

## Benefits of Electric School Buses

As you consider electric school buses for your fleet, there's a few things you should know. Electric school buses offer benefits like:

### Cleaner air

- Electric school buses have zero tailpipe emissions
- When accounting for the emissions from electricity generation, electric school buses reduce greenhouse gas emissions by more than half compared to a diesel school bus. As electricity production moves toward zero carbon resources, this number will only improve.

### Safety and comfort

- Electric school buses are quiet, reducing noise pollution in neighborhoods
- Drivers are better able to communicate with students

### Lower cost

- Electricity is less expensive than diesel fuel, and prices are more stable
- Reduced maintenance costs since there are fewer moving parts and no oil changes

### Estimated Operating Cost Savings

	Diesel School Bus		Electric School Bus		Savings	
Number of Buses	1		1			
Annual Miles Traveled <sup>1</sup>	10,800	mi/yr	10,800	mi/yr		
Fuel Efficiency <sup>2</sup>	6.8	mpg	0.6	mi/kWh		
Fuel Price <sup>3</sup>	\$2.59	/gal	\$0.13	/kWh		
<b>Total Fuel Cost</b>	<b>\$4,114</b>	<b>/yr</b>	<b>\$2,387</b>	<b>/yr</b>	<b>\$1,727</b>	<b>/yr</b>
<b>Total Maintenance Cost<sup>4</sup></b>	<b>\$6,500</b>	<b>/yr</b>	<b>\$3,250</b>	<b>/yr</b>	<b>\$3,250</b>	<b>/yr</b>
<b>Lifetime Operating Cost<sup>5</sup></b>	<b>\$212,271</b>		<b>\$112,736</b>		<b>\$99,535</b>	

<sup>1</sup> Actual mileage data from a local school district

<sup>2</sup> Actual diesel mpg data from a local school district. Electric fuel efficiency estimated based on manufacturer's specifications.

<sup>3</sup> Actual diesel fuel price from a local school district. Electric fuel price based on PGE's rate schedule 32.

<sup>4</sup> Actual diesel maintenance cost from a local school district. Electric maintenance cost estimated at 50% lower based on manufacturer recommendations.

<sup>5</sup> Estimated based on expected vehicle life of 20 years.



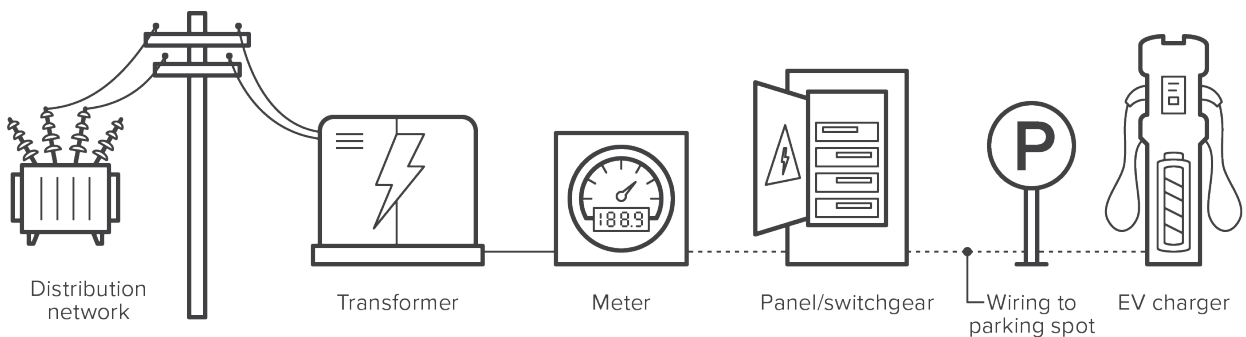
## Estimated Emissions Reduction

	Diesel School Bus		Electric School Bus		Savings
Energy Consumed	1,588	gal/yr	18,360	kWh/yr	
Emissions Factor <sup>6</sup>	22.4	lbs CO <sub>2</sub> /gal	0.5	lbs CO <sub>2</sub> /kWh	
Annual Emissions	35,576	lbs CO <sub>2</sub> /yr	9,253	lbs CO <sub>2</sub> /yr	26,323 lbs CO <sub>2</sub> /yr
<b>Lifetime Emissions<sup>7</sup></b>	<b>711,529</b>	<b>lbs CO<sub>2</sub></b>	<b>185,069</b>	<b>lbs CO<sub>2</sub></b>	<b>526,461 lbs CO<sub>2</sub></b>

## Upfront Costs

Today, electric school buses cost about three times as much as a diesel school bus, partly because it is a new technology and manufacturers aren't mass producing them yet. With battery prices coming down and electric school bus demand increasing, it is expected the upfront costs for vehicles will decline in the coming years.

Electric school buses will need a place to recharge at their depot, and the cost to install charging infrastructure can vary by location. That's why PGE offers free site assessments to evaluate your specific site and provide a preliminary site design and cost estimate.



Infrastructure supporting electric vehicle readiness

One key decision that affects the cost of charging infrastructure is the speed of charging you choose. For most electric school bus manufacturers, you'll have two options: Level 2 charging or DC fast charging.

**Level 2**  
 Slower (~8 hrs)  
 Cheaper (<\$5,000)  
 Smaller (15-30 lbs)  
 Low Voltage Power (208V or 240V)

**DC Fast Charging**  
 Faster (~3 hours)  
 More Expensive (\$30k-\$50k)  
 Larger (350-1600 lbs)  
 High Voltage Power (480V)

For more information, contact us at [electricschoolbus@pge.com](mailto:electricschoolbus@pge.com)

<sup>6</sup> Diesel emissions factor: [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php). Electric emissions factor based on forecasted average emissions factor for PGE energy mix between 2020 and 2030

<sup>7</sup> Estimated based on expected vehicle life of 20 years.

