



Are Electric Buses the Future of Transportation?

**Should DCPS acquire
electric buses now?**

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Let's clear the air!

- Diesel buses not only idle at stops and on the school campus, but also generate emissions on route that can affect everyone in the community. Electric buses eliminate both localized and generalized emissions, helping everyone breathe a little easier.



- **They are not completely zero emissions vehicles**, because generated energy is used to charge the batteries, but they are significantly more efficient, clean, and quiet than traditional internal combustion engine buses.

Powering ahead: charging the bus!



Charging Station Infrastructure

Getting the necessary charging infrastructure installed does take some advance planning and is a very important step that should be considered in tandem with the vehicle purchase process. Installing adequate charging isn't quite as simple as plugging a new charger into the wall.

Transformers: Electric devices that change electricity from one level of voltage to another.

Access to an electric grid: An interconnected network for delivering electricity that will go to charging stations and subsequently to the EV.

Charging meter: A device that records the amount of power flowing through a circuit

Charging stations: A physical station where EVs are parked and charged.

How Far Can We Go?

➤ ***What is the range of an Electric School bus***

For schools considering electric buses, one of the most important questions is, how many miles can an electric school bus go? Will it be able to complete its route without needing a charge? It also depends on what type of terrain you're covering, among other factors.

It is estimated that a bus can travel around 100 miles on a single charge, less if utilizing heat or air conditioning.

Typical Destinations our “Trip Buses” travel to:

Considerations:

Are there charging station locations for our buses to Re-Charge before returning home?

For every electric bus acquired, we must take a Diesel bus off the road. Will this leave DCPS with enough buses to handle long distance trips?

Destination	CSDHS	NDHS
	<i>Round trip</i>	<i>mileage</i>
Ocean City	122	108
Salisbury	70	50
Queen Anne	80	80
Kent Island	101	104
DC	176	176
Annapolis	120	120
Baltimore	176	180
Lake Forest	101	80
Pocomoke	130	120
Kent County	120	120
Arcadia HS , VA	150	138

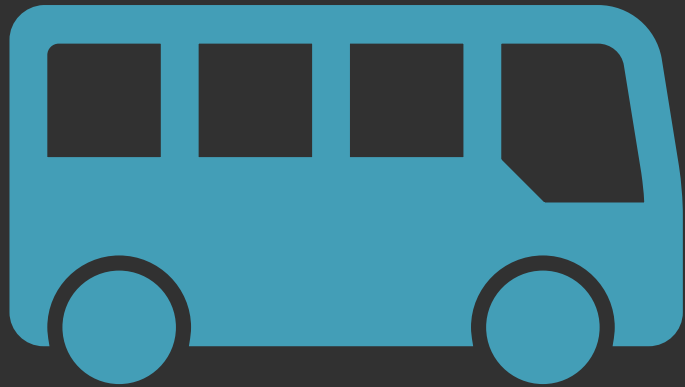
Flipping the Switch on Electric School Buses: COST FACTORS

Capital Costs: Programs and Incentives available for the initial purchase price is higher. Is this for the first year only? How do we maintain?

Infrastructure Costs: Up to \$180,000 for charging station. The EPA Grant pays \$20,000 per bus. Software for charging station is \$1200/bus per year

Operational Costs: Battery life and replacement is 8 to 10 years and \$100,000. Typical warranties on batteries are 5 to 8 years. Coolant and air compressor oil are additional ongoing costs. Engine warranty is an additional \$11,000.

Maintenance Costs: We would have to take to Annapolis for repairs to the only current electric bus shop, so there would be a tow bill each time. What are the costs for all the replacement working parts of the bus? Will we be able to afford the maintenance expenses for a \$375,000 bus? Counties currently running electric buses have a diesel bus as a backup for when the electric bus does not work.



Montgomery is in the process of transitioning 326 diesel school buses to all electric buses by 2024.

Frederick County has 2 electric buses. One has not run because of recall issues that have not had the repairs confirmed safe by a technician. Two new diesel buses are parked next to the electric buses as backup when the electric bus is not capable of being used. They are applying for 2 additional buses.

Howard County has 2 electric buses that are owned by contractors. The contractors are not happy with the buses and want Howard County to take them over. Howard is applying for 2 buses.

Unless recently changing their mind, I don't know of any other county applying for the grant.

What Are Other Maryland Counties Doing

Transportation Manager Opinion

There is a lot of excitement around electric buses, but there needs to be more information before moving ahead with this at Dorchester County Public Schools. Specifically, I am continuing to research:

- 1. Further information about grant money to cover infrastructure cost*
- 2. Exact cost of installing charging stations*
- 3. Experiences with electric buses of other districts with comparable transportation needs*

We need to be better informed and comfortable with the move to electric buses. They will be here, but today is not the time for us.