

A yellow school bus is shown with its rear door open. A young girl in a pink jacket and light blue pants is walking up the steps into the bus. A young boy in a blue and white jacket and tan pants is running towards the camera, smiling. The background is slightly blurred, showing green foliage.

THE SCHOOL BUS MODERNIZATION ACT

Rep. Sarinana, Senator Soules 11/3/2023

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WHY THIS BILL?

This bill provides New Mexico school districts the option to renew aging diesel buses with clean Electric School buses, overcoming disincentives to adopt them.

Providing support for New Mexico schools to transition from diesel to electric buses advances these legislative priorities:

1. Improve physical and mental health for ALL New Mexico students (thus addressing Yazzie Martinez mandates, and absenteeism).
2. Reducing recurring transportation and energy costs, allowing districts to repurpose those dollars to the classroom.
3. Reduce greenhouse gas emissions, help grid resilience and more public charging stations in rural communities.



ELECTRIC SCHOOL BUSES:

The BIG Opportunity

The *Clean School Bus Program* is part of the 2021 *Bipartisan Inflation Reduction Act*. The \$5 billion program is administered by the EPA. The Department of Energy's site provides resources webinars and videos to inform states and school districts with case studies, and logistical strategies for transitioning to electric school buses. Still, the program funding falls short of the need to pay the entire cost of purchasing ESB's and required charging infrastructure. For 5 buses, the grants were \$359,064.85 of actual costs! https://afdc.energy.gov/vehicles/electric_school_buses.html

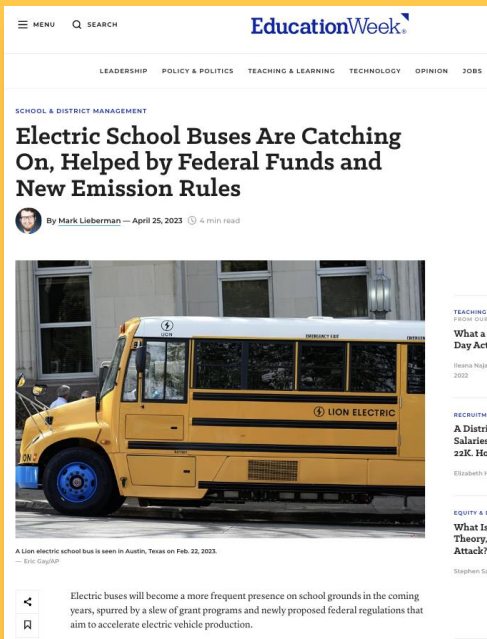
E.S.B.'s WILL WORK FOR ALMOST ALL NEW MEXICO BUS ROUTES

The average school bus ride in New Mexico is less than 32 miles with 99% of routes being under 78 miles. Districts estimate their ESBs will have approximately a 125 mile range. One manufacturer is starting production on a bus with 300 mile range!

<https://stnonline.com/partner-updates/6-myths-about-electric-school/>

<https://electrek.co/2023/10/31/electric-school-bus-300-mile-range/>

ELECTRIC SCHOOL BUSES (ESB'S): *Obstacles to Adopting Electric*



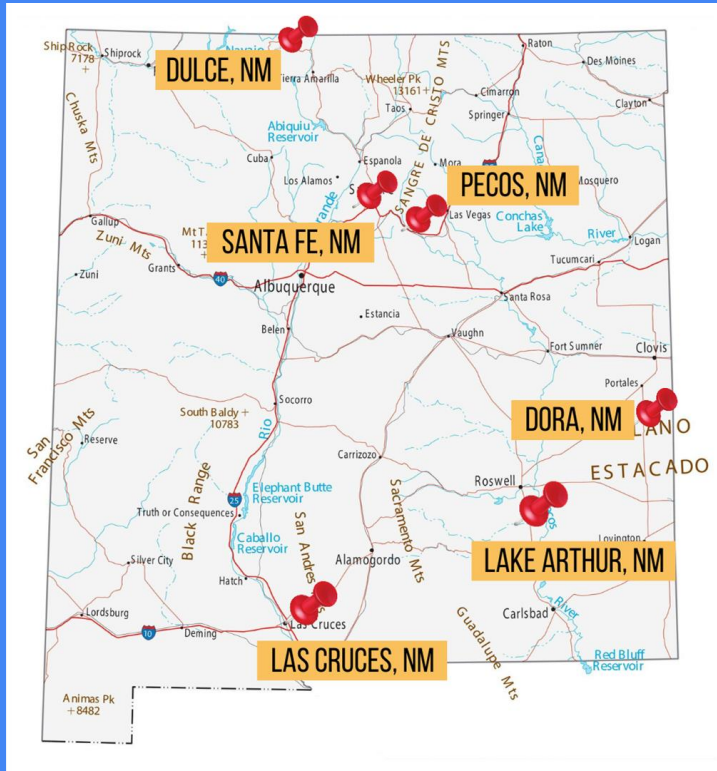
The screenshot shows the EducationWeek website with the article title "Electric School Buses Are Catching On, Helped by Federal Funds and New Emission Rules" by Mark Lieberman, dated April 25, 2023. The article features a photograph of a yellow Lion Electric school bus. Below the photo, a caption reads: "A Lion electric school bus is seen in Austin, Texas on Feb. 22, 2023. — Erik Gray/AP". The article text begins with: "Electric buses will become a more frequent presence on school grounds in the coming years, spurred by a slew of grant programs and newly proposed federal regulations that aim to accelerate electric vehicle production."

Five New Mexico School Districts received federal funding in 2023 for new Electric School Buses, more applied this year! New Mexico has 2,007 school buses, of which 300+ are retired each year. Districts have no costs and need do very little to replace an aged out bus with another diesel, but it takes more work and and it take local funds to choose Electric; adopting new technologies also requires more work than the status quo.

Nationally 400 districts have been awarded nearly \$1 billion to purchase a total of 2,400 electric buses Ten ESB's were awarded to 5 New Mexico districts last year. There are lessons.

<https://www.edweek.org/leadership/electric-school-buses-are-catching-on-helped-by-federal-funds-and-new-emission-rules/2023/04>


FIVE NEW MEXICO DISTRICTS ARE GOING ELECTRIC VIA EPA PROGRAM. SANTA FE TOO!



LCPS

Las Cruces Public Schools awarded \$2M in federal money for electric school buses

Algernon D'Ammassa
Las Cruces Sun-News
Published 1:38 p.m. MT Oct. 27, 2022



School districts embrace electric buses
Efforts to make school buses greener are gaining momentum thanks to billions of dollars in spending in the federal infrastructure plan. (Oct. 29 AP)

LAS CRUCES – New Mexico's second-largest school district, the Las Cruces Public Schools, has been awarded nearly \$2 million to purchase electric school buses under a federal rebate program.

LCPS was one of five school districts in New Mexico awarded funds under the Environmental Protection Agency's Clean School Bus Program, alongside smaller

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S&P 500 4,099.36 -27.97 (-0.67%) Dow 30 32,422.42 -365.88 (-1.13%) Nasdaq 12,601.22 -15.61 (-0.12%) Russell 2000 1,636.16 -20.84 (-1.26%) Crude Oil 85.76 -2.35 (-2.69%)

Eastern New Mexico News, Clovis, N.M.

Dora schools get grant for electric school buses

October 29, 2022 - 2 min read

Oct. 29—SANTA FE — The federal Environmental Protection Agency (EPA) Wednesday announced the award of funding for five New Mexico school districts to buy 12 electric school buses.

According to a news release from New Mexico Senator Martin Heinrich, founder and co-chair of the Electrification Caucus said, "I am thrilled to welcome this first round of funding for the Clean School Bus Program."

"Electric school buses save New Mexico school districts money," Tammy Fiebelkorn, New Mexico Representative of the Southwest Energy Efficiency Project said.

Nena Benavidez, Co-Founding Director of Creciendo Nuevo México and resident of Grant County said, "This is a tremendous opportunity to reduce our carbon footprint and protect our rural environment."

The news release reported the Bipartisan Infrastructure Law included \$5 billion to help

- [Las Cruces Sun News article about their new electric buses.](#)
- Yahoo Finance [article about Dora and electric bus.](#)

YOUR LEGISLATIVE EDUCATION STUDY COMMITTEE REPORT ON SCHOOL TRANSPORTATION REPORT RECOMMENDS ELECTRIC SCHOOL BUSES!

"Build a funding mechanism for electric school buses. ... The legislature can provide funding for electric school buses, ... State funds for electric school buses should be provided for districts that are ready to proceed with electric buses ..."

*Study of the Public School Transportation Distribution
LESC Oct 12, 2023*

<https://www.nmlegis.gov/handouts/ALESC%20101123%20Item%208%20.1%20-%20LESC%20Study%20of%20the%20Transportation%20Distribution.pdf>



SANTA FE ALREADY MOVED TOWARD ADDING ELECTRIC TO IT'S SCHOOL BUS FLEET IN 2022!

SFPS was awarded \$1,119,987 in 2022 from the Volkswagen Environmental Mitigation Settlement for the purchase of three new electric buses.

“Our move to electric school buses is great for the environment and, most importantly, our students. Replacing buses that are more than 10 years old and diesel-powered with alternative-fuel buses will result in reduced tailpipe pollution, greenhouse gas emissions and lowered fuel costs. **It's a win-win for everyone,**” said S.F.P.S. Superintendent Hilario “Larry” Chavez.





IT'S A MATTER OF STUDENT HEALTH!

Exposure to diesel exhaust, according to the National Institute for Occupational Safety and Health, the International Agency for Research on Cancer, United States Environmental Protection Agency, and the National Toxicology Program can lead to asthma and respiratory illnesses and worsen heart and lung ailments, especially in children and the elderly. **All consistently agree there is a relationship between diesel exhaust exposure and lung cancer.**

What surprises many is the risk of harm is great for students inside a diesel school bus.



IT'S A MATTER OF STUDENT HEALTH!

Exposures of occupants in school buses to on-road vehicle emissions, including emissions from the bus itself, can be substantially greater than those in outdoor settings.

<https://pubmed.ncbi.nlm.nih.gov/21608489/>

Increasing evidence has demonstrated toxic effects of ultrafine particles (UFP*, diameter < 100 nm). **Children are particularly at risk because of their immature respiratory systems and higher breathing rates per body mass.** *Characterizing ultrafine particles and other air pollutants in and around school buses.* HEI Health Review Committee

<https://pubmed.ncbi.nlm.nih.gov/24834688/>

ACADEMIC PERFORMANCE INCREASES WITH CLEANER BUSES!

NBER WORKING PAPER SERIES

SCHOOL BUS EMISSIONS, STUDENT HEALTH, AND ACADEMIC PERFORMANCE

Wes Austin
Garth Heutel
Daniel Kreisman

Working Paper 25641
<http://www.nber.org/papers/w25641>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
March 2019

We thank the GaDER program for assistance in identifying retrofits. We thank Jonathan Smith, Ariell Zimran, and seminar participants at TEAM-Fest, the Southern Economics Association annual meeting, and the University of South Carolina for helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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Asthma often keeps kids out of school. Districts see significant test score gains in English and smaller gains in math after their districts retrofited older diesel buses. “Results suggest that engine retrofits [and zero emission ESB’s] can have meaningful and cost-effective impacts on health and cognitive functioning.”

https://www.nber.org/system/files/working_papers/w25641/w25641.pdf

(written before the new funding for electric buses)

NEW MEXICO'S LOW INCOME, STUDENTS OF COLOR, AND RURAL STUDENTS CAN GAIN THE MOST

The Majority of N.M. School Bus Riders Are Low-Income and/or students of Color.

The health threats from diesel “disproportionately impacts low-income communities and Black, Indigenous, Latinx and other communities of color, who are already more likely to be living in areas with dirtier air and are more likely to suffer — and die — from illnesses like asthma. **Asthma is the number one chronic illness for children, the #1 cause of school absences, and has no cure.**”

<https://electricschoolbuses4kids.org/our-work/>

<https://electricschoolbusinitiative.org/electric-school-buses-can-fight-or-further-inequity-us>



MORE \$ FOR OUR STUDENT'S EDUCATION, LESS WASTED ON RISING FUEL COSTS!

A school district operating an ESB can expect to see over \$100,000 in lifetime fuel and maintenance savings, compared to an equivalent diesel bus, which can help offset the currently higher purchase price of an ESB. Market experts expect that the lifetime costs of electric school buses will be around the same as diesel buses — by the end of this decade. The states of Maryland and California are going 100% Electric by 2035, lowering the cost per vehicle over time.

<https://electricschoolbusinitiative.org/all-about-total-cost-ownership-tco-electric-school-buses>

<https://cleantechnica.com/2022/02/02/the-real-cost-of-electric-school-buses-is-lower-than-you-think/> and

<https://electrek.co/2022/03/18/electric-school-buses-are-reaching-cost-parity-with-diesel-and-a-california-district-will-deploy-one-of-the-largest-e-bus-fleets-in-the-state/>



COLORADO IS LEADING THE WAY WITH \$65 MILLION FOR ESB'S! OTHER STATES GOING 100% ELECTRIC!

<https://pirg.org/colorado/foundation/resources/2022-state-of-electric-school-buses-in-colorado/>

CO SB22-193 (enacted 2022): created the electrifying school buses grant program to award grant money to school districts to help finance the purchase and maintenance of electric-powered school buses, the conversion of fossil-fuel-powered school buses to electric-powered school buses, charging infrastructure, and upgrades for electric charging infrastructure and the retirement of fossil-fuel-powered school buses.

<https://cdphe.colorado.gov/electric-school-buses>



COLORADO IS LEADING THE WAY WITH \$65 MILLION FOR ESB'S! OTHER STATES USING BUSES TO SUPPORT THE ELECTRIC GRID

ME L.D. 519 (enacted 2023): requires the Efficiency Maine Trust to design and operate a 2-year vehicle-to-grid pilot project to use electric school buses to store energy from the electric grid during times of low demand and low usage rates and discharge the stored energy to the grid during times of high demand and high usage rates.

VA H.B. 2118 (enacted 2021): establishes the Electric Vehicle Grant Fund and Program for the purpose of awarding grants on a competitive basis for replacing diesel school buses with electric school buses, implementing recharging infrastructure, and providing training to support the maintenance, charging, and operation of such electric school buses.



WHAT IF THE GRID GOES DOWN?

- During a catastrophe, ESB's will continue to run – same as with diesel – to bring students home or to school, whatever the district decides is best in the circumstances.
- Buses ready to transport schools will not be needed when school is cancelled for lack of power.
- Charged buses can be used to satisfy critical power needs in an emergency.
- “A switch to electric school buses not only eliminates emissions that harm public health, it also plays a role in the state’s larger clean energy transition. Electric buses can serve as batteries on the grid and help utilities meet demand” <https://energynews.us/2022/08/19/federal-electric-bus-program-leaves-chicago-other-school-districts-behind/>
- See this short news story from North Carolina focusing on Vehicle-To-Grid benefits <https://www.wcnc.com/video/news/local/ev-bus-benefits-beyond-environmental-impacts/275-b6ccf82e-04fa-4b1c-88f3-014844871602>
- And this 45 second humorous video on inside the bus health hazards our students encounter every time they ride a diesel bus: <https://www.youtube.com/watch?v=coJmUW5l-98>

A RESOURCE FOR DISASTERS AND EMERGENCIES!

Vehicle to Grid: 14 States

Electric School buses sit idle up to 91% of the time (Bus To Grid Initiative), some of which time they could discharge their clean energy into the grid.

<https://www.epa.gov/greenvehicles/what-if-electric-school-buses-could-be-used-supply-power-when-dutyE> (WRI)
<https://electricschoolbus.org/vehicle-to-grid-relevant-or-not-the-least-you-need-to-know/>

Last fall, Highland Electric Fleets and Thomas Built Buses helped supply electricity back to the grid for the first time in Massachusetts. The electric school bus discharged nearly 3 megawatt-hours of electricity total to the regional electric grid over the course of 30 events this summer.

“We help with storing energy and stabilizing our local grid using the energy stored in the bus batteries,” said an official of the Cajon Valley Union School District (CVUSD) near San Diego, which transports 1,000 students and has seven electric school buses (ESBs) in its fleet.

<https://stnonline.com/special-reports/can-electric-school-buses-pass-tests-posed-by-heat-waves/#:~:text=Gilbert%20Rosas%2C%20the%20district%E2%80%99s%20director%20of%20sustainability%20and,i s%20unlikely%20to%20adversely%20affect%20EV%20school%20buses.>

COLD WEATHER, ROUGH ROADS NOT AN OBSTACLE

“The elevation at our bus garage is 7,500 feet, and my route is above 9,000 feet. ... I am impressed by its power when it climbs the long and steep Gore Pass on my route. This pass is rarely plowed..., and the electric bus’s performance has been excellent. **Despite poor road conditions, the electric bus has never had any issues.**” Bethany Aurin
Transportation Director, West Grand School District,
Colorado

Electric school buses are successfully operating in all manner of weather and climates – such as Three Rivers, Michigan where it freezes December to February. <https://electricschoolbusinitiative.org/electric-school-bus-series-successfully-operating-cold-weather-three-rivers-michigan-0>





HOT WEATHER: ALSO NOT A PROBLEM

Manufacturers have developed BMS (battery management system) and BTMS (battery thermal management system) to control and access the full capability of its batteries, and drivers can expect full range in all conditions.

<https://stnonline.com/partner-updates/6-myths-about-electric-school-buses-debunked/>

Cajon Valley (CA.) school district's electric buses weren't on route during the heatwave and were plugged in to test the V2G functionality during an actual Emergency Load Reduction event. **Ten days of 100-degree-plus temperatures had little negative effect on the electric buses.**

<https://stnonline.com/special-reports/can-electric-school-buses-pass-tests-posed-by-heat-waves/>

WORKFORCE CONCERNS: FIRST RESPONDERS, TECHNICIANS, MECHANICS NEED TRAINING

Staff including fleet operators, maintenance technicians, drivers, school bus dealers, and first responders need access to robust training to safely and effectively support the operations and maintenance of ESBs. In particular, technicians and mechanics need extensive training to work in the presence of high voltage batteries and electrical system. The E.P.A. program does not fund these needs, but training resources are available!

<https://www.epa.gov/cleanschoolbus/workforce-development-and-training-resources>

<https://electricschoolbusinitiative.org/reskilling-workforce-training-needs-electric-school-bus-operators-and->



DRIVERS LOVE THE BUSES

EVs drive just like their gasoline and diesel counterparts – and in many ways are actually simpler to drive. There are no gears to worry about, power delivery is smooth with instant response, and EVs are also **nearly silent** – with **less noise, vibration and harshness** than is typically associated with diesel or gasoline drivetrains. As a **result, drivers can hear more of what's going on in the bus, visibility can be improved due to fewer constraints from engine placement, and both students and drivers are less stressed from quieter rides.**



The School Bus Modernization Act: Win, Win, Win, Win!



- Provides a cleaner, healthier bus ride for N.M. students so we do not inadvertently harm them as we transport them to and from school.
- Provides a funding mechanism so it does not cost a district more money to adopt an ESB than it does a Diesel or Gasoline bus.
- Provides N.M. districts with a neutral source of information and assistance at the PED Transportation unit.
- Funds a statewide design and engineering study to assess school district infrastructure readiness and implementation needs to make a full or partial switch to Electric.