

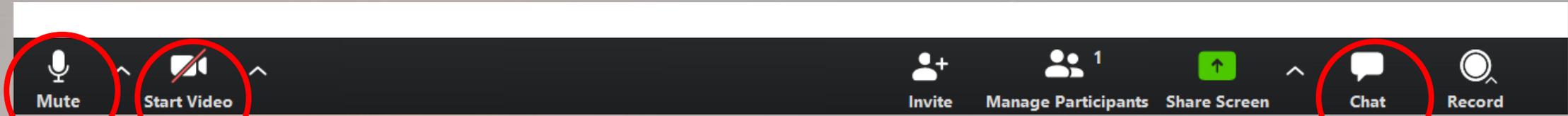


CA Electric School Bus Working Group

Prepared by CALSTART

January 11, 2022

Zoom Logistics

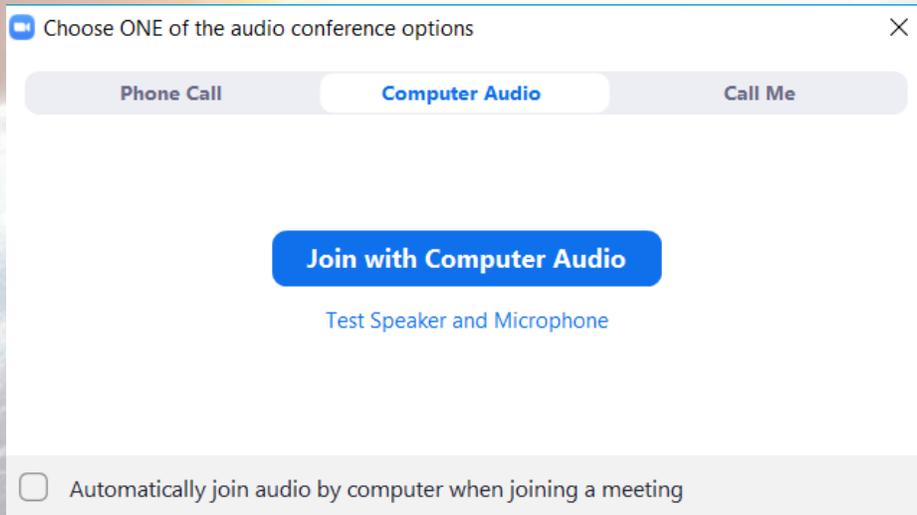


All participants should be muted, unless speaking.

All participants should have their video turned off, unless speaking.

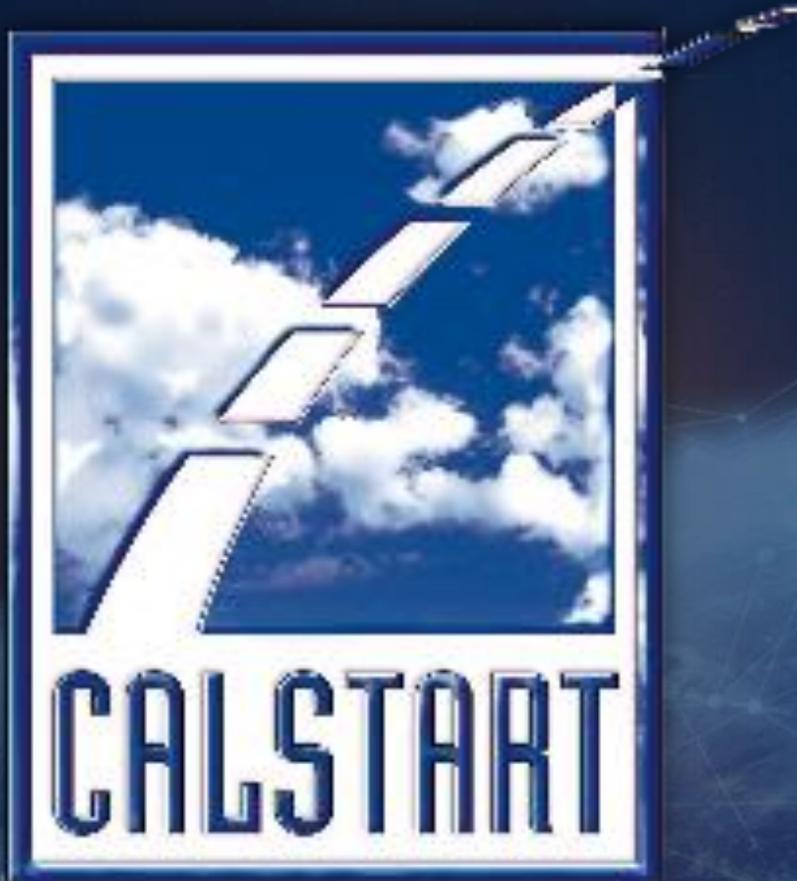
If you have questions, you can use the chat function.

If you dial-in from a phone, use the meeting ID and passcode from invite



Meeting ID: 825 4156 1728
Passcode: 711461
Mobile: +16699006833,,82541561728# (San Jose)
Dial by your location
+1 669 900 6833 US (San Jose)
877 853 5247 US Toll-free
888 788 0099 US Toll-free

Introduction to Working Group



Agenda

- CALSTART Intro
- Problem
- Solution
- Roadmap
- CARB
- CALSTART
 - What is a working group?
 - Provides education, support and peer-to-peer feedback regarding the planning, procurement, and deployment of electric school bus
- Sustainable Fleets



What is CALSTART?

CALSTART works with businesses and governments to grow the clean transportation technology industry. CALSTART focuses on five key initiative areas in which to make change happen:



Cars



Trucks



Buses



Innovative Mobility



Fuels

CALSTART engages in five key activities to advance the clean transportation market in key industry sectors:



Technology
Development &
Demonstration



Assessment
& Validation



Market
Acceleration



Industry Services



Public Policy

CALSTART's 295 + Member Companies and Organizations

(PARTIAL LISTING)

Making Clean Transportation Happen

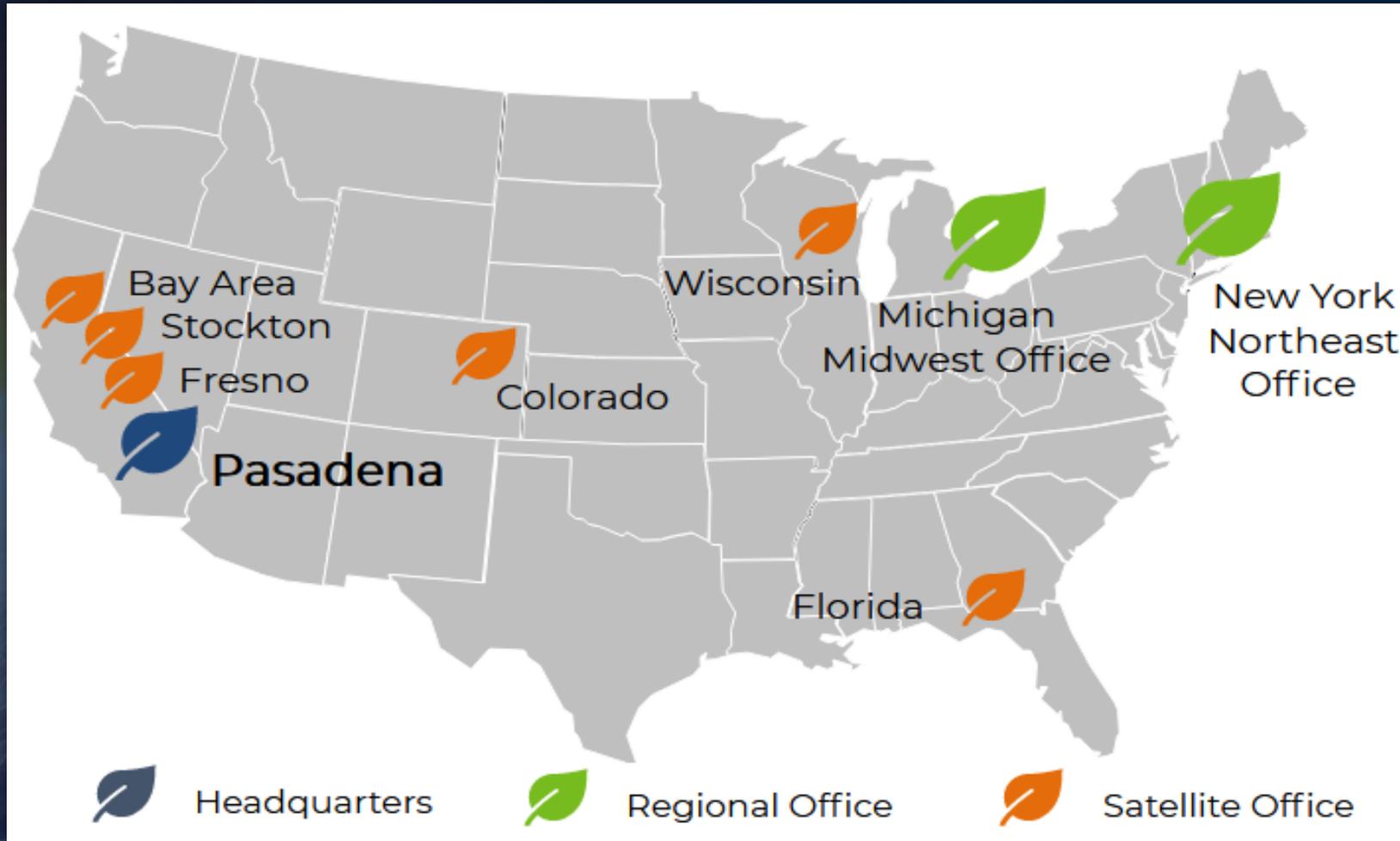


The image displays a comprehensive grid of logos for 295+ member companies and organizations. The logos are arranged in approximately 15 rows and 15 columns. Notable logos include:

- EDISON INTERNATIONAL**: Energy for What's Ahead™
- BAE SYSTEMS**
- CHARGEPOINT+**
- FORD**: NEW FLYER OF AMERICA
- UPS**
- VOLVO**: Volvo Group North America
- CATERPILLAR**
- TOYOTA**
- GM**
- TESLA**
- AMERESCO**: Green + Clean + Sustainable
- ACHATES POWER**
- HYLIION**
- EMPEROR**
- ORANGE EV**
- ACE PARKING**
- CAL STATE LA**
- CIVIC PROJECTS**
- UNITED STATES POSTAL SERVICE**
- E-BUS**
- LADOT TRANSIT SERVICES**
- CHANGE**
- FIRST PRIORITY**

Other logos include Westport, BAE SYSTEMS, Union of Concerned Scientists, Southern Company, Pepsico, Volvo Power Group, Valley Pacific, Eaton, Altec, BYD, Gentherm, Rino Trucks, Hoist Lifttruck, Sevcon, Caterpillar, Meritor, FedEx Express, Toyota, AxleTech International, GM, US Hybrid, Cummins, Allison Transmission, Black & Veatch, Siemens, Plug Power, SDGE, FPL, AxleTech International, GM, US Hybrid, PG&E, Cummins, Daylight, Toshiba, Harris, Golden Gate Petroleum, Eberspächer, Audi, Mountain Transit, Greencommuter, Volvo, Envera, FritoLay, B, H, X, Advanced Vehicle Manufacturing, EMP, Purolator, Efficient Drivetrains, Inc., Hydrogenics, Bollinger Motors, Emerald Automotive, Adomani, Proterra, Hyliion, Oberon Fuels, SARTA, UTS, Cerritos College, Foothill Transit, EBG Resistors, ART, SF Environment, ITRI, Emerald, SunLine, e-Traction, MTD Santa Barbara, New Eagle, Concord Miniceman Solutions Group, MST Monterey-Salinas Transit, Sorbus Transit, I X OAK, Orange EV, Tri Delta Transit, GP GreenPower Bus, Sturman, Effenco, VAVTA, Clean Cities, UTA, Ace Parking, Sacramento Metropolitan Air Quality Management District, Cal State LA, Civic Projects, United States Postal Service, Ebus, Ladot Transit Services, Change, and First Priority.

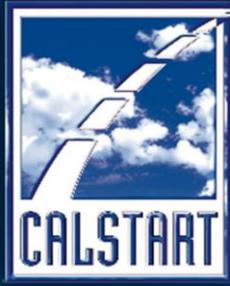
A GLOBAL ORGANIZATION Transforming Transportation for Good



Why Electric School Buses?

- A diesel school bus will emit 90 tons of carbon dioxide into the atmosphere
- Diesel emissions were shown to generate a “severe wheeze” among children
- By eliminating exhaust exposure, annual absences could be reduced by 14 million incidences across the United States

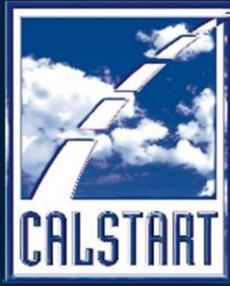




The Electric School Bus Market

- California has 850 ESBs deployed, ordered, or funded
- Type C bus models are the most prevalent ESB model
- ESBs cost 300 percent more than an equivalent diesel-powered school bus
- Funding opportunities specifically designed for ESBs have been integral to the advancement of adoption across the United States

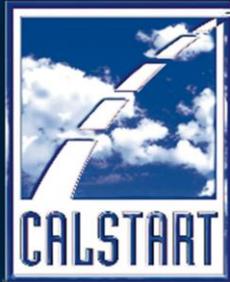
Bus Type	Passenger Capacity	Bus Range	Manufacturers	Cost Estimate
Type A	16-20	100-150 miles	Lightning eMotors, Lion Electric, Micro Bird, Motiv Power Systems, Phoenix Motor Cars	\$265,000-\$450,000
Type B	20-30	NA	NA	NA
Type C	60-72	100-120 miles	Blue Bird, IC Bus, Lion Electric, Thomas Built	\$300,000-\$400,000
Type D	72-90	120-155 miles	Blue Bird, BYD, GreenPower Motor Company, Lion Electric	\$345,000-\$410,000



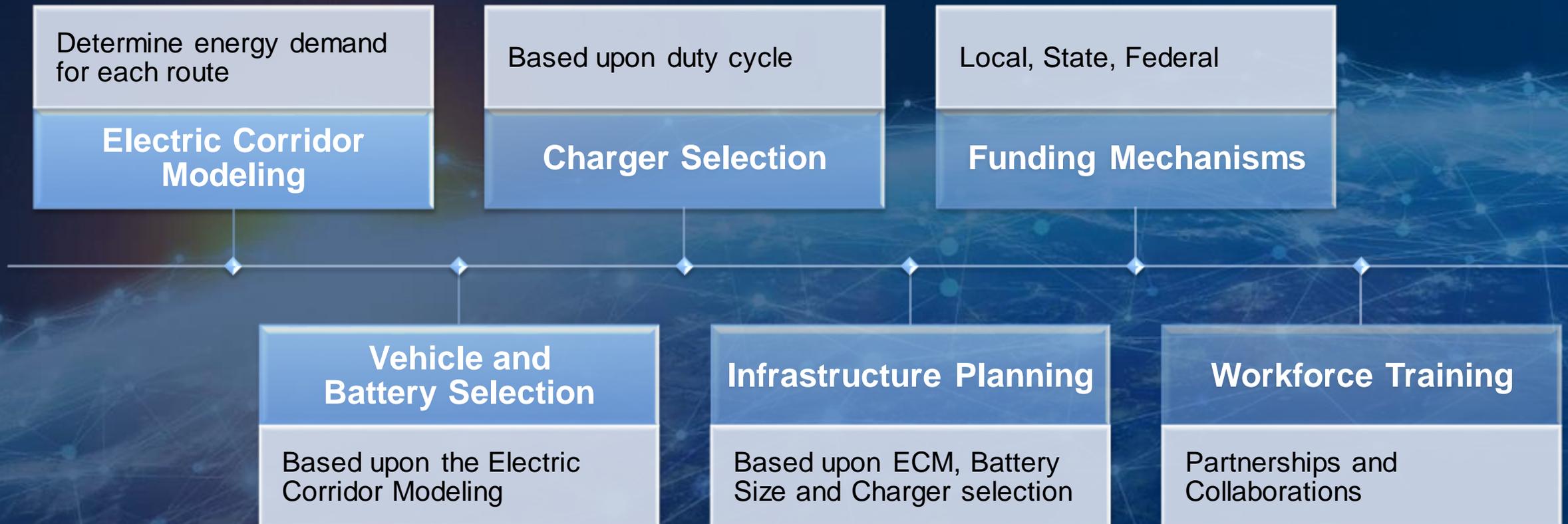
Twin Rivers School District

- The Twin Rivers Unified School District is one of the first ESB demonstration projects in the United States
- Twin Rivers currently has 40 ESBs (deployed, ordered, or funded)
- ESBs financed through funding from CARB, CEC, and Sacramento Air Quality Management District





ESB Deployment Planning Roadmap



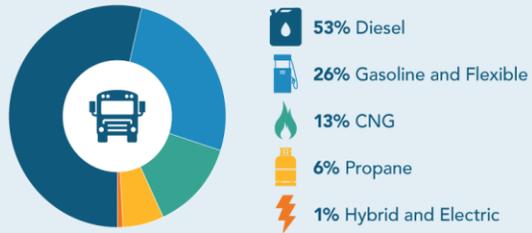
Special Guest - CARB



Heather Choi
Mobile Source Control Division

2021 CALIFORNIA SCHOOL BUS UPDATE

SCHOOL BUS POPULATION ~24,100 (BY FUEL TYPE)



ZERO-EMISSION SCHOOL BUSES

318
on the road
and growing



Funding
allocated for
1,167
zero-emission
school buses

FUNDING ALLOCATED FOR SCHOOL BUS CLEANUP



Since July 2020
\$110M
Spent or Allocated to
School Bus Cleanup



In June 2021, the
Legislature approved
\$450M
to replace
1,000
dirty school buses in rural
areas of the state over
3 years
with zero-emission school
buses and infrastructure.

MEETING THE GOVERNORS ZEV EO



Turnover of all publicly owned
school buses over the next
24 years
at a rate of
4%
turnover per year would
require an investment of
approximately up to
\$260M
annually (not including
infrastructure costs, total
cost of ownership savings,
or additional training/support).

SEPTEMBER 23, 2020
Governor Newsom's
Executive Order N-79-20:
CARB would develop
regulations to mandate that
all operations of medium- and
heavy-duty vehicles shall be
100%
percent zero-emission by
2045
where feasible.





CALSTART

SUSTAINABLE FLEET

ACCREDITATION PROGRAM



Program Overview

- Program Goal
 - Accelerate zero emission vehicles and low carbon fleet operations
 - Sets objective, meaningful standards and guidelines for fleets
 - Flexible enough for those looking to start a sustainable fleet program or for those looking to improve their already successful program on reducing environmental impact and improving their bottom line
 - Provide resources for fleets to achieve their evolving sustainability goals
- Accreditation process



Scoring



Scoring Categories



Mandatory Submissions by Fleets for Accreditation



Accreditation Levels



- Platinum and gold ranking puts fleets on Zero Emissions Fleets to Hire List
 - Advanced Clean Fleets (ACF) compliant & voluntary fleets meeting ACF standards automatically reach Gold
 - Platinum reserved for fleets going above and beyond
- Silver and bronze fleets are on their way to meeting ACF zero emission vehicle targets but will not be recognized for Zero Emission Fleets to Hire List
- Committed fleets are signed up and have submitted a sustainable fleets plan as well as baseline and reporting year data but don't score high enough for bronze level



CARB Advanced Clean Fleets Rule and the 'Zero Emission Fleets to Hire List': How They Work Together



- ACF compliant and voluntary fleets align with the California Air Resources Board (CARB) on Advanced Clean Fleets (ACF) zero emission vehicle percentage requirements
- School Buses are not required in ACF but the Sustainable Fleets program will still recognize you if you meet the ZEV percentage targets and benefit you
 - Access to resources and tools
 - Zero Emission Fleets to Hire List



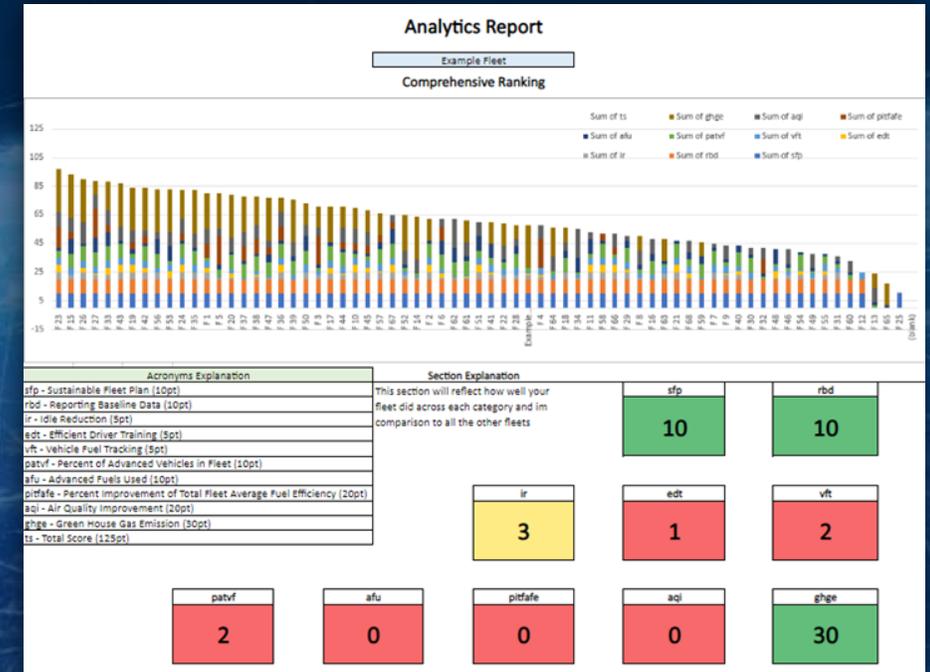
- Zero Emission Fleets to Hire List
 - Platinum or Gold accredited fleets
 - Meeting or exceeding ACF zero emission percentage targets
 - Hiring entities will use this list to view and hire 'Zero Emission' fleets
 - Gain recognition from the program for earning a platinum or gold level accreditation

Percentage of Fleet that Must be ZEV	10%	25%	50%	75%	100%
Box trucks, vans, two-axle buses, yard trucks	2025	2028	2031	2033	2035
Work trucks, day cab tractors, three-axle buses	2027	2030	2033	2036	2039
Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042

Resources and Tools Available to Accredited Fleets



- Fleet resources and tools
 - Report card and feedback
 - Analytics compares fleet to 3 “similar” fleets
 - Provides insight on future fleet planning
 - Directs fleets to resources and other helpful knowledge products
 - Infrastructure guidance documents
 - Total Cost of Ownership Estimator
 - Funding Finder
 - NAFA Sustainable Fleet Manager certification course
 - EDF electrification guide
- Accreditation Package
 - Certificate and recognition through program
 - Stickers for clean vehicles
 - Digital sticker and ESG language
 - Registration in Zero Emission Fleets to Hire list for Platinum and Gold Level accredited fleets



Look Out For:



- Accepting applications in Spring 2022
- Announcement Summer 2022
- Limited sponsorship to cover costs of accreditation will be available for California Fleets only

<http://sustainablefleets.org/>

CALSTART
SUSTAINABLE FLEETS
ACCREDITATION PROGRAM

Sustainable Fleets About Accreditation Contact CALSTART NAFA Apply Now!

Sustainability is Already Part of Your Fleet DNA.
It's time to Get Credit for It. Become a CALSTART Sustainable Fleet.

For more information or questions contact Tracy Tilley - ttilley@calstart.org



Thank you!

CALSTART

January 11, 2022

Summary

- **WG is a peer-to-peer, recurring meeting that will bring together school districts to discuss and troubleshoot ESB deployments**
- **CARB Set Aside**
 - **Meeting 1/13/2022 - 9AM – 12 PM**
 - **Registration Link on CARB's website**
- **Next WG Topic – ESB Manufacturers**
- **Tentative Date – February 9, 2022**