyze and detect particulates in hydrogen fuel that could cause damage to a fuel cell vehicle.
 - In CY 2021, CDFA-DMS conducted a two-day presentation for officials from Measurement Canada, the federal agency responsible for weights and measures enforcement in that country. Topics included California's enforcement and testing of commercial EVSE and hydrogen devices, a tour of CDFA-DMS' metrology, fuel quality, and type evaluation laboratories, and a hydrogen fuel sampling demonstration at a retail station.
- EVSE Devices and Testing
 - In CY 2021, CDFA-DMS conducted eight training sessions on EVSE testing with officials from 15 county offices of weights and measures.
 - During CY 2021, CDFA-DMS developed a draft EVSE training video for county officials to learn how to inspect and test EVSE.

- In CY 2021, CDFA-DMS produced an EVSE Frequently Asked Questions document (FAQ) with information about the EVSE regulation including enforcement dates; instructions for using the AFDC database; type approval and inspection and testing requirements; and information about Registered Service Agency (RSA) Program requirements for installing and repairing EVSE used for commercial purposes.
 - In CY 2021, CDFA-DMS secured funding from the California Energy Commission to add five new EVSE field test standards to its current inventory of two. The field test standards will facilitate training of more county officials; they will be made available to county offices of weights and measures for the testing and sealing of EVSE used for commercial purposes.
- Registered Service Agencies – CDFA-DMS continues to engage in outreach efforts by letter and email to current and potential installers of ZEV fueling devices used for commercial purposes. The outreach efforts serve as educational training to the industry of applicable laws and regulations. The outreach efforts also serve to notify potential entities that they may be required by law to be registered with CDFA-DMS to legally place a ZEV fueling device into service for commercial purposes or perform repairs on it.
- In CY 2021, CDFA-DMS reinstated its RSA Advisory Committee. The Committee is made up of seven members who represent the device repair industry, state and county officials, and the public. The Committee’s primary purpose is to advise CDFA of all matters pertaining to the RSA Program administered by CDFA-DMS. The Committee is also a venue to discuss ideas to improve the RSA Program and State processes. Information regarding the RSA Program and RSA Advisory Committee meetings is available at: <https://www.cdfa.ca.gov/dms/programs/rsa/rsa.html>