



## Background

According to the California Air Resources Board (CARB), in 2018 the transportation sector accounted for the largest portion of total statewide greenhouse gas (GHG) emissions (39 percent), and the medium- and heavy-duty truck and bus sector accounted for nearly 30 percent of those emissions.<sup>1</sup>

Contributing to this problem are the buses that transport children to and from school every day, which have historically been fueled by diesel. Numerous studies have shown that the toxic gases and small particles that make up diesel exhaust can cause respiratory diseases and worsen existing conditions like asthma. The negative effects are especially pronounced in children.

School districts across the state have begun to embrace electrification to reduce harmful vehicle emissions. In addition, fleet electrification can reduce major top-line expenses such as maintenance and fueling costs, especially for fleets with fixed routes and charging locations. In the long term, fleet electrification can be a significant step toward meeting regulatory compliance while delivering significant environmental benefits.

<sup>1</sup>California Greenhouse Gas Emission Inventory—2018 edition, California Air Resources Board: <https://ww2.arb.ca.gov/ghg-inventory-data>.

## California school district Madera USD transitions to electric buses

Located in Central California, Madera Unified School District (USD) began its journey to electrification by securing a grant from the California Energy Commission's (CEC) School Bus Replacement Program to support the district's move to zero-emission transportation. Madera USD received enough funding to purchase 11 battery-electric school buses over the next five years, and in late summer of 2020 received the first five buses — Blue Bird electric school buses from A-Z Bus Sales.

### Blue Bird Electric Buses Mark Milestone

The delivery of the five Blue Bird electric school buses are the first of many Type D buses that can charge with both standard AC and DC fast chargers. Utilizing technology by Cummins Electrified Power, Blue Bird's electric school bus is capable of up to 120 miles of range and can be charged using a standard SAE J1772 Level 2 charger or CCS Type-1 DC fast charger. Madera USD plans to use four dual port chargers to charge this first set of buses.

### EV Fleet provides seamless infrastructure installation

The school district began working with PG&E's EV Fleet team last year, right after they received the CEC funding to purchase the new electric buses. This early partnership proved invaluable to the fleet as they were able to start the process of designing the new charging infrastructure well before the buses arrived on the school yard.

PG&E's EV Fleet team provided support throughout the entire process, including walking the actual site to identify the best place to install the chargers and new meter. PG&E also worked with the school district and electrical contractor to determine how much electric capacity is needed to support the new EVs based on vehicle type, duty cycle, and charging schedule. Installation of the charging infrastructure was completed at the end of 2020.

### Driving Change During COVID-19 Quarantine

The impact of COVID-19 means Madera USD may need to delay deploying the new buses into operation, but with the help of PG&E and A-Z Bus Sales, the school district continues to move forward with its plan to electrify. The buses and charging site will be fully-operational once the district is allowed to resume on-site classes.

### Moving Toward an Electric Future

The school district plans to test the new electric technology before purchasing the additional six buses funded by its CEC grant. Through this pilot phase they will be able to determine the best driving routes, actual energy used, costs of electricity, and how to maintain the new fleet of electric buses.

Over the next few years, Madera USD has identified 15 buses that will need to be replaced out of its 91 total bus fleet. Pending the success of this pilot period, the school district is looking at electric technology for its future bus replacements.

**“Going into something new is always a little nerve wracking but working with PG&E made the entire process effortless. They walked us through each step of the way and made sure we were prepared with the right information.”**

**Travis Ann Griffin,  
Transportation Director, Madera USD**



Prepare your fleet for electrification with the help of PG&E's EV Fleet program. Visit: [pge.com/evfleet](https://pge.com/evfleet)