Hyde Park
Central School District

Electric School Bus
Expanded FAQ Sheet

Capital Expenditure Vote	
When?	November 19, 2024
Time?	6 am - 8 pm
Where?	Haviland Middle School

Electric School Bus Expanded FAQs

- **What is the EV bus mandate and why is the school district looking to purchase buses now?**
  The NYS mandate requires all school districts to purchase zero-emission buses after July 1, 2027. The entire fleet must be converted to zero-emission by July 1, 2035. The school district has 101 buses and the vote is to replace 17 buses. Hyde Park CSD has been awarded a $3.4 million grant that will expire on November 29, 2024, unless the school district commits to the purchase.
- **What are the consequences for not complying with the EV bus mandate?**
  After July 1, 2027, school districts will only receive state aid on purchases of zero-emission buses. The district currently receives 59.2% state aid on bus purchases.
- **What is the cost of a diesel bus compared to the cost of the 17 EV buses that are up for vote?**
  After applying for the grants, tax credits, and state aid, the cost per bus of the 17 buses is $30,717. The cost of a diesel bus after state aid would be $64,398.
- **Are the chargers level 2 or level 3? What is the cost of the chargers and installation?**
  The chargers are level 2 and the cost of each is $11,708, which is included in the cost. Hyde Park CSD qualifies for NYSERDA charger grants of up to $60,000 to cover the cost and installation.
- **Where will the EV buses be stored?**
  The EV buses will be stored outside just as the current buses are currently stored.
- **How does the weight of an EV bus affect braking, especially in inclement weather?**
  The gross volume weight rating (GVWR) of an EV school bus is 35,000 pounds, which is 2,000 pounds more than the GVWR of a diesel-powered bus. An EV school bus is under the same DOT and motor carrier regulations and has the same braking components as a diesel bus. Additionally, EV buses utilize regenerative braking, which converts kinetic energy into electrical energy, further enhancing braking performance.
- **What is regenerative braking?**
  Regenerative braking can capture extra energy, which could extend the range of the bus. Regenerative braking occurs on downhill rides or during slow stopping like at stop signs,

traffic lights, bus stops, or while in traffic. It has the added benefit of lower wear and tear on braking systems.

- **How does the weight of the EV buses affect the lifespan of tires?**
  A fully loaded EV school bus weighs 2,000 pounds more than a fully loaded diesel-powered bus. The additional weight is not significant enough to affect the lifespan of the tires.
- **Is the charging equipment the same for all buses?**
  The chargers are different depending on the manufacturer but the charging ports are the same for all school bus manufacturers. EV school bus batteries can be energized using chargers from other manufacturers.
- **How long does it take to charge a bus and when will charging occur?**
  It would take 15 hours to fully charge a depleted battery. However, the fleet electrification study shows that batteries will not be fully depleted during any one day. It will take 2-6 hours to charge each bus and charging will occur at night.
- **What is the downtime for repairs of an EV bus?**
  EV buses repaired at the dealership may experience up to 48 hours of downtime. On-site repairs will generally require less time.
- **Where are the dealer facilities located?**
  Leonard Bus Sales has facilities in New York State located in Middletown, Deposit, Rome, Saratoga Springs, and Bergen.
- **What is the cost per mile of an EV bus compared to a diesel-powered bus?**
  According to the American Power Association, the fuel and maintenance costs of an EV bus is $0.84/mile and $2.12/mile for a diesel-powered bus.
- **Are the batteries in EV buses safe?**
  Battery safety starts with battery chemistry. The batteries in the EV school buses the district would purchase are LFP (Lithium-iron-phosphate) batteries and have better thermal stability compared to NMC (nickel-manganese-cobalt) batteries commonly used in electric cars. This thermal stability ensures that the battery structure remains intact for longer than for electric cars even during high temperatures and decreases the chances of overheating. Additionally, the lithium-iron-phosphate batteries contain no cobalt, nickel, or magnesium.
- **Where are the batteries manufactured?**
  The batteries for the EV buses the school district would purchase are manufactured in China. All other bus parts are manufactured and assembled in Tulsa, Oklahoma.
- **Can the lithium-iron-phosphate batteries be recycled rather than disposed of or destroyed after school?**
  The lithium-iron-phosphate can safely be used in other types of vehicles or for other purposes. The manufacturer will be issuing guidance for recycling as an alternative to disposing of or destroying batteries.
- **Will the School District discontinue the use of the EV buses after the battery warranty ends?**
  While it's true that the battery capacity diminishes after 8 years, the batteries will continue to be viable after 8 years. The district plans to keep the EV buses for approximately 12 years.
- **Would it be possible to replace a battery instead of the entire bus when the batteries are no longer viable?**
  Cornis Technology is researching if EV batteries could efficiently be replaced rather than replacing an entire bus.
- **Has the district considered purchasing hydrogen buses rather than electric buses?**
  Hydrogen-powered buses are not on the market yet and EV buses are currently the only type of buses that would satisfy New York State's zero-emission mandate.

- **How long after ordering an EV bus can we expect it to arrive?**
  We can expect to receive EV buses 8-12 months after the order is placed, this is on par with the time frame to receive a gasoline or diesel-powered bus.
- **Will EV bus prices decrease in the future?**
  There is currently no evidence that EV bus costs will ever be comparable to the cost of a diesel bus but predictions are that EV bus prices will decrease as the technology improves.
- **Will there be increased insurance costs for the EV buses?**
  There is currently no indication that the insurance cost for an EV bus will be greater than the insurance cost for a diesel or gasoline-powered bus. Currently, the school district's insurance premiums are $1,052/bus/year for each 66-passenger bus (diesel, gasoline, EV).
- **Will the EV buses be used for out-of-district trips?**
  The 17 buses will not be used for out-of-district trips.
- **Which routes were analyzed for the fleet electrification study and what were the results?**
  Every bus route was analyzed for the fleet electrification study using data from the coldest days. The study identified one bus route that couldn't be completed day (morning and afternoon) without recharging the battery. The route is to a school in Monticello and the district would use a different bus for the afternoon run than in the morning. The study also shows that the district could have 23 level 2 chargers installed at the bus garage with no need to upgrade the facilities or electrical capacity.
- **Will the purchase of the 17 EV buses require additional technical staff or training?**
  The purchase of the 17 electric buses would not create a need for additional maintenance staff. The batteries would be under warranty for eight years and would be serviced by the manufacturer if needed. Also, Leonard Bus Sales provides training to mechanics, bus drivers, and first responders, which is included in the cost of the buses.