

School Bus Replacement Program



Advanced Fuels and Vehicle Technologies Office
Fuels and Transportation Division
California Energy Commission
March 23, 2021



Program Components and Funding

Three complementary funding components

- School Bus Replacement: to replace the oldest, dirtiest diesel school buses with battery electric school buses - \$75 million (SB 110) (99.8% encumbered)
- Charging Infrastructure - \$14 million (Clean Transportation Program) (100% encumbered)
- Workforce Training - \$1 million (Clean Transportation Program) (100% encumbered)



Recipient Criteria

- Eligible applicants: school districts, county offices of education, and joint power authorities
- Priority given to the oldest school buses, school buses operating in disadvantaged communities, and to schools with fifty percent or more students eligible for free or reduced-price meals in the prior year
- Any replaced school bus must be scrapped



School Bus Requirements

Battery Range

- Type A – 70 Miles
- Type C and D – 100 Miles

Seating Capacity

- Type A – 16 Students
- Type C – 44 Students
- Type D – 70 Students

Vehicle-to-Grid (V2G)

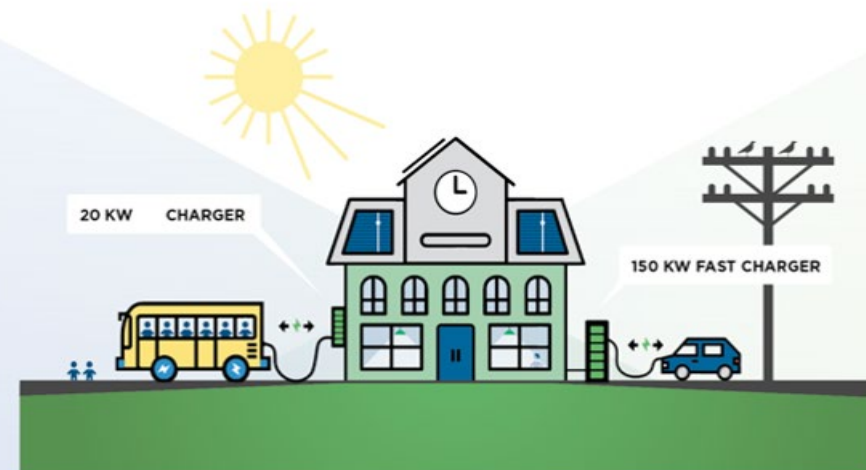
- Bi-directional Charging

VGI- and V2G- enabled electric school buses can benefit schools, the grid, and the environment in several ways:

Using smart chargers, enabled buses can charge during off-peak hours, which can provide schools cost savings while taking advantage of underutilized renewable energy.

Enabled buses can store energy, serving as a reserve power supply for school during emergencies or during peak hours, providing schools cost savings and grid resilience.

Because these zero-emission buses can charge during off-peak hours, and store energy for later use, they can reduce demand on the grid during peak hours, further cutting emissions by reducing need for peaker plants.





Manufacturers Awarded

Awardees

- A-Z Bus Sales, Inc.
- The Lion Electric Co.

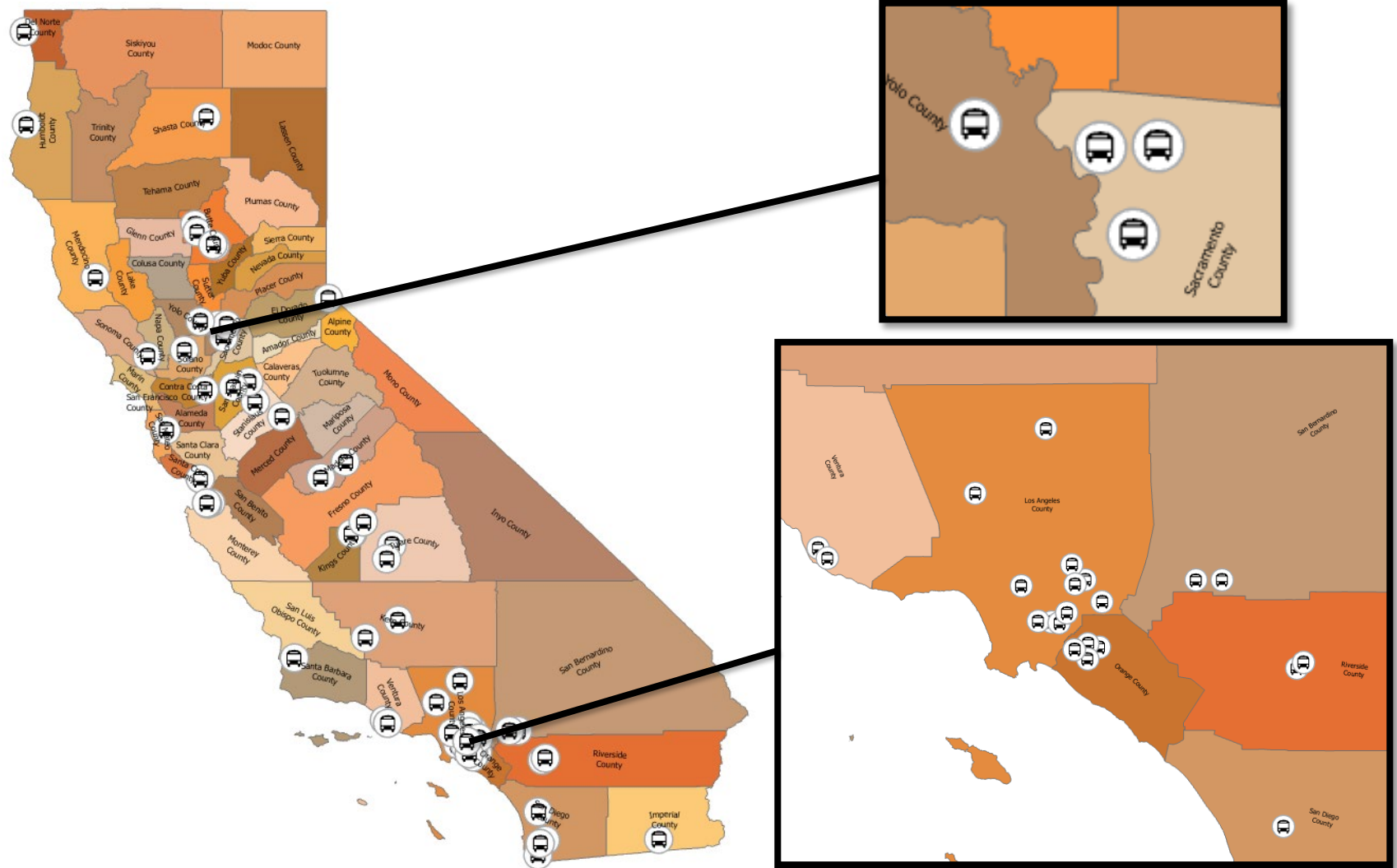
Applicant	Type of Bus	Bid
The Lion Electric Co.	Type A without Chair Lift	\$271,389
A-Z Bus Sales, Inc. (Micro Bird)	Type A with Chair Lift	\$293,424
The Lion Electric Co.	Type C without Chair Lift	\$321,184
The Lion Electric Co.	Type C with Chair Lift	\$329,627
The Lion Electric Co.	Type D without Chair Lift	\$332,009
The Lion Electric Co.	Type D with Chair Lift	\$339,370



Distribution of Recipients

Recipients

- 62 Recipients
- 235 Buses Replaced
- Regional Awards
 - North (59)
 - South (57)
 - Central (58)
 - Los Angeles (61)
- \$18.75 million distributed regionally





Delivery Timeline

Bus Delivery Schedule	
Cumulative Percentage of Delivered Buses	Delivery Date
5%*	12/31/2019
25%*	12/31/2020
50%	12/31/2021
100%	9/30/2022

*Delivery Target Met



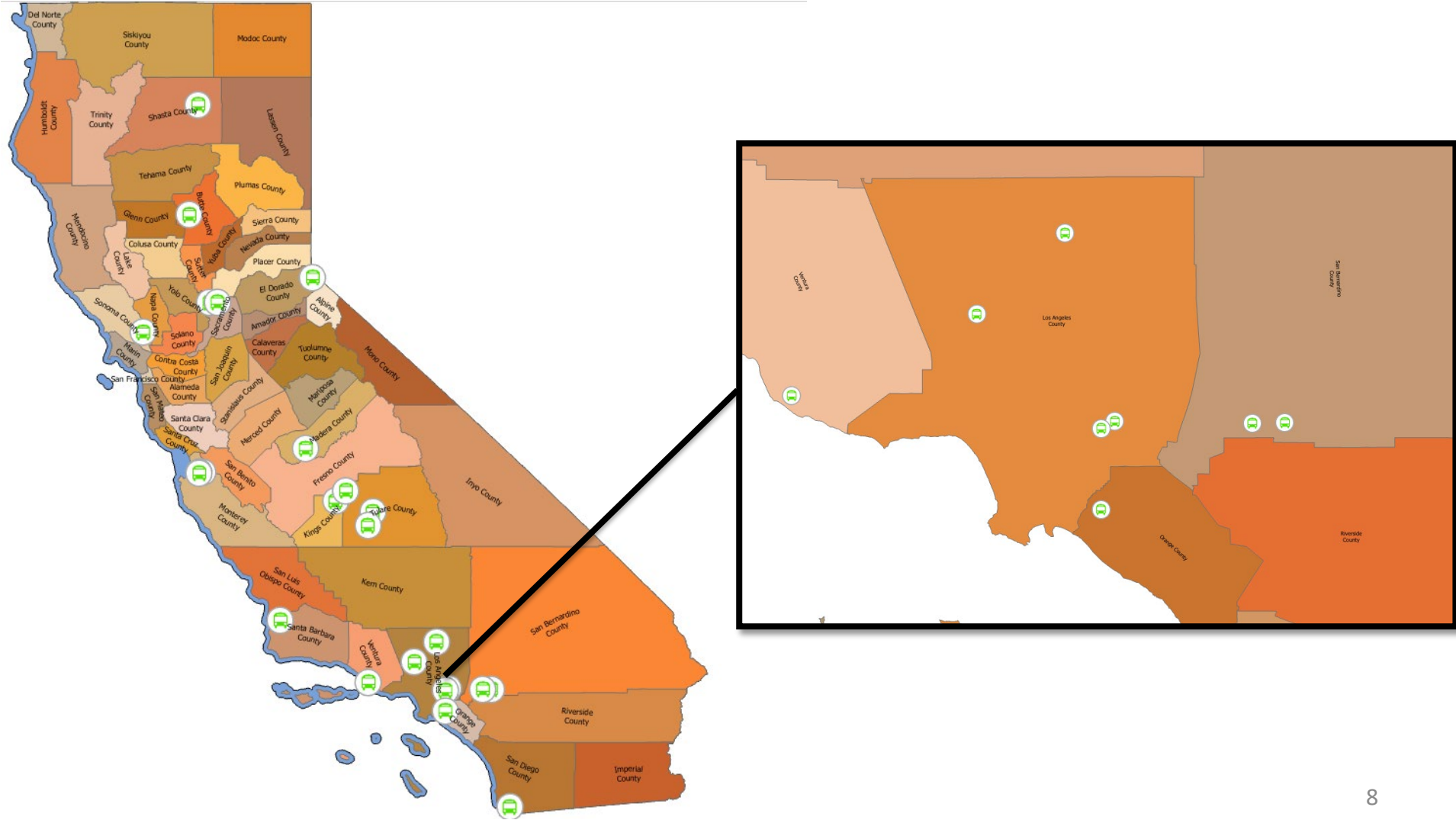
Progress to Date (As of December 2020)

Completed Deliveries

- 12 Buses (2019)
- 49 Buses (2020)
- Total by end of 2020 = 61

Completed Infrastructure

- 16 Districts with Completed Infrastructure
- 12 Districts with Completed Infrastructure/All Buses Delivered



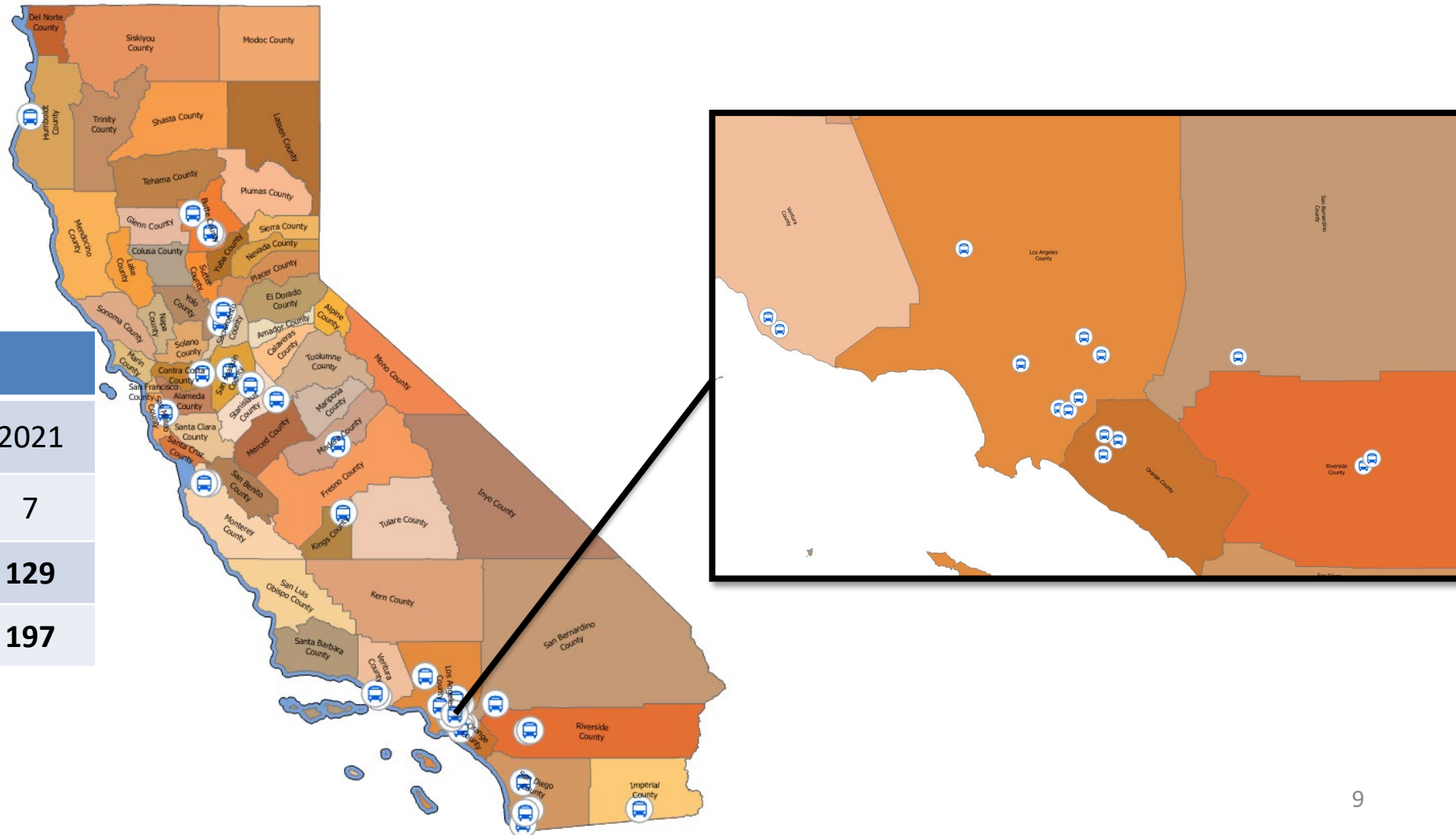


Delivery Timeline for 2021

Expected Bus Deliveries

	2019	2020	2021
Delivered	12	49	7
Projected	12*	47*	129
Total through 2021			197

*Projected target met



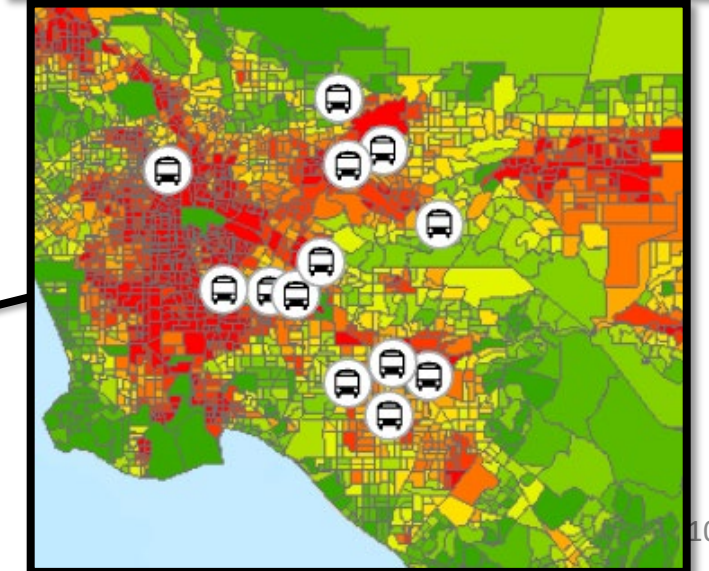
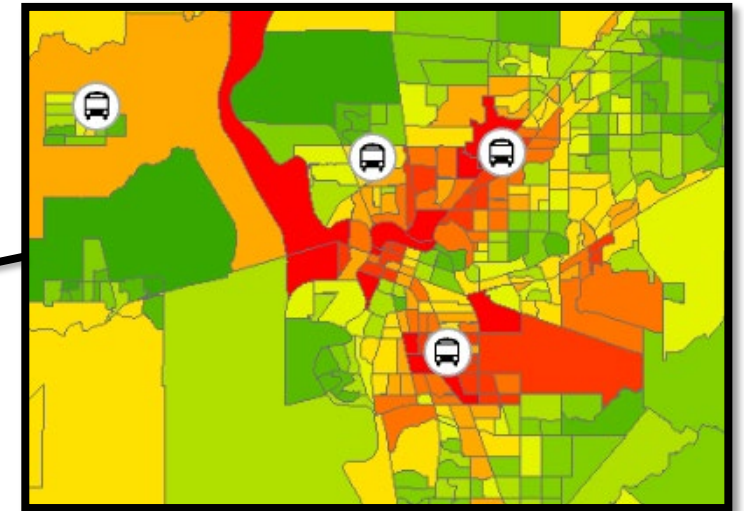
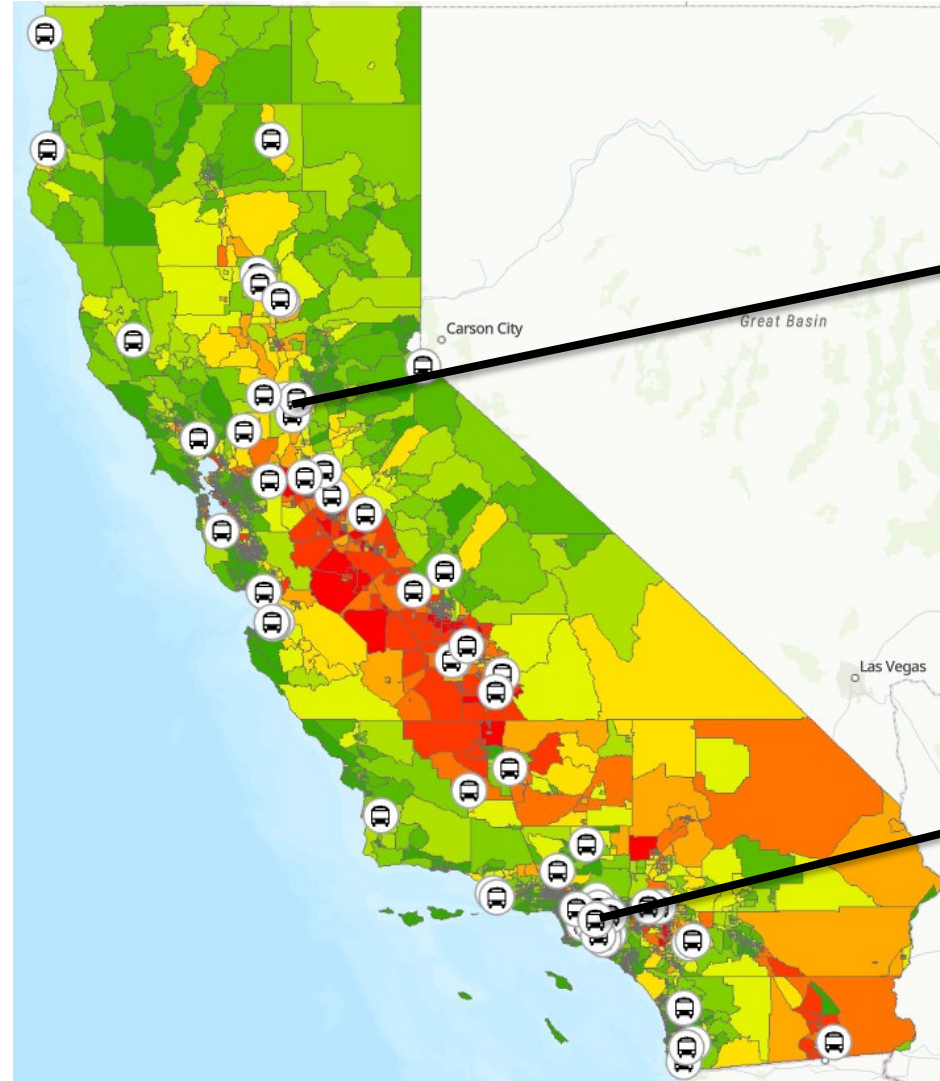


Distribution of Recipients Based on CalEnviroScreen 3.0

School Bus Recipient



CalEnviroScreen 3.0 Score





Distribution of Recipients Based on CPUC Tier 2 and 3 Fire Threat

Recipients Included in Tiers 2 and 3

- Fall River
- Lake Tahoe
- Oroville
- Sonoma
- Ukiah

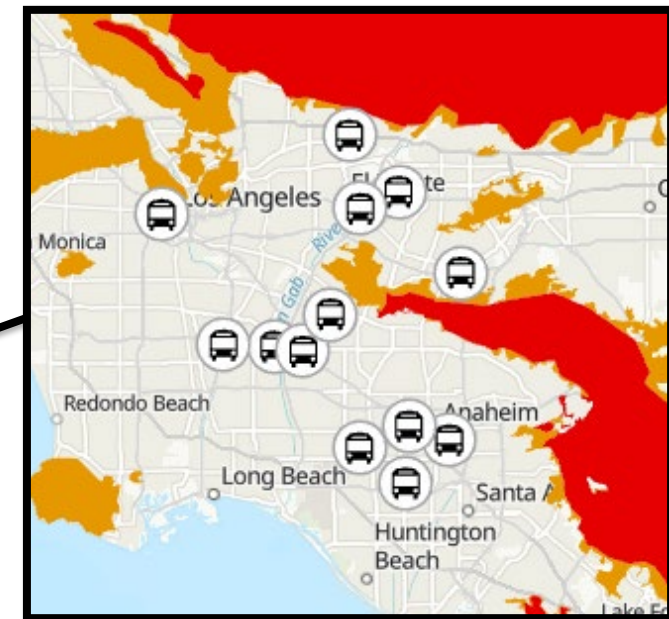
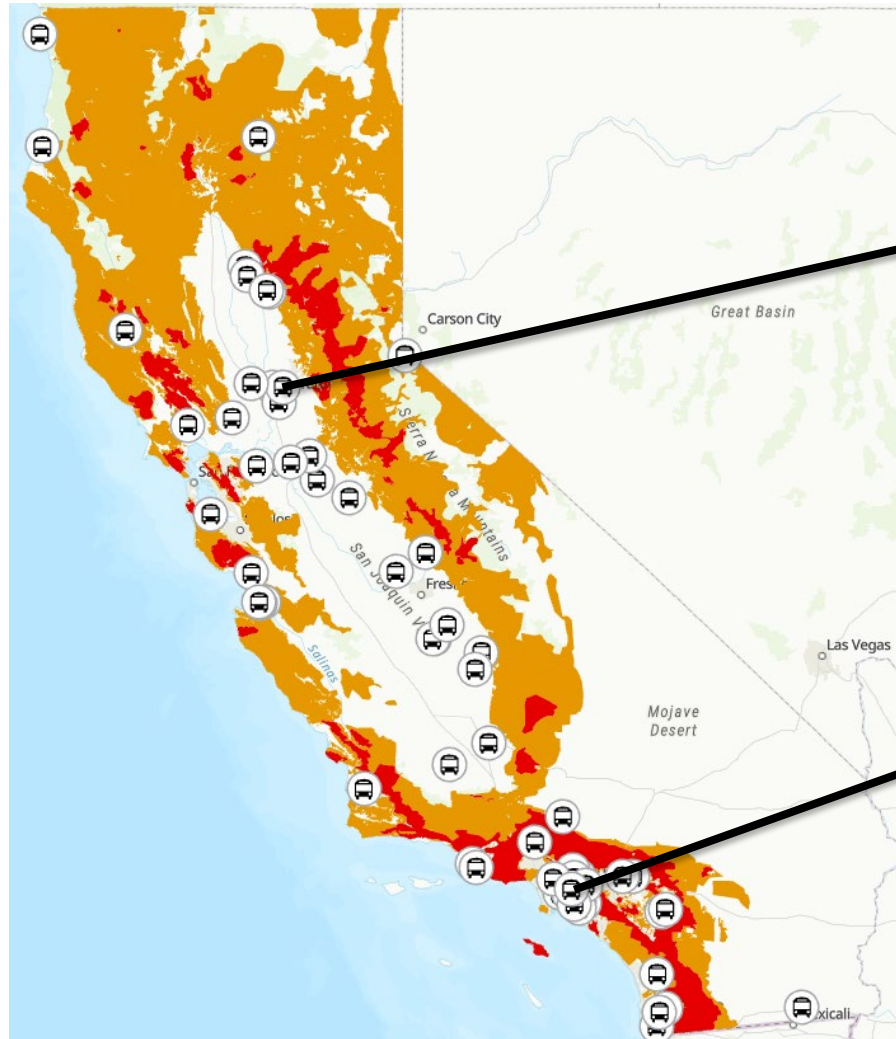
School Bus Recipient



CPUC Tier2 Fire Threat



CPUC Tier 3 Fire Threat





Workforce Training

Electric School Bus Training Project

- Training for bus maintenance technicians and operators
- Training Course Content
 - Bus familiarization
 - Circuit Diagnostics
 - Computerized Engine Management Systems
 - Harness and Computer Functions in the Modern Chassis
 - Programmable Logic Controller Input / Output Systems Diagnostics
 - Network Systems Electronics Diagnosis and Repair
- Long-term bus electrification training through community colleges for certification and degrees
- **19 districts participated in training in 2020**

CA ENERGY COMMISSION FUNDING SUMMARY PARTNERSHIPS PROJECTS

The Electric School Bus Training Project

The School Bus Replacement Program Offers Funds to Replace Old Diesel School Buses in Disadvantaged and Low-Income Communities Throughout California.

The California Energy Commission is helping schools embrace next-generation zero-emission vehicles and improve children's health by reducing their exposure to transportation-related air pollution. Participating schools receive funds for electric buses and electric vehicle charging infrastructure.

The California Electric Vehicle Infrastructure Project (CALEVIP) offers incentives for the purchase and installation of electric vehicle charging infrastructure at publicly accessible sites throughout California.

\$1 Million Awarded to Provide Electric School Bus Technician Training

The Advanced Transportation and Logistics Sector of the California Community Colleges was awarded \$1 million by the California Energy Commission to provide **Electric School Bus Technician Training** to community college faculty and fleet technicians employed by high school districts statewide.

Developing Courses for Troubleshooting, Diagnosing and Repairing Battery Electric Transit Vehicles

ATL will develop and deliver a series of training courses based on electric school bus manufacturer recommendations and subject matter experts (SME). The courses will be designed to guide and prepare the student for troubleshooting, diagnosing and repairing battery electric transit vehicles.

After a select group of community college instructors have completed the training, the full six-course series will be offered to incumbent technicians both in Northern and Southern California. These trainings will be hosted by high school campuses that have received electric buses from Energy Commission funding and taught by trained community college faculty.



Click [here](#) to download project overview.



The California Energy Commission's Clean Transportation Program provides funding to support innovation and accelerate the development and deployment of advanced transportation and fuel technologies.

[Click Here to Read More](#)

ELECTRIC SCHOOL BUS TECHNICIAN TRAINING WEBINAR



A webinar introducing online training now available for our funded school districts receiving electric school buses.

Click [here](#) to view.

ATL IS THE PLACE TO LAUNCH YOUR AUTOMOTIVE CAREER!

Jobs in the automotive and transportation field are numerous. As an automotive student, you can get access to the latest equipment, technology, and automotive designs by taking courses relevant to automotive employment. Community colleges offer courses that are continuously updated on the newest technology to help update your skills. Check out these updated brochures for community college locations where you can become a trained automotive technician.



Job Creation

Prop 39

- Division 26201 (a) "Create good-paying energy efficiency and clean energy jobs in California."

Manufacturer Jobs

- Long-term (23)

School District Jobs

- Short-term (49)
- Long-term (9)





Long Term Bus Storage

Storage During COVID-19 Shutdown

- Manufacturers distributed guidelines to school districts on proper storage
- Extended long-term warranties due to COVID-19



LONG TERM STORAGE

BLUE BIRD T3RE/ VISION ELECTRIC VEHICLE

The following procedure must be followed when vehicle will remain unused for a long period of time. Failure to follow procedure will result in premature failure to the 12v battery and the high voltage system, which at that point, it would require a technician to be dispatched at the expense of the school district.

1. Plug in vehicle to charging station.
2. Verify vehicle is at 100% charged.
3. Unplug vehicle from charging station.
4. Turn 12v battery shut-off switch to "OFF"
5. After 2 weeks of vehicle being stored.
6. Turn 12v battery shut-off switch to "ON"
7. Enable vehicle. Please refer to "quick reference guide" handed out during training.
8. Let vehicle run for 30 minutes. During this time, the 12v battery is being charged.
9. Turn vehicle off after the 30 minutes.
10. Turn 12v battery shut-off switch to "OFF"
11. Let vehicle sit again for another 2 weeks.
12. Repeat steps 4-10

This procedure does not need to be performed if bus remains unused for less than 3 days.

If any further questions, please reach out to:

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Customer Service Representative

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Bus Usage During Pandemic

Durham Unified

- Using buses for student transportation for in-person learning

Hanford Elementary

- Using buses for student transportation

Santa Maria

- Using their bus on a short route transporting 4-5 children





Bus Usage During Pandemic

Baldwin Park

- Using three Type C buses to deliver boxed lunches

Traver Joint

- Using Type C bus to deliver meals and homework packets

