CCEA & CALSTART ZEV FLEET OPTIONS

April 2024

CALSTART IS A MEMBERSHIP ORGANIZATION

CALSTART UNIQUE VALUE PROPOSITION

Science-based targets

300+ members

Market-leading CA programs

HVIP
CORE
COMMUNITIES IN CHARGE
Clean Mobility Options
EnergIIZE

CALSTART

Market -transforming pilots and programs beyond CA

Guidance to policymakers and regulators

CALSTART

TECHNOLOGY DEVELOPMENT

CALSTART develops and organizes competitive project teams around strategically important technologies to help fund and speed their commercialization.

ASSESSMENT & VALIDATION

CALSTART provides trusted, third-party performance analysis and evaluation of clean vehicles, technologies, and fuels.

MARKET ACCELERATION

CALSTART advises governments and agencies in developing incentive programs supported by fleets and industry to encourage the adoption of advanced technology vehicles and fuels.

PUBLIC POLICY

CALSTART supports industry stakeholders in government to develop and implement public policies that advance the clean transportation technology industry.

MEMBER SUPPORT

CALSTART seeks out and fosters partnership opportunities among our members as well as assistance in obtaining grants and funding.

NETWORKING

CALSTART hosts meetings and conferences so that our members may connect with like-minded professionals and leaders in the industry.

Advanced Clean Fleets Review

- Affects medium- and heavy-duty vehicles – over 8,500 lbs GVWR
- Works in tandem with Advanced Clean Trucks regulation
  - ACT ensures ZEV trucks will be available for sale
  - ACF ensures ZEV trucks contribute to state's climate and public heath goals
- 4 Components to Regulation
  - Manufacturers may only sell ZEV MHD starting in 2036
  - Drayage fleets - may only register ZEV in registry starting Jan 1, 2024
  - High-Priority and Federal Fleets - must purchase only ZEV starting Jan 1, 2024 or follow Milestone Option
  - **State and local agencies – must purchase 50% ZEV starting Jan 1, 2024 and 100% ZEV starting Jan 1 2027**
- All regulated fleets have reporting requirements

High Priority and Federal Fleets

Affected businesses

- Fleets with 50+ vehicles, including common ownership and control
- Fleets with >$50 million in annual revenue
- Federal government fleets
- Entities that hire or dispatch fleets

Affected vehicles

- Class 2b-8 vehicles
- Off-road yard tractors
- Light-duty delivery vehicles

Advanced Clean Fleets:
State and Local Government Agency Fleets

- Affects cities, counties, public utilities, special districts, local agencies, and public agencies in CA that own, lease, or operate at least 1 vehicle with a GVWR >8,500 lbs
- Starting Jan 1, 2024, required to purchase at least 50% ZEV per calendar year and report fleet to CARB
  - Low-population counties do not have to comply with 2024 50% requirement
- 100% ZEV purchases starting Jan 1, 2027
  - Near-zero-emissions vehicles (as defined in ACF) counted as ZEV until 2035 model year
- No requirement to remove or retire existing vehicles that are otherwise compliant
- Certain vehicle types are exempt--examples include school busses, emergency vehicles, and snow plows
- May choose to permanently use ZEV milestone option until Jan 1, 2030
  - Allows flexibility to phase-in vehicles based on suitability and fleet ZEV percentage
  - Must Opt-in, cannot switch back afterwards
  - May require fleet to remove or retire vehicles to meet milestones

ZEV Purchase Schedule

2024-2026

50% of purchases must be ZEV or NZEV

January 1, 2027

All purchases must be ZEV or NZEV

- Government fleets in designated counties and small government fleets with 10 or fewer trucks exempt until 2027
- May use exemptions and extensions

ZEV model year schedule

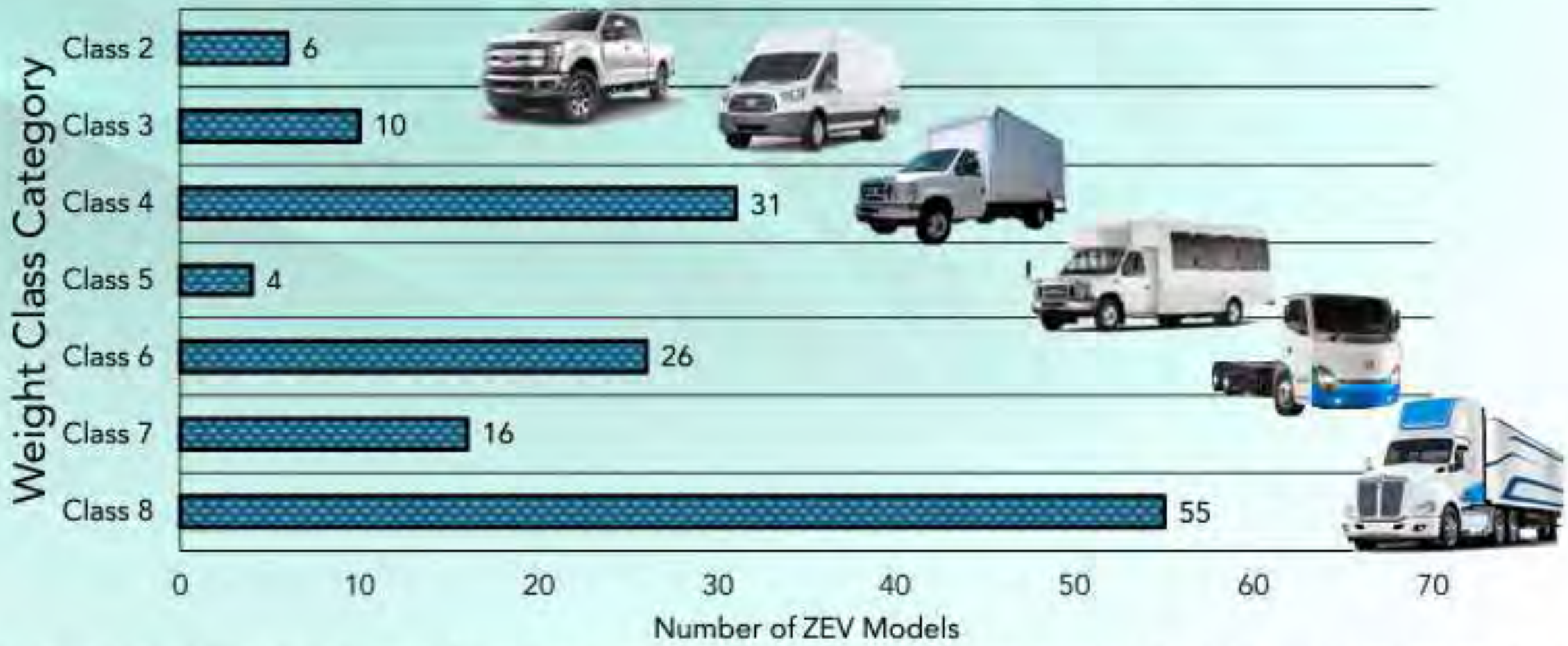
- State and local government agencies that own, lease, or operate MDHD trucks must ensure that:
  - 50 percent of new truck purchases between 2024 and 2026 are ZEVs
  - From 2027 onward all purchases are ZEVs
- Specific counties and agencies with fewer than 10 vehicles are exempt.
- Internal combustion engine (ICE) vehicles do not need to be retired.
- Benefits: Compliance is relatively straightforward; this option is the default compliance option.
- Challenges: This option is not as flexible as the ZEV milestones option; it does not allow for ICE truck additions after 2027 and treats all trucks equally regardless of size (it is generally recognized that it is easier to electrify smaller trucks today given battery size and charging needs).

ZEV milestones (easier to use incentives)

- Requirement: Fleet composition must meet specific percentage targets based on the vehicle configuration and model year.
- Benefits: Compliance can be achieved incrementally; fleet operators do not need to convert 100 percent of their new vehicles to ZEVs from 2027 onward (instead, they must hit ZEV fleet composition percentages).
- Challenges: Fleet operators must meet their ZEV percentage targets, even if it means retiring ICE vehicles before they hit the end of their operational life.

Percentage of vehicles that must be ZEVs	**10%**	**25%**	**50%**	**75%**	**100%**
Milestone Group 1: Box trucks, vans, buses with two axles, yard tractors, light-duty package delivery vehicles	2025	2028	2031	2033	2035 and beyond
Milestone Group 2: Work trucks, day cab tractors, pickup trucks, buses with three axles	2027	2030	2033	2036	2039 and beyond
Milestone Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042 and beyond

ZEV Models in United States



135 models already delivered to fleets, 148 different models are available to be ordered/pre-ordered,

CARB More than 500 ZEV models available worldwide as of October 2022

Advanced Clean Fleets: Municipal Fleet Flexibility Options

- Milestone Option
- Selected Exceptions
  - ZEV purchase
    - Vehicle not available in needed configuration
    - Pre-approved CARB list available 2025
  - Daily Usage
    - Vehicle not available that can meet duty cycle needs
  - Infrastructure Delay
    - For projects started at least 1 year prior to compliance deadline
  - Vehicle Delivery Delay
    - For vehicles ordered at least 1 year prior to compliance deadline
  - Backup Vehicle
    - Vehicles travelling less than 1,000 miles a year
    - Must be designated in TRUCRS
    - Miles traveled to support declared emergencies do not count
  - Mutual Aid
    - May request to exclude up to 25% of fleet
    - Only available after first 25% of fleet is ZEV
    - Not granted for if available vehicles are capable of fast charging/fueling
  - Intermittent Snow Removal Vehicle
    - Available until Jan 1, 2030
    - Vehicle must be equipped with plow or snowblower and be designated by CARB
  - Waste and Wastewater Fleet
    - When complying with milestone option, may defer compliance for certain biomethane-fueled CNG vehicles until 2030

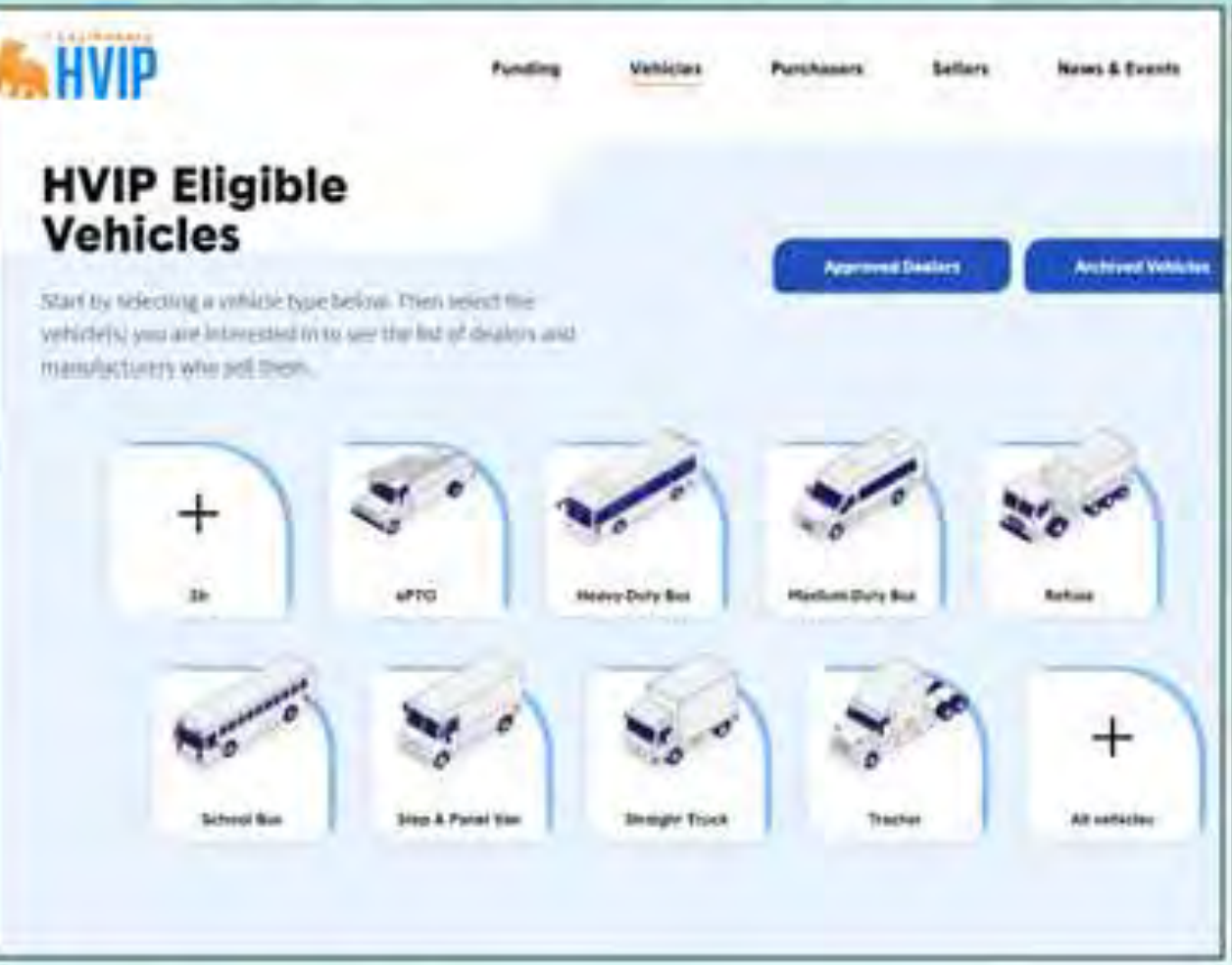
Popular Incentives

- HVIP & CORE
  - Cash-on-the-hood voucher discount. Applied for and paid to the dealer. No Scrappage requirement. Administered by CALSTART
- Carl Moyer & VW Diesel Fund
  - Grant applications and competitive selection administered by air districts, scrapping an ICE vehicle required.
- Tax Credits
  - Can be direct pay for those without tax liability. $40k for commercial vehicles.

Vehicle Resources

californiahvip.org/vehiclecatalog

globaldrivetozero.org/tools/zeti



FY23-24 VOUCHER FUNDING AMOUNTS

Vehicle Weight Class	HVIP Base Voucher
Class 2B	$7,500
Class 3	$45,000
Class 4-5	$60,000
Class 6-7	$85,000
Class 8	$120,000

Modifier Type	Modifier Amount
Class 8 Drayage Truck	+25%
Refuse Truck	+25%
Disadvantaged Community	+15%
Class 8 Fuel Cell	+100%

- HVIP Base Voucher is doubled for small fleets
- Last year that HVIP will be available to large (private) fleets
- Port of Long Beach/Los Angeles available for drayage fleets

Check out www.californiahvip.org/ for the latest information and updates!

CALSTART

CALIFORNIA HVIP

Municipal Fleets: Challenges and Opportunities

Challenges

- Budgetary approval
- Specialty vehicles
- Strict purchasing process
- Staffing/Resources

Opportunities

- State contract pricing
- Incentive programs
- Federal “Direct Pay” program

All Fleets: Best Practices

- Contact utility early
- Use incentive programs before regulatory requirement
  - CARB generally incentivizes proactive steps, not compliance
- Select most cost-effective charging option that still gets the job done
- Review duty cycle - can changes be made to reduce charging/payload/range needs and still meet requirements?
- Check public charging/fueling options
  - Opportunity Charging during driver breaks, loading stops

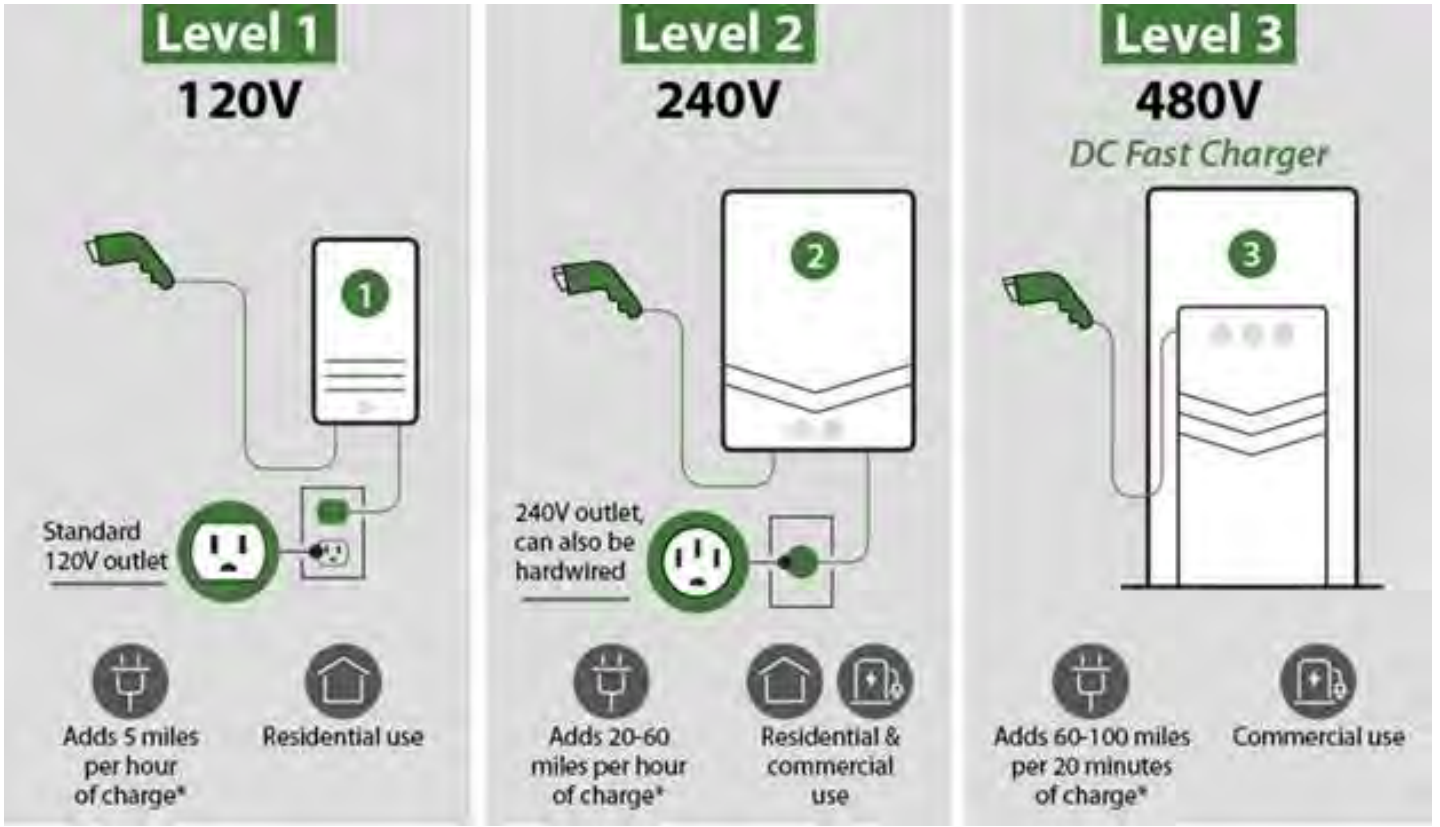
ZEV Fuels
Battery-Electric vs. Hydrogen Fuel Cell

- **Battery Electric MHD Vehicles**
  - Typically weigh more
  - Lower payload capability
  - From 1-10 hrs to charge
  - Typical Range 100-250 miles
  - Less expensive to purchase and fuel than Hydrogen

- **Hydrogen Fuel Cell MHD Vehicles**
  - Weigh more than diesel, but less than BEV
  - Standard payload capability
  - ~20min fueling time
  - Range up to 400 miles
  - More expensive to purchase and fuel
  - Hydrogen sourcing concerns

ZEV Charging Considerations

- Cost
- Power supply (240v/480V)
- Electric rate structure
- Quantity of vehicles
- Time of use
- Sequential vs simultaneous
- Duty Cycle



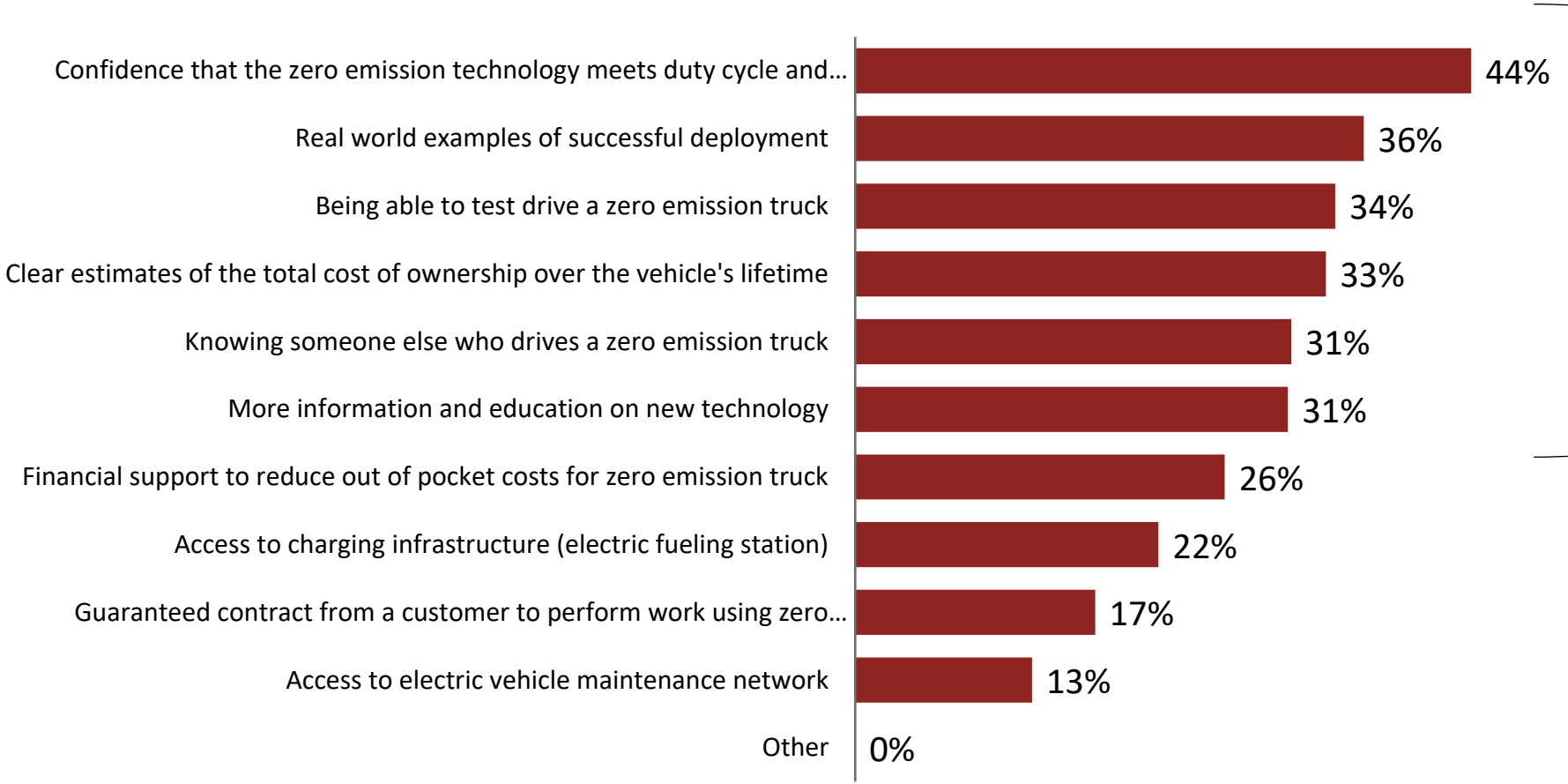
Graphic from https://www.aedesign-inc.com/blog/2021/9/23/ev-charging-101

CAL FLEET ADVISOR

- Administered by CALSTART on behalf of CARB
- Funded by HVIP
- Provide Technical Assistance to all California MHD fleets
- Prioritize small fleets, drayage, and disadvantaged communities
- Collaborative approach to fleet assistance – learn about fleet needs and provide fleet-specific advice

CAL FLEET ADVISOR

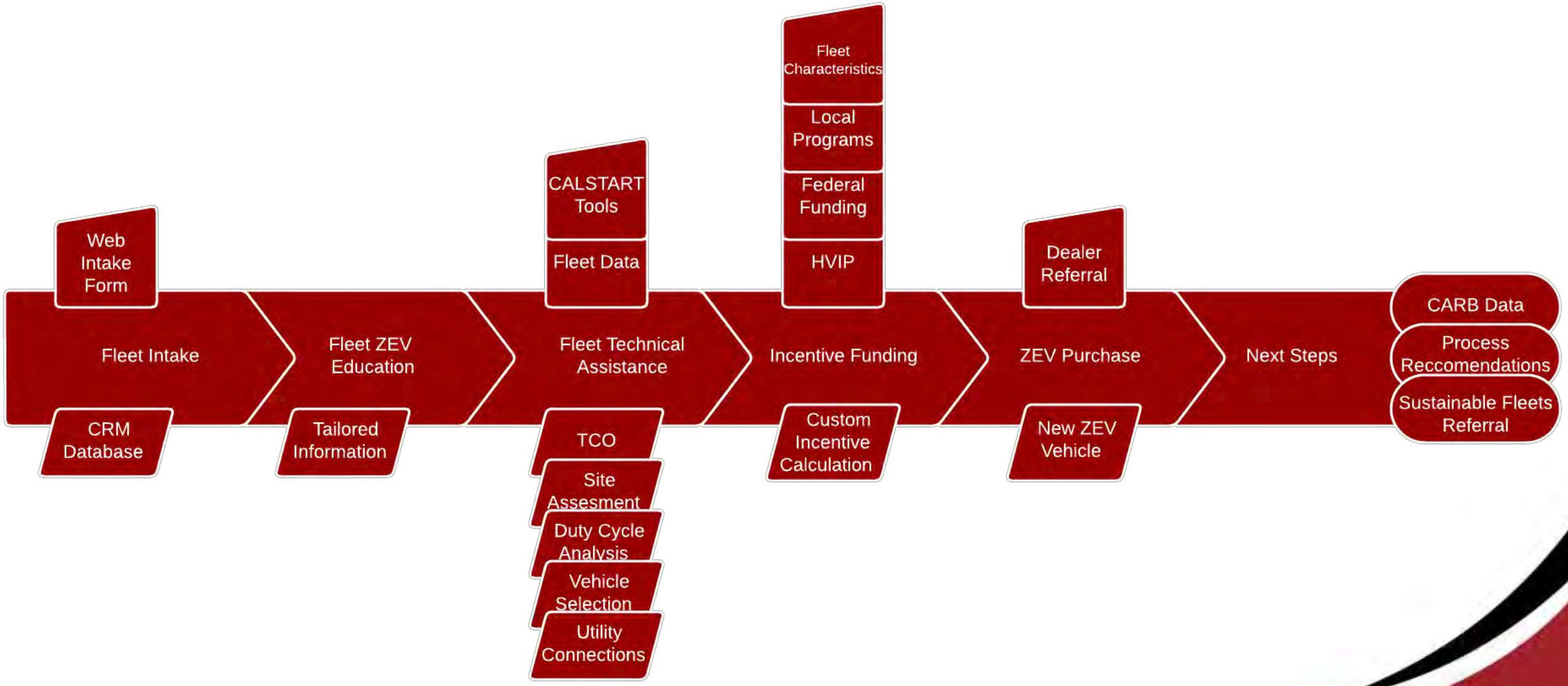
Over 400 small fleets were asked "which of the following would help you feel more comfortable adopting a zero-emission truck? The results:



CFA educational content and concierge services address small fleets top 6 barriers to ZET adoption

Source: March 2022 the NGO Dream Corps Green for All published a report that focuses on the role that small fleets play in the Zero-Emission Trucks (ZETs) transition. Green for All evaluates 446 digital survey responses from small fleets

CAL FLEET ADVISOR PROCESS OVERVIEW



HOW WE HELP

- Provide concierge-style assistance to help fleets overcome electrification challenges
- Address fleet's specific needs – not a one-size-fits-all approach
- Focus on straightforward solutions to stated issues
- Apply lessons to future fleet assistance
- "Everything they need, and nothing they don't"

Benefits to Fleets

- Gain an understanding of how they can benefit from ZEV transition
- Access to financial, infrastructure, and logistical tools that can help the fleet make informed ZEV purchases
- Learn from experts in ZEV transition on incentives, technology, and regulations
- Get quick answers and referrals to:
  - Dealers
  - Utilites
  - Regulation resources
- Access to incentive funding & HVIP guidance

QUESTIONS?

THANK YOU

We change transportation for good.