



EPA Clean School Bus Series: Deployment Considerations

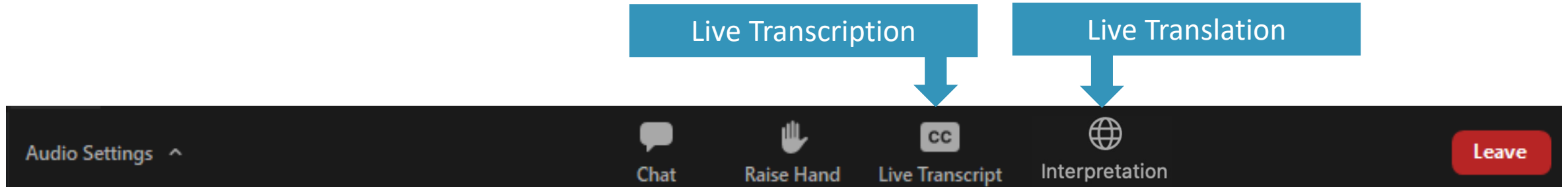
**Wednesday, May 11, 2022
10:00-11:30am PT**



This presentation aims to provide information related to the Clean School Bus Program. EPA does not endorse any specific companies or products by allowing external parties to present at Clean School Bus Program events. The presenters at this event are not intended to be a comprehensive list of companies or products related to the Clean School Bus Program.

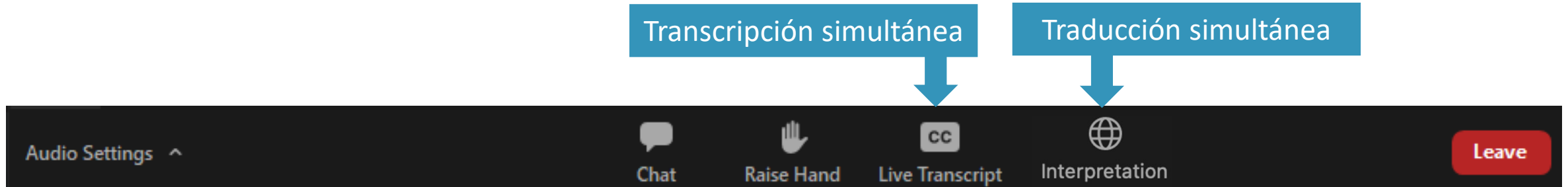
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Zoom Webinar Logistics



- **This session is being recorded.** EPA will make a copy of the recording and presentation slides available on their website in the near future
- **All attendees are in listen-only mode.** Audio is available through your computer speakers or by phone.
- **Technical difficulties:** If you are having technical difficulties, please email M Miglio at m.miglio@epa.gov.
- **Live transcription:** Automated live transcription is available by clicking the “Live Transcript” icon in your Zoom toolbar.
- **Live translation:** Live Spanish translation is available by clicking the “Interpretation” icon and selecting Spanish.
 - Note, to mute English audio when listening in Spanish, click “Mute Original Audio.”
- **Questions:** Submit questions in the chat to M Miglio, they will be answered at the end of the presentations

Logística del Webinar de Zoom



- **Esta presentación está siendo grabada.** La EPA publicará una copia de la grabación y las diapositivas de la presentación en su sitio web en un futuro próximo
- **Todos los participantes están en modo solo de audio.** El audio está disponible a través de los altavoces de su computadora o por teléfono.
- **Dificultades técnicas:** Si tiene dificultades técnicas, envíe un correo electrónico a M Miglio a m.miglio@epa.gov.
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- **Traducción simultánea:** La traducción simultánea al español está disponible al hacer clic en el icono "Interpretation" y seleccionar español.
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- **Preguntas:** Envíe sus preguntas por escrito en el chat a M Miglio, serán contestadas al final de las presentaciones.

Healthy School Environments

Key Topics

Air: Indoor air

- [Creating healthy indoor air quality \(IAQ\) in schools](#)
 - [IAQ Tools for Schools Action Kit](#)
 - [School IAQ Assessment Mobile App](#)
 - [IAQ Training Webinars](#)
 - [Preventive Maintenance Guidance Documents for Schools](#)

Air: Outdoor air near schools

- [Best Practices for Reducing Near-Road Pollution Exposure at Schools](#)
- [Air Quality Flag Program **DOT**](#) - learn how schools can raise flags that correspond to how clean or polluted the air that day is.

Asbestos

- [Learn about asbestos](#)
- [Asbestos and school buildings](#). Includes information on:
 - Asbestos Hazard Emergency Response Act (AHERA)
 - How schools comply with AHERA
 - School asbestos management plans
 - Resources for schools and parents
 - [Información en español](#) - para parientes, maestros y otros empleados escolares

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- [Learn about asthma](#)
- [Managing Asthma in the School Environment](#)
- [Managing Asthma: A Guide for Schools \(PDF\) **DOT**](#)
- [Roles of state asthma programs in implementing school-based asthma](#)

Lead

General Information

- [Learn about lead](#)
- [Lead air pollution](#)

Lead and Children

- [Environmental health facts about children and lead exposure](#)
- [Federal Action Plan to Reduce Childhood Lead Exposure](#)
- [Protecting Children from Lead Exposures \(PDF\)](#)
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Lead in Drinking Water

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Mercury

- [Learn about mercury](#)
- [Case studies about mercury cleanups at schools](#)
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Mold

- [Learn about mold](#)
- [Mold and indoor air quality in schools](#)
- [Mold remediation in schools and commercial buildings](#)
- [Mold resources for schools and commercial buildings](#)

PCBs

- [Learn about Polychlorinated Biphenyls \(PCBs\)](#)
- [PCBs in building materials for school administrators, building owners and managers](#)

Sensible Steps for School Health

Assess Your School's Health

[Use a fillable, printable PDF form to assess the current environmental health of your school.](#)

Top Ten Ways to Make Your School Healthier

1. Clear the air inside.
2. Clear the air outside.
3. Reduce/remove radon in school buildings.
4. Use chemicals carefully.
5. Test the water.
6. Get the lead out.
7. Eliminate mercury.
8. Cover up.
9. Use toxics with caution.
10. Educate yourself.

Learn more: [Sensible Steps to Healthier School Environments \(April 2017\) \(PDF\)](#).

Related Information

Healthy Schools

- [School Siting Guidelines](#)
- [School Environmental Health Guidelines](#)

Children's Health

- [Protecting Children's Environmental Health](#)
- [NIEHS/EPA Children's Environmental Health Disease Prevention Centers](#)

Healthy School Environments

<https://www.epa.gov/schools>

Contact: Eileen Shanahan
shanahan.eileen@epa.gov



YUMA EDUCATIONAL
TRANSPORTATION
CONSORTIUM

Yuma Arizona



Why Propane

- Cleaner, reducing emissions
- Quieter
- More cost efficient



- On site fueling
- Bulk fuel price reduces fuel cost up to 35%
- Participate in Alternative Fueller tax credits



EPA DERA Bus Rebate

- Application is easy to fill out
- Prepare information in advance
 - DUNS Number
 - Taxpayer ID Number
 - Registered with SAMS
 - Bus titles and registrations
 - All numbers on application are complete and correct
 - Pictures of bus data plates are clear and readable

EPA United States Environmental Protection Agency | **DERA School Bus Rebate Application** | OMB Number: 2050-0688 | Expiration Date: 4/30/2022

Applicant Information | Funding Year: 2019 | Target Fleet: School Bus | Project Type: Vehicle Replacement

Applicant Organization Name: _____
 Applicant Street Address (No PO Boxes): _____
 City: _____ County: _____ State: _____ Zip: _____
 Employer/Taxpayer No. (EIN/TIN): _____ DUNS Number: _____
 Applicant Organization Type: Select _____
 Total number of school buses in organization's fleet: _____
 Do the schools served by the buses listed below have an idle reduction policy? Select _____

Additional Fields for Private Fleets Only: Private fleet owners can apply for funding from the National Clean Diesel Rebate Program if the vehicle(s) for which funding is being requested are currently contracted or leased to an eligible entity (e.g., private school). For additional information regarding private fleet applicants and eligible entities, please refer to the Program Guide.
 Type of eligible public entity vehicles are contracted with: Select _____
 Public Entity Name: _____
 Public Entity Street Address: _____ Public Entity City: _____
 Public Entity State: _____ Public Entity County: _____ Public Entity Zip: _____
 Check box to certify that the privately-owned vehicle(s) listed below are contracted with and serve the public entity listed above.

Original diesel vehicle(s) that will be scrapped and replaced:

	17-Character Vehicle Identification Number (VIN)	Engine Model Year	GWR (Gross Weight Rating) (lbs)	Diesel Engine Manufacturer	12-Character EPA Engine Family Name	Annual Miles Traveled	Annual Fuel Use (gallons)	Estimated Remaining Life (yrs)	Rebate Amount
1									\$0
2									\$0
3									\$0
4									\$0
5									\$0
6									\$0
7									\$0
8									\$0
9									\$0
10									\$0
Total Funds Requested:									\$0

Check box to certify that the diesel school buses listed for replacement are (1) operational, (2) owned by the Applicant, (3) have accumulated 10,000 miles or more over the most recent 12 months or have been in use for at least three days per week transporting students during the current school year, and (4) will be scrapped if selected for funding.
 By signing, I certify the statements and information provided in this application are true and accurate to the best of my knowledge. If selected for funding, I agree to provide the required documentation and assurance necessary for funding.

Authorized Representative Name: _____ Title: _____ Email: _____ Phone: _____
 Authorized Representative Signature: _____ Date: _____
 Alternate Representative Name: _____ Title: _____ Email: _____ Phone: _____

If signed electronically, click "Submit by Email" below and attach vehicle title and registration documents. For paper signatures, please scan the signed forms and submit to: CleanDieselRebate@epa.gov with vehicle title and registration documents as described in the funding opportunity's Program Guide.

Submit by Email

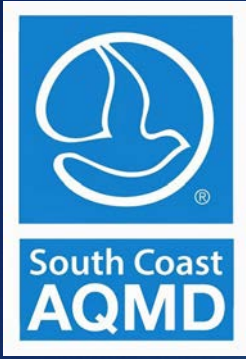
Ron Schepers
Director of Transportation

Yuma Schools Transportation Consortium

928-502-8840

rschepers@yuma.org





Lower Emission School Bus Program



What is the Lower Emission School Bus Program?



- ▶ Incentive program to replace older diesel school buses with cleaner bus technologies (Near-Zero Emission and Zero Emission)
- ▶ Voluntary grant program
- ▶ Reduce diesel air pollution and children's exposure to the harmful emissions from diesel school buses.



Background

- ▶ Since 2001, South Coast AQMD has spent \$325 million
- ▶ Replaced over 1,800 diesel school buses
- ▶ Retrofitted 3,400 diesel school buses with PM traps





Who is Eligible?



- ▶ Public School Districts
- ▶ Joint Power Authorities (JPAs)
- ▶ Within geographical boundaries of the South Coast AQMD

Existing School Bus Eligibility



- ▶ Model Year of School Bus: 20 Year old or older
- ▶ Gross Vehicle Weight Rating (GVWR) > 14,000 lbs
- ▶ Maintained continuous CHP certificates for the past three years
- ▶ Diesel Fueled
- ▶ Type A, C, or D school bus
- ▶ Currently registered with the DMV
- ▶ Must be willing to crush/dismantle existing school bus once replaced.

Maximum Funding Amounts



Fuel Type	Bus Type	South Coast AQMD Maximum Award (Up to)	Infrastructure per School Bus (Up to)
Zero Emission*	A	\$325,000	\$20,000
	C, D	\$370,000	\$20,000
Propane**	C	\$155,000	\$5,000
Compressed Natural Gas**	C, D	\$205,000	\$15,000

The funding amounts shown in the table may be reduced if the project also receives HVIP funding.

* South Coast AQMD + HVIP = \$400,000 Maximum Award

**Certified at or below the optional low NOx standard of 0.02 g/bhp-hr.

Past EPA Funded Awards



Award about \$1.5 M in DERA Funds:

- 24 Public School Districts
- 32 diesel school bus replacements

New School Bus Type	Number of Buses
Zero-Emission	3
CNG	25
Propane	4
Total	32

Recent Awards



Award about \$47M:

- 46 public school districts
- 178 pre-2001 diesel school bus replacements and supporting infrastructure

New School Bus Type	Number of Buses
Zero-Emission	89
CNG	83
Propane	6
Total	178



More Information

<https://www.aqmd.gov/home/programs/business/lower-emission-school-bus-program>

Contact Information



Direct questions to:
SchoolBusProgram@aqmd.gov





Deploying Electric School Buses

Peter Tuckerman



An all-electric commercial
vehicle manufacturer

May 2022



EV School Buses



- The shift to electric buses and vehicles
- Electrical Infrastructure
- Buses and Training
- Challenge of Change



The Shift to Electric School Buses



Why is Battery Electric so different now?

ENVIRONMENTAL

- Improve Local Air Quality
- Reduce Noise Pollution
- Reduce Oil Consumption
- Improve Quality of Life for Students and Employees

POLITICAL

- Reduce foreign dependency
- Increase local jobs
- Oil Conservation
- Focus on and Strengthen the grid
- Social improvement at local levels

ECONOMICAL

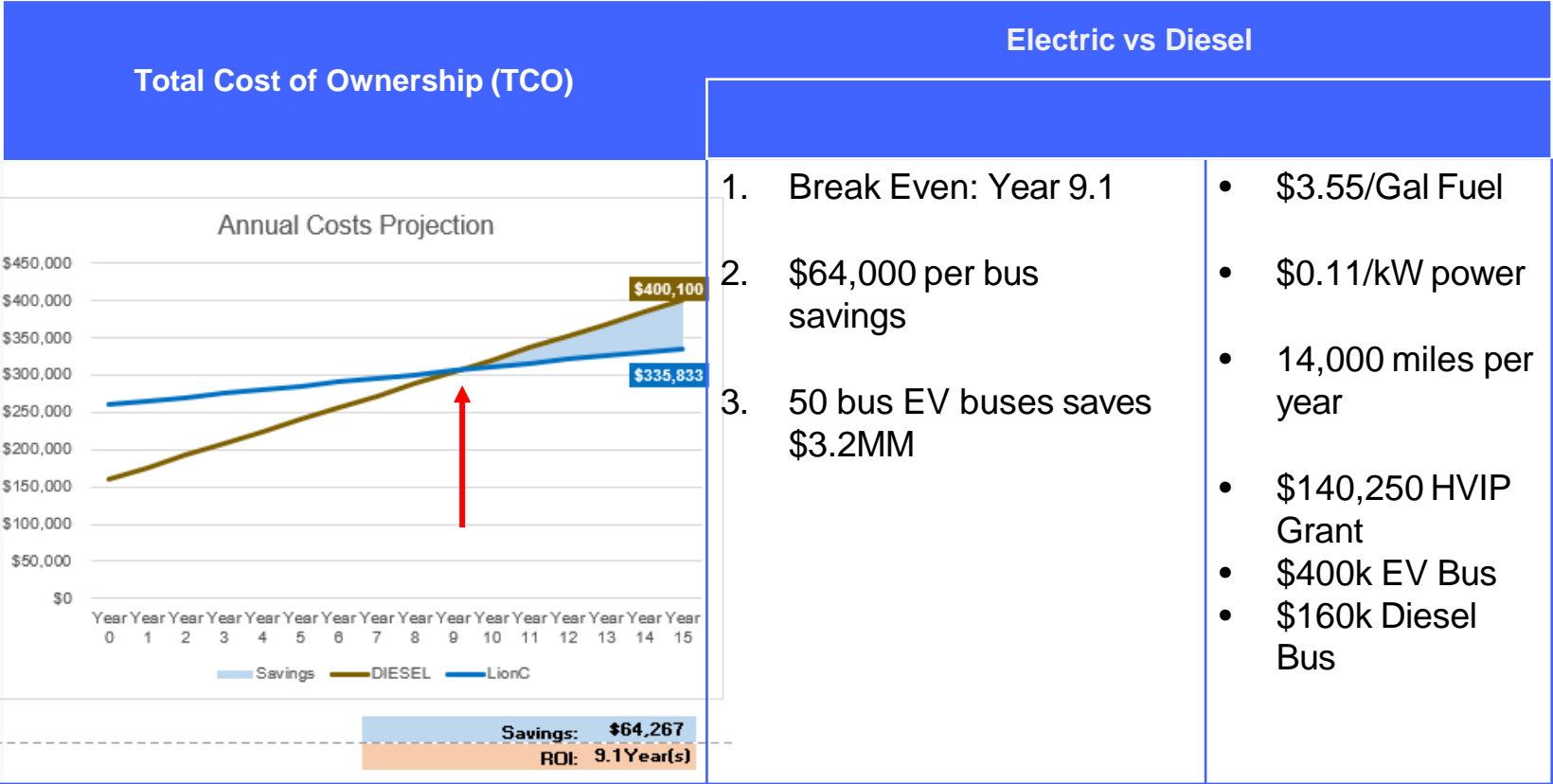
- Reduced total cost of ownership
- Reduced workload on staff
- Reduced parts inventory



The Shift to Electric School Buses



LIONC



The Shift to Electric School Buses



GRANTS & INCENTIVES



LIONC

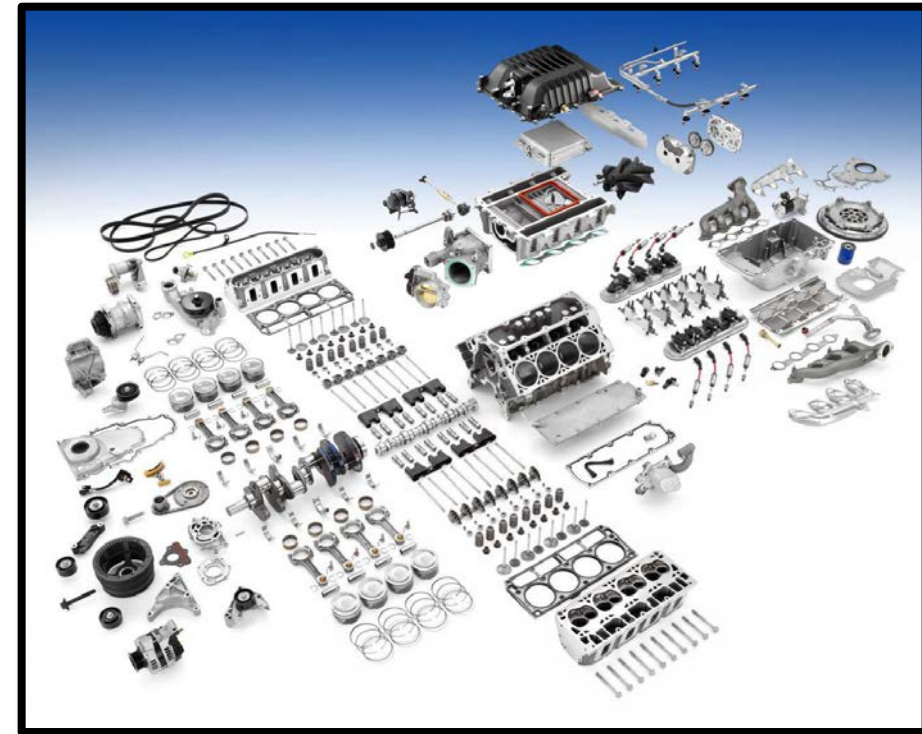
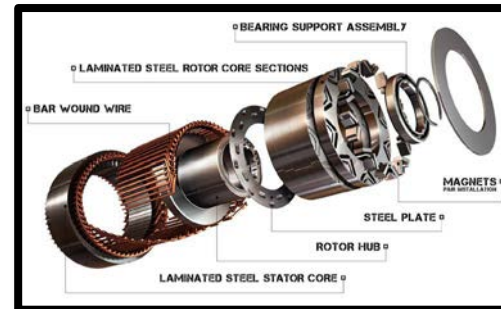
Total Cost of Ownership (TCO)	Electric vs Diesel	
	FREE BUS THROUGH	GRANT FUNDING
<p>Annual Costs Projection</p>	<ol style="list-style-type: none"> 1. Break Even: Year 0 2. \$324,000 per bus savings 3. 50 bus EV buses saves \$16.2MM 4. Modernization through "OPM" 	<ul style="list-style-type: none"> • \$3.55/Gal Fuel • \$0.11/kW power • 14,000 miles per year • \$400k Grant • \$400k EV Bus • \$160k Diesel Bus

The Shift to Electric School Buses



Why is the TCO lower with a new product?

- Electric Motors are VERY ROBUST! With very little maintenance.
- Electric Motors are upwards of 96% efficient!
 - ICE engines are 30-50%
- NO IDLING ENGINES but still have climate control
- No transmission, Turbos, DPFs, SCR
- Regeneration: Recapture energy



The Shift to Electric School Buses



Energize your work force

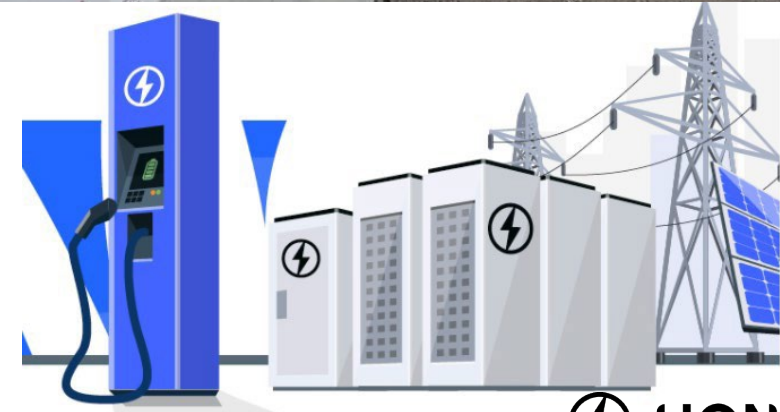
- Exciting technology
- No pumping fuel
- Integrated driver success reports
- Improved work environment
 - Noise level
 - Ride quality
 - Stability

Infrastructure



What type of Power is needed?

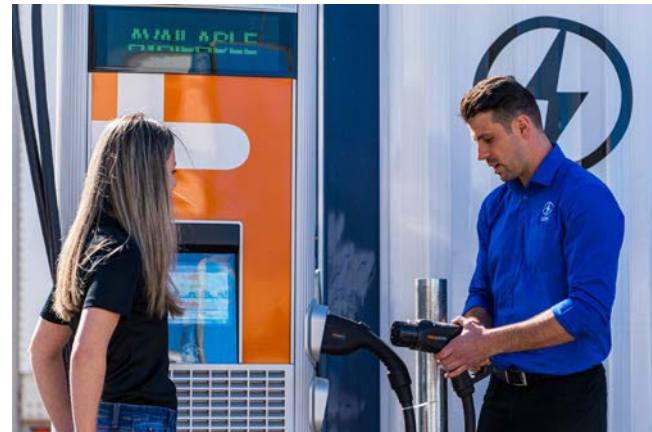
- Each needs about the same as a welding circuit
- Fast Chargers like a building Air Conditioner



Infrastructure



- Work with you bus manufacturer for compatibility
- Match Route schedule, bus range, and charger capacity
- Leverage Micro-grid resiliency options
 - School buses in a Micro-Grid – What is real?



Buses and Route Changes



Electric Buses should be part of a culture change!

- Choose drivers excited about Electric and invested in success
 - Drivers have a larger impact on range than the environment
- Choose routes which are within the scope of the bus performance standards
- Make EV training for technicians and Drivers a quarterly mandate
 - Range issues are most often controllable
 - Use Lion Beat – telematics to reward success
- Involve students in the adoption of EV School Buses



All-Electric School Buses



LIONA

All-Electric Mini School Bus

Up to 22,350 lb GVWR
75-150 miles
84-168 kWh



LIOND

All-Electric Type D School Bus

Up to 36,200 lb GVWR
100-125-155 miles
126-168-210 kWh



LIONC

All-Electric Type C School Bus

Up to 33,000 lb GVWR

100-125-155 miles



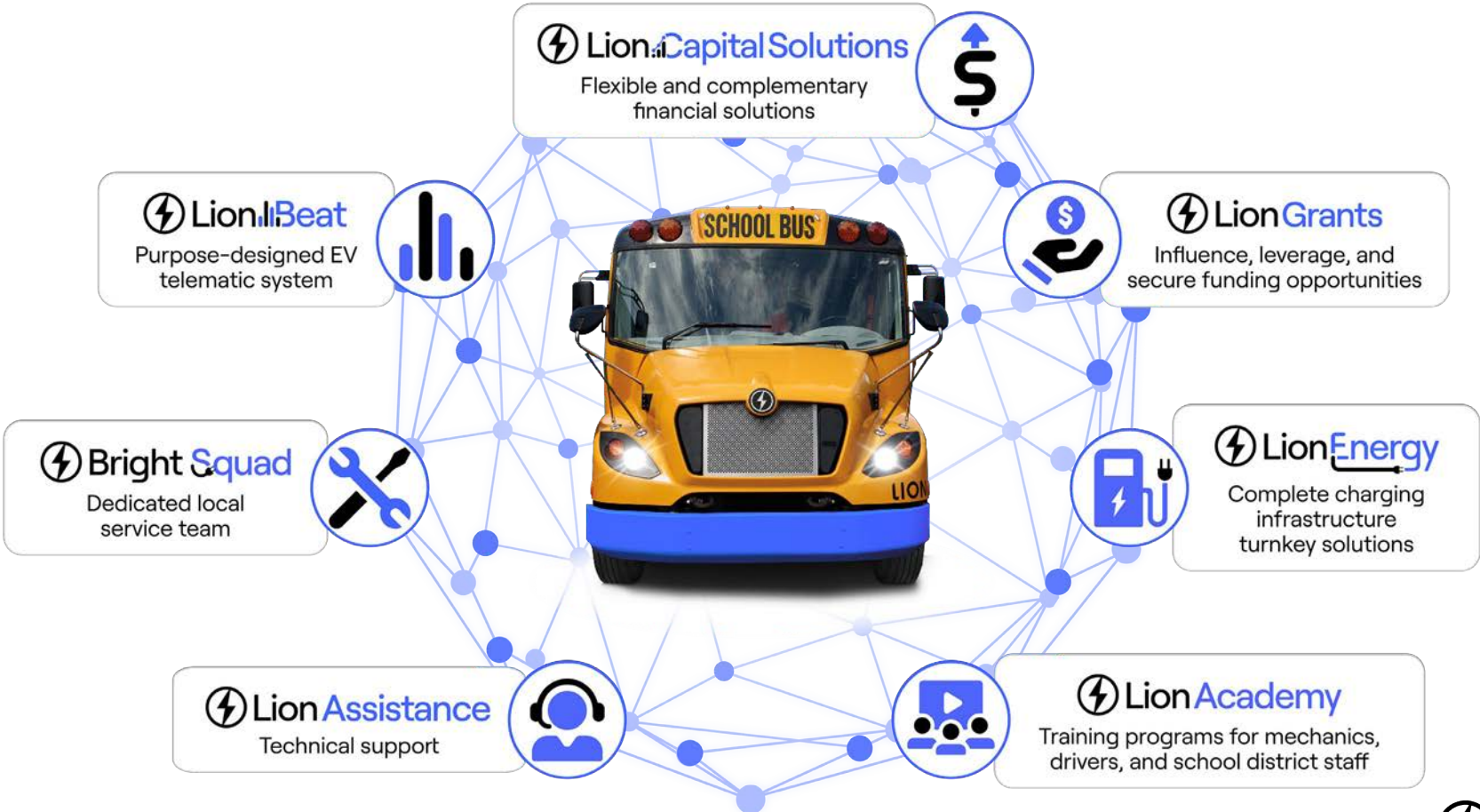
1 LION SCHOOL BUS
=
ELIMINATING

23 tons
of GHGs
per year

Thank You



➤ We help fleets who are frustrated with the transition to electric school buses
And help them deploy the best EV solutions: Buses, training, and infrastructure.



Challenge of Change



- EV Buses will reduce your operating costs
- Electrical Infrastructure: Plan and have a strong partner
- Buses and Route changes: Technology adoption
- Drivers and Mechanics: Training and Culture change

**DON'T
EXPECT
TO SEE A
CHANGE IF
YOU DON'T
MAKE ONE.**

The bright move

TOMORROW
at noon (PST) for a
full **Lion** Webinar on
**EV School Bus
Deployments**

Peter Tuckerman

Peter.Tuckerman@TheLionElectric.com

916.342.8400



Thank you!

Contacts for Additional Questions & Resources:

EPA

- Esperanza Perez, Region 9 School Bus Lead:
Perez.Esperanza@epa.gov
- For questions about the application-EPA Clean School Bus Program helpline: cleanschoolbus@epa.gov

Yuma Schools Transportation Consortium

- Ron Schepers, Director of Transportation: rschepers@yuma.org

South Coast Air Quality Management District

- Yuh Juin Tan, Program Supervisor: ytan@aqmd.gov

Lion Electric

- Peter Tuckerman, Director of Sales:
Peter.Tuckerman@thelionelectric.com



EPA Clean School Bus Series: CA Utilities and Schools

Wednesday, May 18, 2022
10:00-11:30am PT

Please join us to learn about EPA's new Clean School Bus Program (CSBP) and hear from local utilities. This webinar provides an overview of the CSBP funding opportunity, program eligibility and additional application information. CA utilities will discuss utility considerations for school bus and fleet electrification, including topics such as energy use, rates, charging equipment and incentives.

Speakers:

- **Tim O'Neill**, EV Fleet Onboarding Specialist, PG&E
- **Lianna Rios**, EV Customer Solutions Manager, SDG&E Clean Transportation Dept.
- **Desiree Villalobos**, Senior Manager, eMobility® Business Development & Partnerships, SCE

[REGISTER FOR THE WEBINAR NOW](#)



Thank you!

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Appendix



Important! SAM.gov Registration

Check the Systems for Award Management ([SAM.gov](https://www.sam.gov)) to ensure your organization is *actively* registered as an entity

- An individual user account on SAM.gov is not the same thing as an organization's entity registration
- Review all SAM.gov entity registration information for accuracy, including bank accounts, addresses, the [Unique Entity Identifier \(UEI\)](#), and Points of Contact
- If your organization has no record of a SAM.gov registration, expired or active, and needs to create a new registration, the simplest entity registration type that can participate in the Clean School Bus Rebates is the "Federal Assistance Awards Only" registration.
- For help with SAM.gov, reach out to the Federal Service Desk at: <https://www.fsd.gov>

Only individuals with email addresses listed as one of the following Points of Contact (POC) under an *active* SAM.gov entity registration will have access to create, edit, save, and submit a Clean School Bus Rebate application for that entity:

- Electronic Business POC
- Alternate Electronic Business POC
- Government Business POC
- Alternate Government Business POC

Note: When entering the rebate application, applicants must use the same email as is listed in their POC information in SAM.gov. They will be prompted to sign-in to, or create, a free login.gov account.

Healthy School Environments

Key Topics

Air: Indoor air

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 - [IAQ Tools for Schools Action Kit](#)
 - [School IAQ Assessment Mobile App](#)
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Healthy School Environments

<https://www.epa.gov/schools>

Contact: Eileen Shanahan
shanahan.eileen@epa.gov

Creating Healthy Indoor Air Quality in Schools

Promote a healthy learning environment at your school to reduce absenteeism, improve test scores and enhance student and staff productivity.

[EPA Supports Healthy Indoor Environments in Schools During COVID-19 Pandemic and Beyond](#)

Learn about IAQ in Schools



- [Why IAQ is Important to Schools](#)
- [Take Action to Improve IAQ in Schools](#)
- [Information for Parents and Students](#)
- [Publications about IAQ in Schools](#)
- [Calidad del Aire Interior en la Escuela](#)

IAQ Tools for Schools Resources



- [Framework for Effective School IAQ Management](#)
- [IAQ Tools for Schools Action Kit](#)
- [IAQ Tools for Schools Preventive Maintenance Guidance Documents](#)
- [IAQ Tools for Schools Video Resources](#)

On-Demand Training Webinars



- [IAQ Knowledge-to-Action Professional Training Webinar Series](#)
- [IAQ Master Class Professional Training Webinar Series](#)
- [Healthy Indoor Environments in Schools Webinar Series](#)

Understanding IAQ Benefits



- [Managing Asthma in Schools](#)
- [Managing Radon in Schools](#)
- [High Performance Schools](#)
- [Improving Academic Performance](#)

Healthy School Renovations



Connecting and Networking



Upcoming Webinars

Recording Now Available:
[Solutions and Resources to Address COVID-19 in Schools: Establishing Lasting Improvements to Ventilation and IAQ](#)
Recorded: February 10, 2022

Recording Now Available:
[Ventilation and COVID-19 in Schools: Using a Framework to Assess, Prioritize and Plan for HVAC Upgrades and IAQ Improvements](#)
Recorded: October 21, 2021

Download the Mobile App

School IAQ Assessment Mobile App

Assess, then address — EPA has made it easy!



Find out more about the [mobile app](#) and download from the [App Store](#) or [Google Play Store](#).

Indoor Air Resources for Schools

<https://www.epa.gov/iaq-schools>

Contact: Alhelí Baños-Keener

banos.alheli@epa.gov

Outdoor Air Resources for Schools

Contact: Idalia Pérez (Perez.Idalia@epa.gov)

Best Practices for Reducing Near-Road Pollution Exposure at Schools



<https://www.epa.gov/mobile-source-pollution/how-mobile-source-pollution-affects-your-health#best-practices-for-schools>



GOOD

MODERATE

UNHEALTHY
for Sensitive Groups

UNHEALTHY

VERY UNHEALTHY

Air Quality Flag Program

Raise a flag to show the air quality forecast in your area.

Learn more at:
airnow.gov/flag





**WHITE HOUSE TOOLKIT:
Federal Resources for Addressing
School Infrastructure Needs**



Federal Resources for Addressing School Infrastructure Needs

- I. Available Federal Funds
- II. Key Tools and Resources
- III. Points of Contact at
Federal Agencies and
Technical Assistance
Opportunities

<https://www.whitehouse.gov/wp-content/uploads/2022/04/White-House-School-Infrastructure-Toolkit-04.04.22.pdf>
