Electric school bus financial solutions guide

Introduction

Electric school buses (ESBs) provide air quality, climate, and economic benefits to school districts across the country. Adoption of these buses is gaining momentum: the number of electric school buses on the road or coming soon has tripled in the past three years.[1] This is motivated in part by a surge in public funding: as of the end of 2023, US federal and state governments had allocated more than $9.3 billion to fund the transition to electric school buses.[2] However, given the currently higher costs of purchasing ESBs, current funding will not be enough to fully support the transition of the nation's school bus fleet. Financial mechanisms (such as bonds, loans, and leasing arrangements) will be essential to scale deployment and complement current and future funding. This guide provides information on financial mechanisms available to support school districts' procurement of electric school buses, and offers examples and considerations to determine which mechanisms are most appropriate in different contexts. The information was collected through desk research and a series of interviews with school districts, financial institutions, financial equity advocates, government officials, and school finance experts.

While the purchase price of an electric school bus is currently higher than that of its diesel counterpart, electric school buses offer much lower maintenance and fuel costs. Over their lifetimes, electric school buses are estimated to reduce operational costs by more than $100,000 compared to a similar diesel school bus.[3] Through financial mechanisms, these savings can be redirected to cover a percentage of the electric bus's higher upfront cost. Figure 1 compares average operational costs over the lifetimes of a diesel and an electric school bus.

Per bus funding amounts from federal and state ESB programs have begun to decline, covering less and less of upfront costs. The Clean Heavy Duty Vehicle Program, administered by the Environmental Protection Agency (EPA), covers up to $300,000 for a new electric school bus, although it does offer support for other costs. Many state programs cover only a percentage of total costs. For instance, the base voucher amount of the New York School Bus Incentive Program covers 60 percent of the incremental cost

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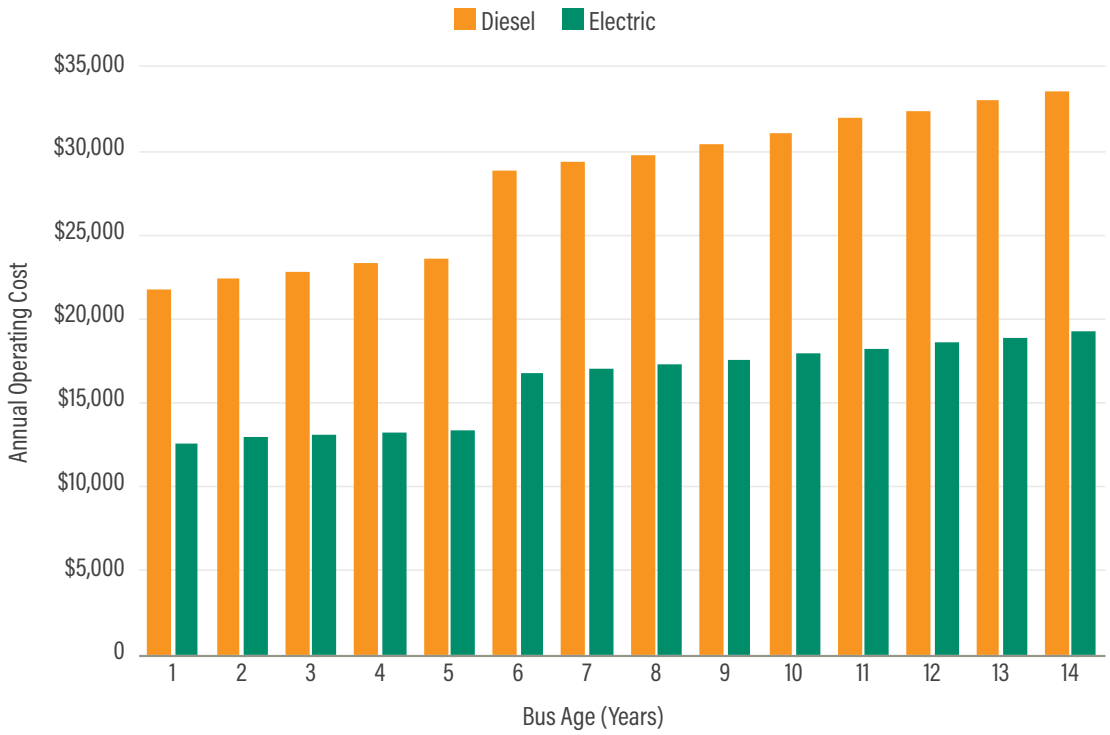
wri.org/initiatives/electric-school-bus-initiative

Cover photo: WRI's Electric School Bus Initiative.

ABOUT WRI'S ELECTRIC SCHOOL BUS INITIATIVE

In collaboration with partners and communities, WRI's Electric School Bus Initiative aims to build unstoppable momentum toward an equitable transition of the U.S. school bus fleet to electric by 2030, bringing health, climate and economic benefits to children and families across the country and normalizing electric mobility for an entire generation.

Figure 1 | Operational cost comparison (net present value)



Notes: Operational costs include electricity and fuel, maintenance, taxes, and insurance. Estimates are based on US average diesel and electricity prices and per mile maintenance costs, including an expected increase in maintenance costs after year five for both fuel types. For more information, see Michelle Levinson et al., "Recommended Total Cost of Ownership Parameters for Electric School Buses: Summary of Methods and Data," World Resources Institute, January 30, 2023, https://www.wri.org/research/recommended-total-cost-ownership-parameters-electric-school-buses-methods-data?ap3c=AGWoPVrYwsW-gJoAAGZY3zYuEHyaVdaiUXcrO9WGifrXLsiYnA.

Source: WRI calculations.

of an electric school bus. This trend highlights the importance of financial mechanisms to enable the broader adoption of electric school buses and to stretch current funds so that communities most in need of ESBs have the financial tools to cover new gaps in per bus funding.

Additionally, funding programs that reimburse costs after a purchase order is made can present cash flow challenges for districts. A notable example is the 45W tax credit, where the timeline between the purchase of the eligible item and tax credit reimbursement by the Internal Revenue Service poses a barrier for some school districts. Where funding programs and school districts budgets do not cover all fleet transition costs, or timing lags present obstacles, financing can help school districts complement this funding, as well as help develop long-term financial strategies to electrify their fleet.

BOX 1. WHAT ARE EQUITABLE FUNDING AND FINANCING MECHANISMS?

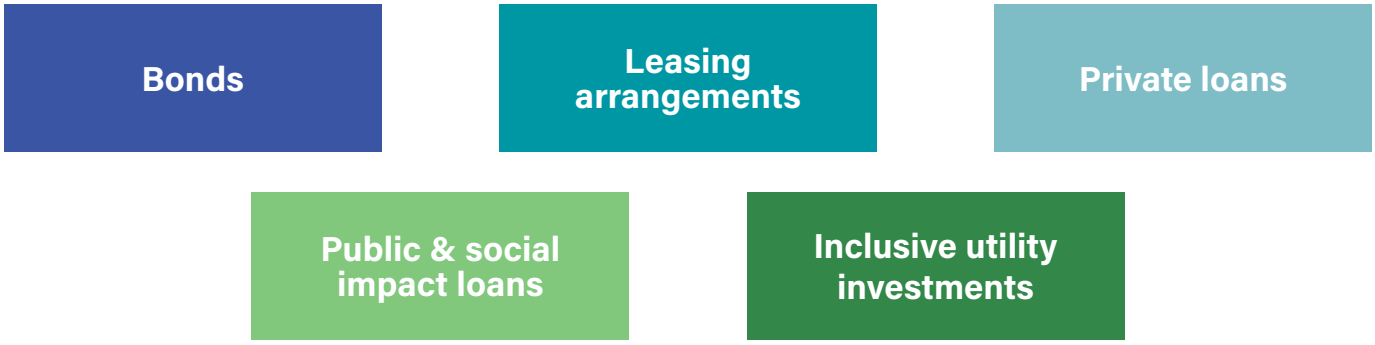
Underserved communities can achieve more equitable outcomes when they are able to access funding and financing. To address and reduce historical inequities, many current funding opportunities prioritize underserved communities, and it is important that future grants continue to do so. An equitable finance ecosystem entails access to financial institutions and products that adequately serve the needs of communities and individuals, offering them a broad set of options with the tools to understand products' financial terms.

Source: Author; Rawan Elhalaby, interviewed by Alejandra Achury, Alyssa Curran, and Michelle Levinson, February 13, 2024, via Zoom..

Financial mechanisms

Financing is an arrangement that provides capital for costs today to be paid back over a future period, often with a small premium. There are multiple financial mechanisms that financial institutions can develop depending on their risk appetite and operational needs. Figure 2 highlights the different types of financial mechanisms schools could access to.

Figure 2 | Types of Financial Mechanisms



Source: Author

Municipal bonds

Bond measures are long-term obligations used to finance construction, improvements to public infrastructure, and, in many communities, school buses. Most municipalities and districts must get approval from voters before levying a tax to raise bond funds, since bonds are paid through the tax base.[4] This makes local community support very important for any project enabled through bond funds. Bonds are the most common financial mechanism used by school districts, as their interest rates are substantially lower than those of conventional loans.[5] This is because the interest paid to investors is typically exempt from state and federal taxes, and the bond is backed by the school district's revenue and tax base.[6] Typically, after a bond is rated, a broker-dealer takes it to the public markets, but there are cases where bonds are placed directly with a financial institution through a private placement.[7]

A district's ability to use bond funds for new electric school bus procurements may be contingent on the remaining debt capacity under existing approved bonds. If all existing bond funds are already allocated, then a district will need to go to voters to raise new bond revenues for this purpose. The reliance of bond finance on local tax revenues can be a barrier for many underserved districts where the underlying tax base is low and community members are financially constrained.

MUNICIPAL BONDS

Advantages	Considerations
• Low interest rate • School capacity and expertise in utilizing bond finance • Patient capital—repayment terms typically greater than 10 years	• Decentralized decision makers: local voters • Bond voting and campaign timing • Transaction costs, depending on issuing method • Specific requirements or limitations set by states around the issuance of bonds

FINANCIAL SOLUTIONS IN ACTION

Cypress-Fairbanks Independent School District, located in Texas, often includes purchase and replacement of school buses in bond measures, cycled every six to seven years. In 2022, the district combined bond funds and a grant from the Houston-Galveston Area Council to procure 10 electric school buses and charging stations. After four months of operation, the school district has seen significant operational savings compared to diesel buses. The transportation director expects to reinvest these savings in the district, such as on benefits for employees.[8]

BOX 2. THE COMMUNITY REINVESTMENT ACT

Adopted in 1977, the act requires large financial institutions to show that their lending, investments, and services adequately serve the communities in which they have a market presence.

Source: Greenlining Institute, "Banking and Financial Accountability," https://greenlining.org/work/economicequity/banking-and-financial-accountability/.

Leasing arrangements

Leasing arrangements are contracts where a school district acquires equipment for a regular predetermined payment. In some instances, the arrangement includes the option to purchase equipment at the end of the contract. Leasing arrangements can be made with original equipment manufacturers, dealers, or commercial banks and are secured by the asset itself. In most states, voter approval for leases is not required. Nonetheless, depending on state law, capital leases can be considered debt.[9] Schools should consider the effect of the balance sheet, especially if they have limited debt capacity or have more flexibility and discretion within their operational budget. Still, most financial institutions consider the creditworthiness of school districts when setting lease terms and repayment structures.

There are different types of leasing arrangements with various structures:

- Operating lease: An arrangement where a school can use equipment in exchange for regular payments, but the lessor holds the title until the lease expires.[10]
- Tax-exempt lease-to-purchase agreement (TELP): An agreement that assumes a public organization will own the asset after the lease expires. As a result, the interest rate is lower because interest paid is exempt from federal taxes. In contrast to an operating lease, in a TELP the title of the equipment is granted to the school district at initiation.[11]

School bus manufacturers have developed partnerships with financial institutions or created affiliates to facilitate leasing arrangements, such as TELP agreements with lower interest rates than would otherwise be available. This is the case for Blue Bird Capital Services, as well as Thomas Built Buses and Daimler Truck North America.[12]

LEASING ARRANGEMENTS

Advantages	Considerations
• May not affect borrower's balance sheet • May enable access to lower rates due to tax-exempt interest	• Decision-making is centralized (e.g., school board, superintendent) • Impacts operating budget • Ownership structure can vary • Repayment periods (8–12 years) are typically shorter than bonds'

Private loans

Private loans are a familiar type of financing where private financial institutions—such as retail and commercial banks, credit unions, savings and loan associations, and investment banks—provide loans to individuals and commercial customers, including private schools, public school districts, and school bus contractors. The terms are set by the lender depending on the creditworthiness of the borrower.

Notwithstanding the primacy of a recipient's credit rating, through the Community Reinvestment Act, commercial banks have an incentive to invest in and offer better terms to borrowers in underserved communities. This policy can help reduce barriers to accessing finance for districts, school bus contractors, or other borrowers in underserved communities.

PRIVATE LOANS

Advantages	Considerations
• Efficiency in the process, compared to bonds • Limited/no reporting on implementation and outcomes, compared to public loans	• Decision-making is centralized (e.g., school board, superintendent) • School districts may face debt limits that cap quantity of loans they carry • Repayment period (8–10 years) is typically shorter than other options • Market-rate interest and terms may be more challenging to meet

Public and social impact loans

Public and social impact loans are financial arrangements in which a government, public entity, or entity in the public interest provides funds to a borrower with expectation of repayment. To achieve policy or social impact goals, the terms and eligibility criteria of the loan are generally more favorable than those available on the commercial market. Some programs might have eligibility requirements related to demographics and socioeconomic factors. In order to ensure that policy or social impact goals are achieved, these loans typically carry reporting requirements throughout the life of the project. School districts should make sure they have staff and resource capacity to meet the reporting requirements of loans they take on.

Entities that provide public and social impact loans include green banks, community development finance institutions, federal or state agencies, state clean energy funds, and even philanthropies. For instance, the Greenhouse Gas Reduction Fund (GGRF) is set to mobilize $27 billion through private sector investors, community development financial institutions (CDFIs), nonprofits, green banks, and other stakeholders to provide accessible and affordable finance to advance projects that reduce greenhouse emissions, deliver clean energy, and deliver benefits to disadvantaged communities. Projects that include electric school buses can achieve the GGRF's objectives.[13]

PUBLIC AND SOCIAL IMPACT LOANS

Advantages	Considerations
• Often below market interest rates • Flexible terms and longer repayment periods (lifetime of the asset)	• Decision-making is centralized (e.g., school board, superintendent) • Limits on program eligibility • Staff capacity to report on project outcomes

FINANCIAL SOLUTIONS IN ACTION

In 2020, Knox County R-I School District, in Missouri, stacked grant funding from the US Department of Agriculture's Community Facilities Program with additional funds from Missouri's Department of Natural Resources Volkswagen Settlement, Associated Electric Cooperative Inc., and Lewis County REC to procure an electric school bus.[14] While this project used a grant, the Community Facilities Program also provides finance, or a combination of both, for essential community infrastructure to rural communities with limited access to financial products. Communities can access loans with extended repayment periods aligned with the lifetime of an asset. Like other financial institutions, the Community Facilities Program conducts a financial analysis of the recipient prior to making a loan. In addition to the loan, the program may provide recommendations and technical assistance to improve the project's financial standing. This can include partnerships with other financial institutions to structure large projects, providing loan guarantees, or development of a depreciation fund for future purchases. For further discussion of these tools, refer to the "Other tools to consider" section below.

BOX 3. WHAT ARE GREEN BANKS AND COMMUNITY DEVELOPMENT INSTITUTIONS?

- Green bank: public, quasi-public, or nonprofit financial entity that leverages public and private capital to invest in sustainable projects, accelerate the transition to clean energy, and reduce emissions.
- Community development financial institution: quasi-public, nonprofit, or for-profit financial institution certified by the US Department of Treasury, focused on community development as its primary mission.

Sources: US Environmental Protection Agency, "Green Banks," last updated April 22, 2024,https://www.epa.gov/statelocalenergy/green-banks; Community Development Financial Institutions Fund, "CDFI Certification," US Department of the Treasury, accessed May 29, 2024, https://www.cdfifund.gov/programs-training/certification/cdfi#:~:text=Community%20Development%20Financial%20Institution%20(CDFI,who%20lack%20access%20to%20financing; James Chen, "Community Development Financial Institution," Investopedia, September 26, 2023, https://www.investopedia.com/terms/c/cdfi.asp.

Inclusive utility investments

Inclusive utility investments are financial arrangements where the electric utility invests in components of the upfront cost of electric vehicle assets and then recovers these costs through a service charge on the utility bill over a fixed period. The tariff charge is set lower than the savings the investment is expected to generate, allowing the recipient to reduce operational expenses, and avoiding additional balance sheet liabilities.[15] The utility holds ownership of the equipment until costs are recovered. After the cost recovery, the assets belong to the customer, which could require a restructuring of the ownership arrangement.

While monopolies are typically prohibited from operating in competitive markets, where there is a societal interest (such as encouraging equitable electrification), utility regulators may support well-bounded activity. For this reason, inclusive utility investments are best suited for components of the electric vehicle project on the customer side of the meter, such as the electric bus onboard battery, the charger, or other charging infrastructure, rather than the bus as a whole. Because this solution unlocks capital for cost-effective investments for entities that might otherwise be unable to move forward with electrification projects, it can be an especially useful mechanism for underserved districts.

Utilities around the country have implemented this model for energy efficiency investments.[16] The EPA has also endorsed this financial mechanism for Energy Star–rated appliances. Furthermore, in a first-in-the-nation action, the Michigan Public Service Commission recently approved an inclusive utility investment for batteries of electric transit and school buses.[17] To learn more about inclusive utility investments for transportation, see information available from Clean Energy Works.[18]

INCLUSIVE UTILITY INVESTMENTS

Advantages	Considerations
• No liabilities on balance sheet • Recovery cost attached to the meter (does not require credit history or other loan requirements) • Simple repayment process	• Decision-making is centralized (e.g. school board, superintendent) • Only available where approved by state public utility commission or governing board (for municipal utilities and cooperatives) • May require split ownership of project assets to reflect utility's bounded capital investment

Other tools to consider

The mechanisms mentioned above are tools to finance capital and infrastructure projects, including school bus electrification, but there are additional mechanisms school districts can use to combine with finance or to improve financial terms.

Credit enhancement programs

Through a credit enhancement program, a sponsor pledges to repay interest or principal on a loan if a school district fails to meet its obligations. This helps to enhance a district's credit, leading to lower interest rates. In this way, credit enhancement programs can play a key role for underserved communities whose access to low-cost finance is more limited. Credit enhancement can come in the form of a loan guarantee, additional collateral set aside, insurance guaranteeing payment, or in the form of general financial backing.[19] Should borrowers experience a financial crisis that prevents them from paying their debt service, the sponsor provides financial support to make the lender whole.

With a loan guarantee, additional collateral, or payment insurance, sponsors commit to cover (or partially cover) a debt shortfall on behalf of the borrowing entity. By providing a backstop for the borrower, a loan guarantee reduces the risk profile of a deal, unlocking a lower interest rate. The federal government and green banks offer loan guarantees, such as through the Department of Energy's Loan Programs Office, that can bring down borrowing costs for specific eligible projects that districts may pursue. In many loan guarantee programs offered by states, a district's credit rating must be at least as high as the state's credit rating—somewhat mitigating the utility of the tool for districts with poor credit.[20]

Additionally, states may set up credit enhancement programs—such as state permanent funds, standing or annual appropriation programs, or state aid intercept programs—to serve as general backstops for financial arrangements that districts enter.[21] To date, 24 states have credit enhancement programs to support school districts.[22] However, state credit enhancement programs may employ eligibility criteria and/or require state approval in ways that limit the applicability of this tool.

Levies

A levy is a form of local property tax approved by the school board intended to generate revenue for education-related costs or services that states do not fund or fund incompletely.[23] For instance, Mercer Island School District in Washington State combined depreciation funds (see below) and a transportation levy to procure two electric school buses in 2021.[24] Levies and local tax revenues are also the source of funds used to pay debt service on bonds. When considering this tool, it is important to note restrictions and caps on local property taxes.

BOX 4. THE ROLE OF CREDIT

Interest rates on any financial product will vary depending on the borrower's perceived creditworthiness. Lenders assess the credit of school districts, as well as private and nonprofit borrowers, such as school bus contractors and charter schools, based on the borrower's financial standing, considering things like income statements, balance sheets, and program budgets.

Depending on the financial mechanism, the creditworthiness of a school district can be measured based on various factors. For instance, credit rating agencies (e.g., Fitch Rating, Moody's, and S&P Global) may take into consideration factors like the following:

- Economic expectations
  - This factor assesses revenue expectations—in the case of a school district, this includes local economic factors that will impact household income, valuation of the tax base, and enrollment trends.[a]
- Financial performance
  - This factor evaluates the borrower's ability to pay obligations and flexibility to adjust to meet unexpected expenses. Agencies will conduct financial analysis on operating revenues and expenditures, cash flows, and current liabilities.[b]
- Institutional framework
  - Where school districts are the borrower or are indicated indirectly as the source of funds (e.g., for school bus contractors), this factor represents consideration of state policies that determine school operating budgets, local resources, and state funding.[c]
- Leverage
  - This factor assesses the borrower's debt capacity. It analyzes long-term liabilities (e.g., pensions, debt) and fixed costs on an operating budget that might reduce the borrower's capacity to make payments.[d]

When these factors prove challenging for communities with limited resources, they can pose a barrier to financial solutions. For instance, a school district's low tax base and declining enrollment rate can be seen as signs of low revenue. Limited flexibility on operational budgets can reduce debt capacity and ability to take on further payments. Mechanisms with flexible terms can better accommodate specific contexts, such as allowing for longer repayment periods, introducing grace periods or guarantees, and including openings to revisit terms over the period of the agreement. When financial institutions increase customization of their product offerings, this can lead to more affordable and accessible financial mechanisms.

Sources:

[a] Julie Beglin, Rachel Cortez, and Naomi Richman, "US K–12 Public School Districts Methodology," Moody's Investor Services, January 26, 2021, ratings.moodys.com/api/rmc-documents/70054; Michael Rinaldi et al., "U.S. Public Finance Local Government Rating Criteria," FitchRatings, April 2024, https://www.fitchratings.com/research/us-public-finance/us-public-finance-local-government-rating-criteria-02-04-2024.

[b] Beglin, Cortez, and Richman, "US K–12 Public School Districts Methodology," 6.

[c] Beglin, Cortez, and Richman, "US K–12 Public School Districts Methodology," 8.

[d] Beglin, Cortez, and Richman, "US K–12 Public School Districts Methodology," 33.

Property assessed clean energy finance

Property assessed clean energy finance (PACE) is a financial arrangement allowing a property owner to finance energy upgrades and other eligible improvements and repay through a voluntary tax assessment.[25] This mechanism reduces the upfront costs barrier and allows property owners to spread repayment over a long period, typically 10 to 20 years. Where state legislation authorizes this arrangement, local governments raise bonds to fund PACE programs, and they recover these costs through the additional property tax assessment. This collection mechanism is quite low risk and unlocks low-cost municipal capital for borrowers, but it is not available to government property owners like school districts that do not pay property taxes (these borrowers should be able to access low-cost municipal capital directly through their taxing power).[26] Commercial PACE programs are designed for upgrades to nonresidential properties, such as charging infrastructure investments at bus depots. As of 2023, 34 states had active C-Pace programs and enabling legislation.[27] In the context of electric school buses, contractors can use PACE programs to make energy and charging infrastructure improvements on their depots at a low-cost interest.

Revolving funds

A revolving fund houses capital that enables investments in capital projects that produce savings. After investments are made, the expected savings achieved from the project are allocated back to the fund to support additional projects.[28] A revolving fund can be established by a government entity, third-party financial institutions, or single organization, such a school district. In the case of electric school buses, the initial capital outlay from the revolving fund would cover the incremental cost of an electric bus over a diesel bus, and the operational savings over the lifetime of the electric bus relative to a diesel bus would be the source of funds to recapitalize the revolving fund so that it can be used to make future investments. This model has been previously used by schools, especially universities, to fund various sustainability projects. The US Green Building Council offers guidelines on how schools can implement a green revolving fund.[29]

Depreciation funds

A depreciation fund allows school districts to set aside funds to replace an asset at the end of its lifetime. In fact, certain states reimburse the depreciated value of a bus back to a school district annually. Establishing a depreciation fund can help plan for future school bus purchases and limit financial strain at the end of the school bus lifetime. One challenge for districts that typically rely only on depreciation funds to purchase new buses is that, because a new diesel bus is cheaper than a new electric bus, the depreciation accrued on a diesel will be insufficient to cover the upfront cost of a new electric. However, capital from a depreciation fund can be paired with another funding or financing source to support an initial procurement, and thereafter operational savings provided by electric school buses can flow into the depreciation fund.

Energy savings performance contracts

Energy savings performance contracts (ESPCs) are contractual and financial mechanisms that enable school districts to pay for equipment and infrastructure upgrades by using energy and maintenance savings generated over time. Critically, ESPCs allow school districts to fund necessary upgrades without diverting funds from capital budgets. The project structure involves an energy service company, which oversees construction or installation and guarantees operational savings, and a financial agent that provides financing for the project.[30] For example, the School District of Philadelphia has partnered with the Philadelphia Energy Authority to implement ESPCs, leading to $1.1 million in energy savings.[31] As school districts venture into electrification of their fleets, innovative districts are integrating electric bus infrastructure into ESPC projects, as Huntley Community School District 158 in Illinois did with a 2022 request for proposals.[32] Districts can pursue infrastructure upgrades and embed school bus electrification within any planned ESPCs to reduce energy costs, reduce emissions, and provide health benefits to students and staff.[33]

Recommendations for evaluating financial mechanisms

While financial mechanisms can be a tool to acquire needed assets, including electric school buses and infrastructure, it is important for school districts to understand and evaluate the terms of arrangements and their overall impact on a school's financial position.

1. To enable a robust discussion on financial mechanisms, communicate the benefits and process for electrifying your school bus fleet with your business office, school board, and local community.[34] This can include meeting with relevant stakeholders, visiting an electric school bus depot, bringing an electric school bus to campus, webinars, and other engagement tactics. It is crucial that key stakeholders understand the expected health and environmental benefits and operational savings expected from investing in electric school buses. For more information, see the "School Bus Electrification Template Roadmap" and Electric School Bus Pitch Slide Deck, "Why Electric School Buses."[35]

   Guiding questions:

   - Do the school board and broader community understand the health and environmental benefits, as well as the operational savings, of electric school buses?
   - What are their main concerns? Do they differ among key stakeholders?
   - What are the best ways to address these concerns, share the benefits, and engage the broader community in creating a project vision to decarbonize the fleet?

2. Reach out to various financial institutions at the local, regional, and national levels, as well as government agencies, to understand the financial mechanisms and funding options available and how they can meet your needs. There are many funding and financial mechanisms that could be combined to enable cost-effective procurement of electric school buses.

   Guiding questions:

   - Are there financial institutions (CDFIs, green banks, regional banks) in your community?
   - What interest rates do they offer?
   - How long is the repayment period?
   - Do they offer grace periods?
   - Does the financial structure dictate which entity owns the school bus?
   - How are the terms of the loan structured? Is there flexibility on the terms of the loan to meet the needs of the school district?

3. Understand how an investment in electric school buses could impact your school budget and financial position in the short and long term. This includes considering operational savings, debt repayments, and long-term financial priorities.

   Guiding questions:

   - What are your state's and district's policies on school borrowing? What are your debt limits?
   - Does your state government offer credit enhancement mechanisms? What are the requirements?
   - What is your debt ceiling? What are your long-term liabilities?
   - What is your annual operating budget? How much do you expect to save on fuel and maintenance costs by adopting electric school buses?
   - Could funding for electric school buses be included in the next bond measure?

Additional resources

- Electric School Bus Initiative. “Powering Electric School Bus Adoption with Complementary Funding and Financing Solutions.” November 2023. https://electricschoolbusinitiative.org/powering-electric-school-bus-adoption-complementary-funding-and-financing-solutions.
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