

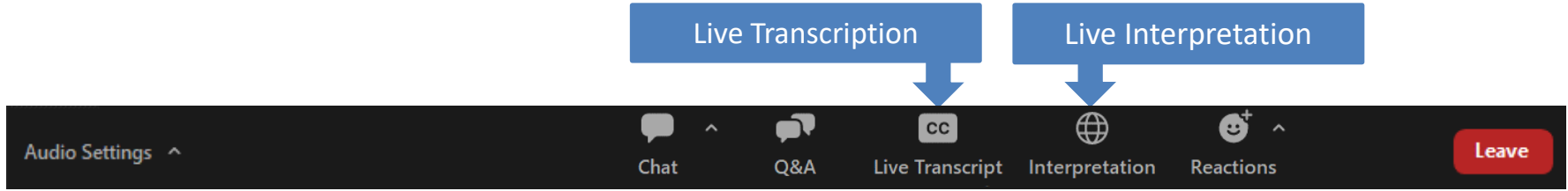


# **EPA CLEAN SCHOOL BUS**

**Utility and Infrastructure Planning with NREL**

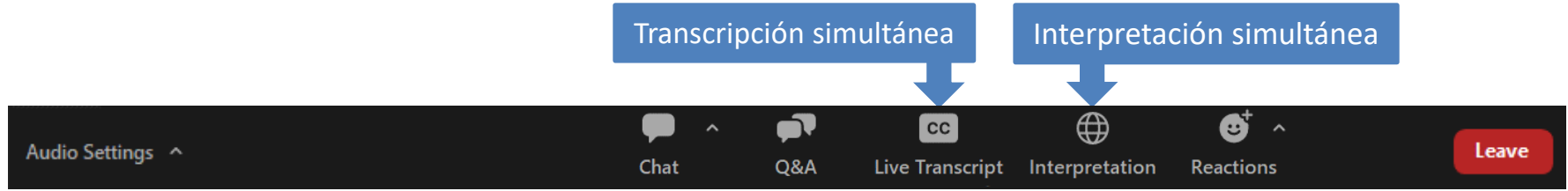
Thursday, February 9<sup>th</sup>, 2023 @ 1:00 PM ET

# 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 (<https://www.epa.gov/cleanschoolbus>).
- **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 [cleanschoolbus@epa.gov](mailto:cleanschoolbus@epa.gov).
- **Live transcription:** Automated live transcription is available by clicking the “Live Transcript” icon in your Zoom toolbar.
- **Live interpretation:** Live Spanish interpretation 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 written questions to the EPA Clean School Bus Program helpline at [cleanschoolbus@epa.gov](mailto:cleanschoolbus@epa.gov).

# 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 (<https://www.epa.gov/cleanschoolbus>).
- **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 [cleanschoolbus@epa.gov](mailto:cleanschoolbus@epa.gov).
- **Transcripción simultánea:** La transcripción simultánea automatizada está disponible al hacer clic en el icono "Live Transcript" en la barra de herramientas de Zoom.
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- **Preguntas:** Envíe sus preguntas por escrito a la línea de ayuda del Programa de Autobuses Escolares Limpios de la EPA a [cleanschoolbus@epa.gov](mailto:cleanschoolbus@epa.gov).

# Live Transcription / Transcripción simultánea



Live transcript is available

CC

Live Transcript

# Live Spanish Interpretation / Interpretación simultánea



✓ Off

English

Spanish

Mute Original Audio



Interpretation

# Agenda

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Overview of the Bipartisan Infrastructure  
Law's Clean School Bus Program

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Payment Request Form Reminders

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Electric Utility Pledge

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Utility and Infrastructure Planning with NREL

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Question and Answer Session

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Conclusion

# Overview of the Bipartisan Infrastructure Law's Clean School Bus Program

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Under **Title XI: Clean School Buses and Ferries**, the Bipartisan Infrastructure Law (BIL) provides **\$5 billion** over five years (FY22-26) for the replacement of existing school buses with clean school buses and zero-emission school buses.

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These new clean school bus replacements will produce either zero or low tailpipe emissions compared to their older diesel predecessors.

---

School bus upgrades funded under this program will result in cleaner air on the bus, in bus loading areas, and in the communities in which they operate.

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The first funding opportunity was the 2022 Clean School Bus Rebates. The next funding opportunity is the 2023 Clean School Bus Grants.



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



# 2022 Clean School Bus Rebate Timeline

Activity	Date
2022 CSB Rebates open. EPA begins accepting applications submitted via online form	May 20, 2022 – August 19, 2022
EPA reviews applications and begins the selection process	September 2022
EPA notifies applicants of selection status. Selectees can proceed with purchasing new buses and eligible infrastructure.	October 2022
Selectees submit Payment Request Forms with purchase orders demonstrating that new buses and eligible infrastructure have been ordered	October 2022 - April 2023 (April 28, 2023)
Project period deadline for selectees to receive new buses, install eligible infrastructure, replace old buses, and submit Close Out Forms	October 2024

# Selectee Requirements – Payment Request Form

- Applicants that are selected for funding will receive an electronic status update that includes:
  - (1) that they have been selected for funding,
  - (2) the maximum amount of funds that have been reserved for them, and
  - (3) instructions on proceeding with the purchase of new buses and eligible infrastructure.
- After receiving notice of selection, selectees must submit an online **Payment Request Form** that includes an attached scan of the **purchase order(s) for the new school buses and eligible infrastructure within six months (April 28, 2023)**.

*Selectees can request extensions to the project period deadline. EPA will review these requests on a case-by-case basis and may grant extensions if sufficient justification is provided. **Extension requests must be submitted by April 14, 2023.***





# Important SAM.gov Reminders

## Clean School Bus Rebate Forms: Applicant Login



No SAM.gov records match your email. Only Government and Electronic Business SAM.gov Points of Contacts (and alternates) may edit and submit Clean School Bus Rebate Forms.

**If you receive the error message above when trying to login, please confirm that:**

1. The organization you intend to apply for is *actively* registered as an entity on SAM.gov and has a [Unique Entity Identifier \(UEI\)](#).
2. You are listed as one of the following four Points of Contact (POC) in your organization's entity registration on SAM.gov:
  - i. Electronic Business POC
  - ii. Alternate Electronic Business POC
  - iii. Government Business POC
  - iv. Alternate Government Business POC
3. The login.gov account you are using to access the rebate application form uses the exact same email address as is listed in your POC information in your organization's SAM.gov entity registration.

**Note:** If you update the POC information in your organization's SAM.gov entity registration, there may be a delay of 1-2 business days before that change will be reflected on the Clean School Bus Rebate Forms site.

**PLEASE KEEP YOUR SAM.gov REGISTRATION ACTIVE FOR THE ENTIRE LIFETIME OF THE REBATE**



<https://sam.gov/content/status-tracker>



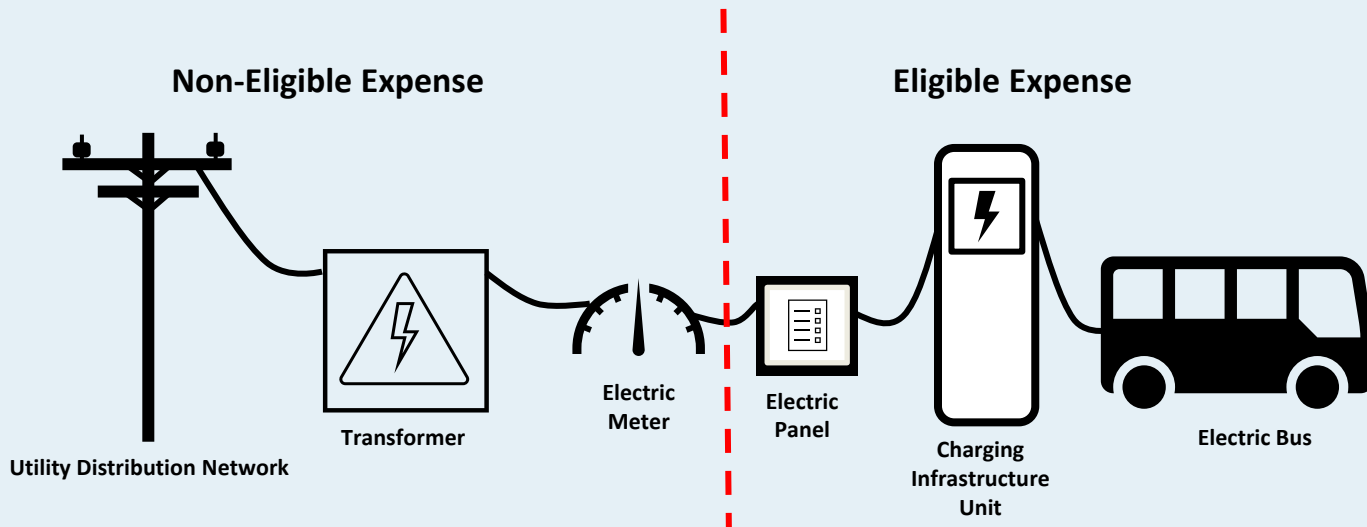
**EPA CLEAN  
SCHOOL BUS**

## Electric Utility Pledge

- Yesterday, EPA announced that Edison Electric Institute (EEI) and the Beneficial Electrification League (BEL) have pledged to support school districts with the transition to electrification.
- EEI members and BEL partners have pledge to proactively work with school districts to:
  - ✓ Facilitate communication between electric providers and school districts
  - ✓ Provide technical support and assistance
  - ✓ Work together to identify opportunities to increase funding and deployment for electric school buses.
- Email [CleanSchoolBusTA@nrel.gov](mailto:CleanSchoolBusTA@nrel.gov) or [CleanSchoolBus@epa.gov](mailto:CleanSchoolBus@epa.gov) to be connected to a point of contact at your electric utility provider.
- Learn more here: [Clean School Bus Technical Assistance | US EPA](#)

# Infrastructure Funding Restrictions

- EPA funding for infrastructure is limited to the fleet's side of the meter (as shown on the right side of the diagram).
- All Level 2 charging infrastructure purchased under this program must be [EPA ENERGY STAR certified chargers](#).
  - EPA strongly recommends that all other charging infrastructure (for example DC Fast-Charge) purchased under this program be listed by a Nationally Recognized Testing Laboratory (NRTL).





Joint Office of  
**Energy and  
Transportation**

# Preparing to Work With Your Utility

February 9, 2023

[driveelectric.gov](https://driveelectric.gov)

# Welcome!

- Introductions
- Reminder about technical assistance offerings



*CleanSchoolBusTA@nrel.gov*

# Agenda

- Planning for ESBs and charging infrastructure
  - Essential information
  - Charging analysis
- Utility interconnection
  - Utility infrastructure
  - Utility rates and solutions





# Planning for ZEVs and Charging Infrastructure


# Step 1: Identify Team and Basic Utility Info

## Internal Team

- Main POC (fleet manager, administrator, other)
- Building staff (facility manager, energy manager, on-site electrician)
- Finance staff

## External Team

- Joint Office technical assistance team ([CleanSchoolBusTA@nrel.gov](mailto:CleanSchoolBusTA@nrel.gov))
- Utility ([https://insitetool.org/utility\\_lookup](https://insitetool.org/utility_lookup))
- Consultant

Electric School Bus (ESB) Charging Station Planning Form				
				[LOCATION SHORT NAME]
LOCATION CONTACT AND INFO				
Location Address	Point of Contact Name	Email	Phone Number	
UTILITY CONTACT AND INFO				
Utility Name	Utility Point of Contact Name	Email	Phone Number	Customer Account Number
What energy rates or demand charges are applicable at this location?				
What incentives are offered by your utility that may be incorporated into this program?				



# NEVI U-Finder

- Who are the **local utilities** and what **charging infrastructure incentives** are available?

- Who can you call?**

## NEVI U-Finder: State Utility Summary

Enter State abbreviation to identify active utilities and electric vehicle support programs.

CO

Powered by the U.S. Utility Rate Database (<https://openei.org/apps/USURDB/>)  
Utility territories last updated February 2021.



See Introduction worksheet for notes on using NEVI U-Finder.

\*Customer Types:

G: Government or Public; C: Commercial; R: Residential

### Identified active utilities in CO

Utility	Utility Name	Utility Alias, Parent, or Alternative Name	Utility Ownership	Available EVSE Funding?*	Available Advisory Services?*	% of State ZIP Codes
1	Public Service Co of Colorado	Xcel Colorado	INVESTOR	GCR	GCR	53%
2	Black Hills/Colorado Elec.Utility Co. LP	Black Hills Energy	INVESTOR			14%
3	Intermountain Rural Elec Assn	----	COOPERATIVE			12%

Enter ZIP Code to identify local utilities, electric vehicle support programs, and Clean Cities Coalitions.

80465

Powered by the U.S. Utility Rate Database (<https://openei.org/apps/USURDB/>)  
Utility territories last updated February 2021.

See Introduction worksheet for notes on using NEVI U-Finder.

### Edison Electric Institute Investor Owned Utility Incentives

For more details see "EEI Database" worksheet

Increase row heights to view complete details.

Incentive	EEI Electric Company	EEI Holding Company	Program Name	Description
1	Public Service of Colorado	Xcel Energy	Advisory Services	Residential and MFH (education & outreach); fleets (assessments & outreach); community advisory services (plan & implementation).
2	Public Service of Colorado	Xcel Energy	Public and Community	Public and Community Charging Hub EV Solutions help expand Level 2 and fast
3	Public Service of Colorado	Xcel Energy	School Bus Electrification	School districts can earn a rebate to offset the costs for procuring qualifying electric
4	Public Service of Colorado	Xcel Energy	Fleet Electrification	Advisory services for any business or organization ready to develop an electrification

# Step 2: Gather Your Fleet Data

Utility will need to understand:

- Charge behavior
- Use patterns
- Long-term fleet plans

EXISTING FLEET INFO										
Total Bus Fleet Size at Location	Total # of ESBs Currently at Location	Total # of Level 2 EV Chargers Currently Installed	Total # of DC Fast Chargers Currently Installed	Is there a Potential Central Fast Charging Area at the Location?	Total Type A Buses at Location	Total Type C & D Buses at Location	Total White Fleet Vehicles at Location	Is Mid-Day Charging a Possibility?	Comments	
ELECTRIC SCHOOL BUS (ESB) ACQUISITION PLANS										
Year One				Year Two				Future Years		
Total ESBs to be Acquired this year	Expected Route Distance of ESBs (min/max)	Mid-Day Dwell Time (Min/Max)	Number and Types of Chargers to be Installed This Year	Total ESBs to be Acquired this year	Expected Route Distance of ESBs (min/max)	Mid-Day Dwell Time (Min/Max)	Number and Types of Chargers to be Installed This Year	Total ESBs to be Acquired	Expected Route Distance of ESBs (Min/Max)	Mid-Day Dwell Time (Min/Max)

# Charging Analysis

At a minimum:

- Identify buses/routes for ESB replacement and which years, if possible
- Break out morning/afternoon/after school route distances
- [EPA Bus Inventory Sheet](#)

Bus efficiency (kWh/mile)
Battery size (kWh)
Route distance (miles)
Dwell time (hours)
Energy (kWh)
Charger Power Rating [Power] (kW)
State of charge [SOC] (%)

# Calculations

## Energy Used Per Route

Bus Efficiency (kWh/mi)	x	Route Distance (miles)	=	Energy (kWh)
1.5		50		75

## Charger Power Needs

Energy (kWh)	/	Dwell Time (hours)	=	Power (kW)
75		3		25

## Energy per Charging Session

Power (kW)	x	Dwell Time (hours)	=	Energy (kWh)
25		3		75

# Example 1: Average Route and Ideal Conditions

- **Bus:** Type C
- **Route:** 32 miles
- **Battery:** 155 kWh
- **Bus efficiency:** 1.4 kWh/mile
- **Route energy:** 32 miles x 1.4 kWh/mile = 44.8 kWh
- **Assumptions:** 3 hours of dwell time mid day and 12 hours in the evening

Mid-Day Top Off to 100%		No Mid-Day Charging		Alternative Charging Strategy	
Mid-day State-of-Charge (SOC%)	71%	Mid-day State-of-Charge (SOC%)	71%	Mid-day State-of-Charge (SOC%)	71%
Mid-day Charger Power Rating (kW)	14.9	Mid-day Charger Power Rating (kW)	0.0	Mid-day Charger Power Rating (kW)	7.7
Afternoon Beginning SOC	100%	Afternoon Beginning SOC	71%	Afternoon Beginning SOC	86%
Evening SOC	71%	Evening SOC	42%	Evening SOC	57%
Evening Charger Power Rating (to fully replenish battery (kW)	3.7	Evening Charger Power Rating (to fully replenish battery (kW)	7.5	Evening Charger Power Rating (to fully replenish battery (kW)	5.5

# Example 2A: Longer Route and Less Efficient

- **Bus:** Type C
- **Route:** 65 miles
- **Battery:** 220 kWh
- **Bus efficiency:** 2.3 kWh/mile
- **Route energy:** 65 miles x 2.3 kWh/mile = 149.5 kWh
- **Assumptions:** 3 hours of dwell time mid day and 12 hours in the evening

Mid-Day Top Off to 100%		No Mid-Day Charging		Alternative Charging Strategy	
Mid-day SOC	32%	Mid-day SOC	32%	Mid-day SOC	32%
Mid-day Charger Power Rating (kW)	49.8	Mid-day Charger Power Rating (kW)	0.0	Mid-day Charger Power Rating (kW)	40.0
Afternoon Beginning SOC	100%	Afternoon Beginning SOC	32%	Afternoon Beginning SOC	87%
Evening SOC	32%	Evening SOC	-36%	Evening SOC	19%
Evening Charger Power Rating (to fully replenish battery (kW)	12.5	Evening Charger Power Rating (to fully replenish battery (kW)	24.9	Evening Charger Power Rating (to fully replenish battery (kW)	14.9

# Example 2B: Larger Battery

- **Bus:** Type C
- **Route:** 65 miles
- **Battery:** 315 kWh
- **Bus efficiency:** 2.3 kWh/mile
- **Route energy:** 65 miles x 2.3 kWh/mile = 149.5 kWh
- **Assumptions:** 3 hours of dwell time mid day and 12 hours in the evening

Mid-Day Top Off to 100%		No Mid-Day Charging		Alternative Charging Strategy	
Mid-day SOC	53%	Mid-day SOC	53%	Mid-day SOC	53%
Mid-day Charger Power Rating (kW)	49.8	Mid-day Charger Power Rating (kW)	0.0	Mid-day Charger Power Rating (kW)	19.2
Afternoon Beginning SOC	100%	Afternoon Beginning SOC	53%	Afternoon Beginning SOC	71%
Evening SOC	53%	Evening SOC	5%	Evening SOC	23%
Evening Charger Power Rating (to fully replenish battery (kW)	12.5	Evening Charger Power Rating (to fully replenish battery (kW)	24.9	Evening Charger Power Rating (to fully replenish battery (kW)	20.1

# Step 3: Identify Potential Charger Locations

- Considerations for best sites
  - Existing parking
  - Panels with spare breakers
  - Close to panels
  - Close to walls or limited trenching
- Installation costs
  - Lower with shorter distance and less complicated or no trenching
  - Higher with longer distances, trenching, and more equipment



Location Name/Description	Total Parking Spaces	Number of ESBs Currently in this Area	Number of Level 2 Chargers Currently in this Area	Number of DC Fast Chargers Currently in this Area	Distance: Parking Spaces to Service Panel (feet)	How Many Parking Spaces are Along a Wall?	How Many Parking Spaces have Unused Wall Outlets?



# Building-Level Energy Data

Fleet/facility or utility identifies:

- Service panel rating
- Service panel peak load
- Transformer rating
- Transformer peak load



Service Panel Spare Breaker Positions	Service Panel Main Breaker Rating (Voltage and Amps)	Service Panel Peak Load (Amps)	Distance: Parking Spaces to Transformer (feet)	Transformer Rating (kVA)	Transformer Peak Load (kVA)

## Step 4: Ask Additional Questions

**Who owns the facilities and parking lots where the EV charging infrastructure will be sited?**

**Are there permitting requirements?**

**Do you have a facility load management system or demand meter?**

**Will charging access be limited to fleet vehicles (by a fence or network)? Is workplace charging a possibility at this location?**

**Please provide a map of the parking lot and building indicating the location where EVSE is proposed and where the transformers and service panels are located.**

**Do you have a dedicated electrician at your facility?**

# Electric School Bus (ESB) Charging Station Planning Form



[LOCATION SHORT NAME]

## LOCATION CONTACT AND INFO

Location Address	Point of Contact Name	Email	Phone Number
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## UTILITY CONTACT AND INFO

Utility Name	Utility Point of Contact Name	Email	Phone Number	Customer Account Number
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What energy rates or demand charges are applicable at this location?

What incentives are offered by your utility that may be incorporated into this program?

## EXISTING FLEET INFO

Total Bus Fleet Size at Location	Total # of ESBs Currently at Location	Total # of Level 2 EV Chargers Currently Installed	Total # of DC Fast Chargers Currently Installed	Is there a Potential Central Fast Charging Area at the Location?	Total Type A Buses at Location	Total Type C & Buses at Location	Total White Fleet Vehicles at Location	Is Mid-Day Charging a Possibility?	Comments

## ELECTRIC SCHOOL BUS (ESB) ACQUISITION PLANS

Year One				Year Two				Future Years		
Total ESBs to be Acquired this year	Expected Route Distance of ESBs (min/max)	Mid-Day Dwell Time (Min/Max)	Number and Types of Chargers to be Installed This Year	Total ESBs to be Acquired this year	Expected Route Distance of ESBs (min/max)	Mid-Day Dwell Time (Min/Max)	Number and Types of Chargers to be Installed This Year	Total ESBs to be Acquired	Expected Route Distance (Min/Max)	Mid-Day Dwell Time (Min/Max)

## POTENTIAL CHARGER LOCATIONS

Area 1	Location Name/Description	Total Parking Spaces	Number of ESBs Currently in this Area	Number of Level 2 Chargers Currently in this Area	Number of DC Fast Chargers Currently in this Area	Distance: Parking Spaces to Service Panel (feet)	How Many Parking Spaces are Along a Wall?	How Many Parking Spaces have Unused Wall Outlets?
	Location Comments	Service Panel Spare Breaker Positions	Service Panel Main Breaker Rating (Voltage and Amps)	Service Panel Peak Load (Amps)	Distance: Parking Spaces to Transformer (feet)	Transformer Rating (kVA)	Transformer Peak Load (kVA)	

Area 2	Location Name/Description	Total Parking Spaces	Number of ESBs Currently in this Area	Number of Level 2 Chargers Currently in this Area	Number of DC Fast Chargers Currently in this Area	Distance: Parking Spaces to Service Panel (feet)	How Many Parking Spaces are Along a Wall?	How Many Parking Spaces have Unused Wall Outlets?
	Location Comments	Service Panel Spare Breaker Positions	Service Panel Main Breaker Rating (Voltage and Amps)	Service Panel Peak Load (Amps)	Distance: Parking Spaces to Transformer (feet)	Transformer Rating (kVA)	Transformer Peak Load (kVA)	

Area 3	Location Name/Description	Total Parking Spaces	Number of ESBs Currently in this Area	Number of Level 2 Chargers Currently in this Area	Number of DC Fast Chargers Currently in this Area	Distance: Parking Spaces to Service Panel (feet)	How Many Parking Spaces are Along a Wall?	How Many Parking Spaces have Unused Wall Outlets?
	Location Comments	Service Panel Spare Breaker Positions	Service Panel Main Breaker Rating (Voltage and Amps)	Service Panel Peak Load (Amps)	Distance: Parking Spaces to Transformer (feet)	Transformer Rating (kVA)	Transformer Peak Load (kVA)	

## Additional Questions

Who owns the facilities and parking lots where the EVSE will be sited?

Are there permitting requirements?

Do you have a facility load management system or demand meter?

Will charging access be limited to fleet vehicles (by a fence or network)? Is workplace charging a possibility at this location?

Please provide a map of the parking lot and building indicating the location where EVSE is proposed and where the transformers and service panels are located.

Do you have a dedicated electrician at your facility?

Do you have any additional comments, questions, or concerns?

For assistance please contact [cleanschoolbus@nrel.gov](mailto:cleanschoolbus@nrel.gov)



# Utility Interconnection

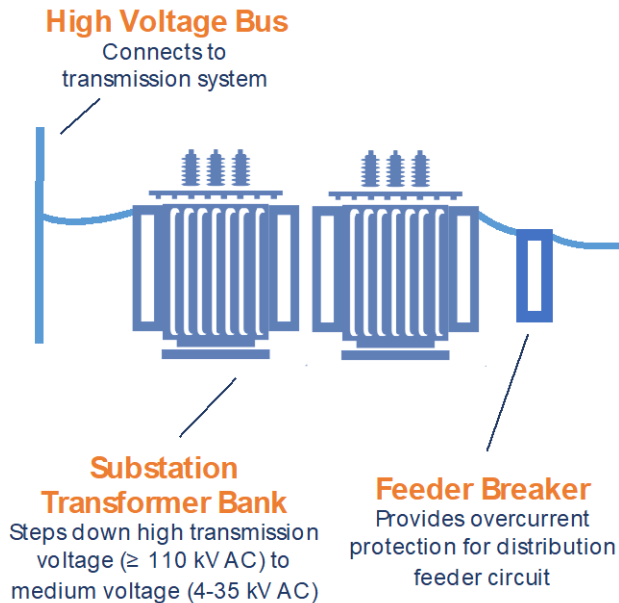


# Utility Infrastructure

Understand how electricity is delivered to a facility  
and how EV chargers can impact that equipment

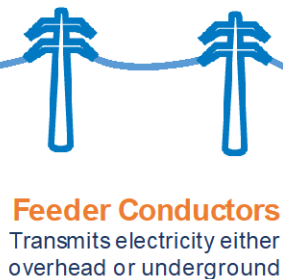
## Distribution Substation

Lowers voltage from transmission lines and protects downstream distribution system



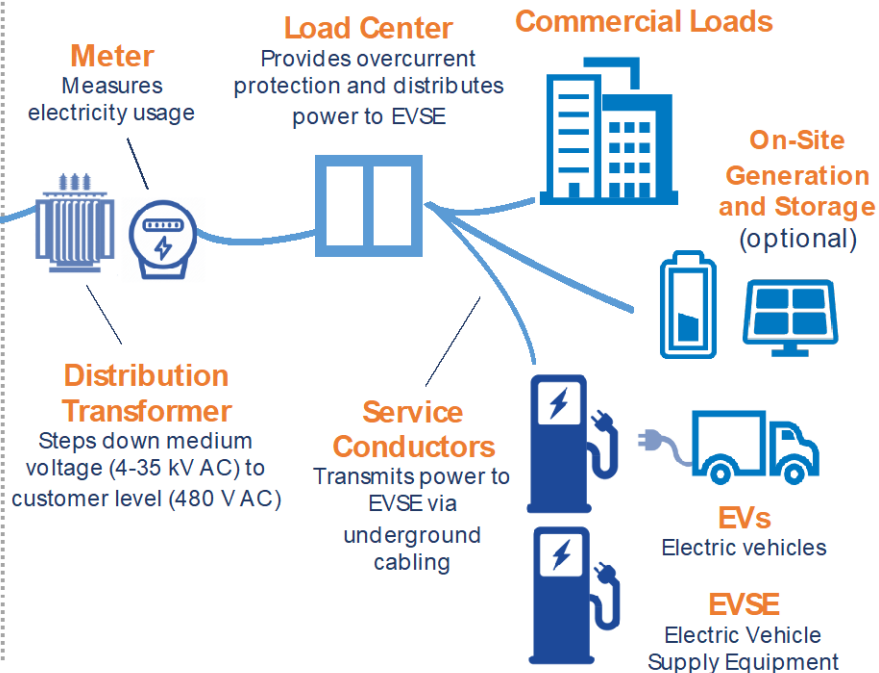
## Distribution Feeders

Distributes electricity to end users



## On-Site

Lowers voltage to customer level (if secondary service) and distributes electricity throughout property

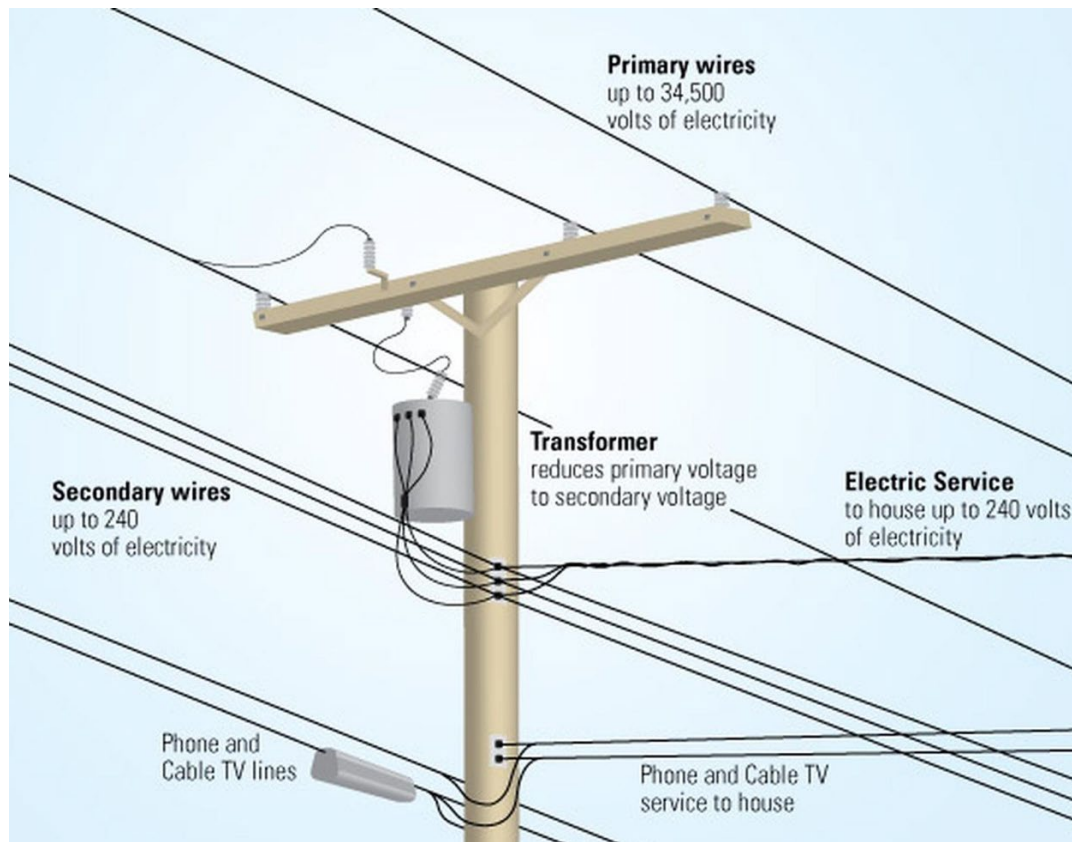


SOURCE: Borlaug et al., "Heavy-Duty Trucks: Opportunities for Electrification and the Electricity Distribution System Requirements for Depot Charging", Forthcoming.

# Utility Infrastructure Outline

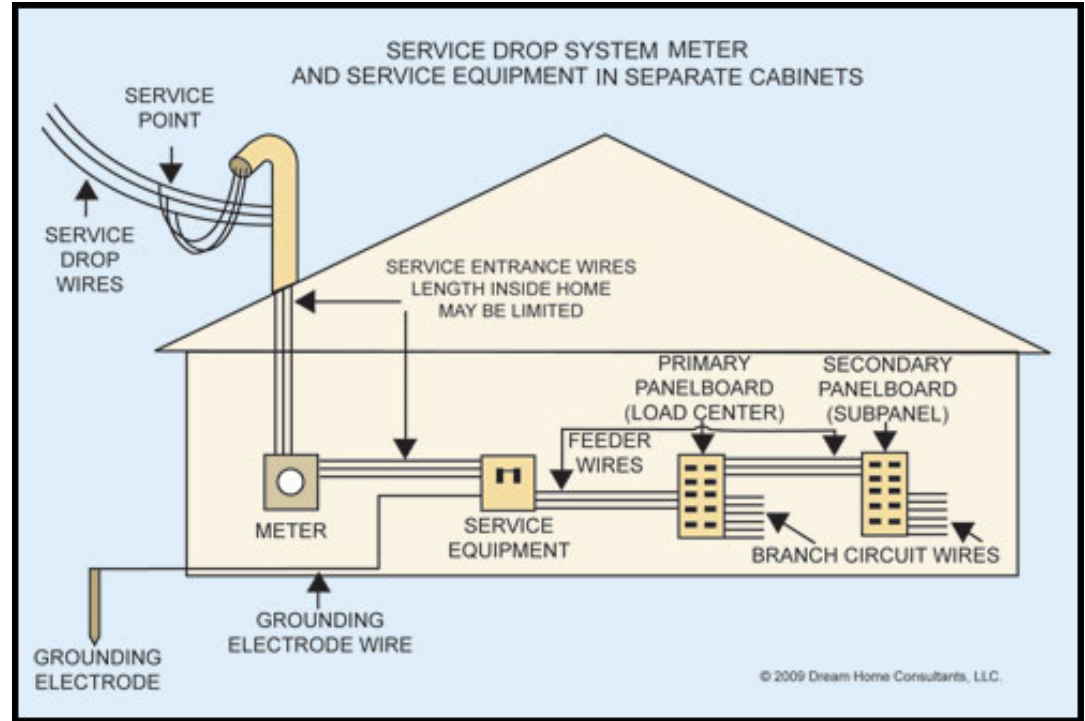
# Main Feeder

- **Primary Lines:** Conductor lines distributing energy throughout feeder
- **Transformer:** Reduces primary line medium voltage down to low voltage service level
- **Secondary Bank:** Conductor lines carrying electricity at low voltages to multiple service points
- **Service Lines:** Conductor lines providing electric service to individual locations



# Service Drop

- **Meter:** Measures energy flow in kWh
- **Primary Panel:** Electric panel with breakers protecting branch circuits
- **Secondary Panel:** Sub-panel fed downstream from primary panel
- **Branch Circuit:** A group of loads protected by a circuit breaker





# Discussion Topics

- Total charger needs
- Facility capacity
- Grid capacity
- Future plans

- How many chargers are needed and what will be the charging power (in kW) of each?
- Where will new chargers be installed and can facility infrastructure support the new load?
- If facility equipment must be upgraded, can the grid support the new higher load?



### Site Equipment

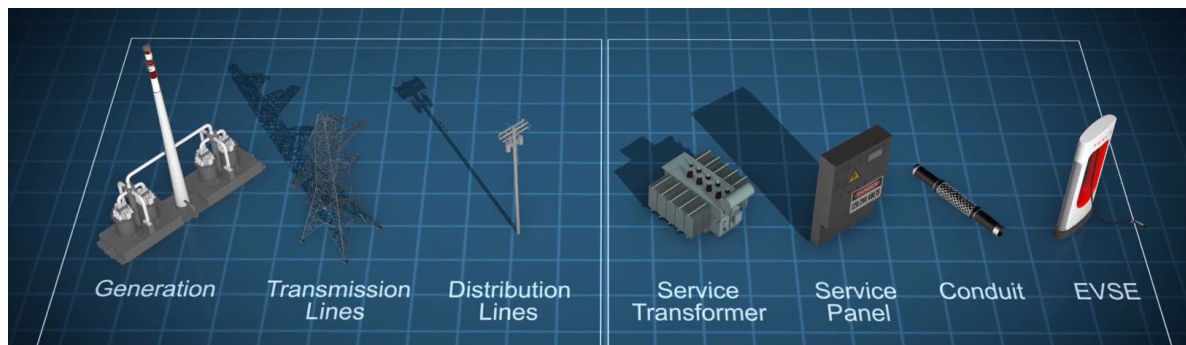
- **Circuit breaker:** NEC 625.41: overcurrent protection shall be rated for 125% of the maximum EV charger load
- **Panel capacity:** Spare breaker positions must be available
- **Main breaker:** Must be sized large enough to supply the peak coincident demand from all branch circuits
- **Transformer capacity:** Distribution transformer must be large enough to supply peak load demand



# Infrastructure Upgrades

The electric utility company is most interested in building the grid infrastructure needed to supply the energy and peak power your facilities and new EV chargers will require

- Grid upgrade concerns
  - New service line
  - New interconnection
  - Transformer upgrade
- Facility upgrade concerns
  - Additional branch circuits
  - Service panel upgrade
  - Transformer upgrade





# Utility Rates and Solutions

Different rate elements and utility programs that affect the cost of charging EVs and the solutions that can help mitigate them

## Energy Charge

- Price rate of energy per unit consumed
- (\$/kWh)

## Demand Charge

- Price rate of peak power in a given period
- (\$/kW)

## Fixed Charge

- Constant fee applied each billing period
- (\$/month)

## Flat Charge

- Fee applied independent of time, season, or billing period
- (\$)

## Time-of-use

- Price rate of energy dependent on time and/or season
- Varying (\$/kWh) or (\$/kW)

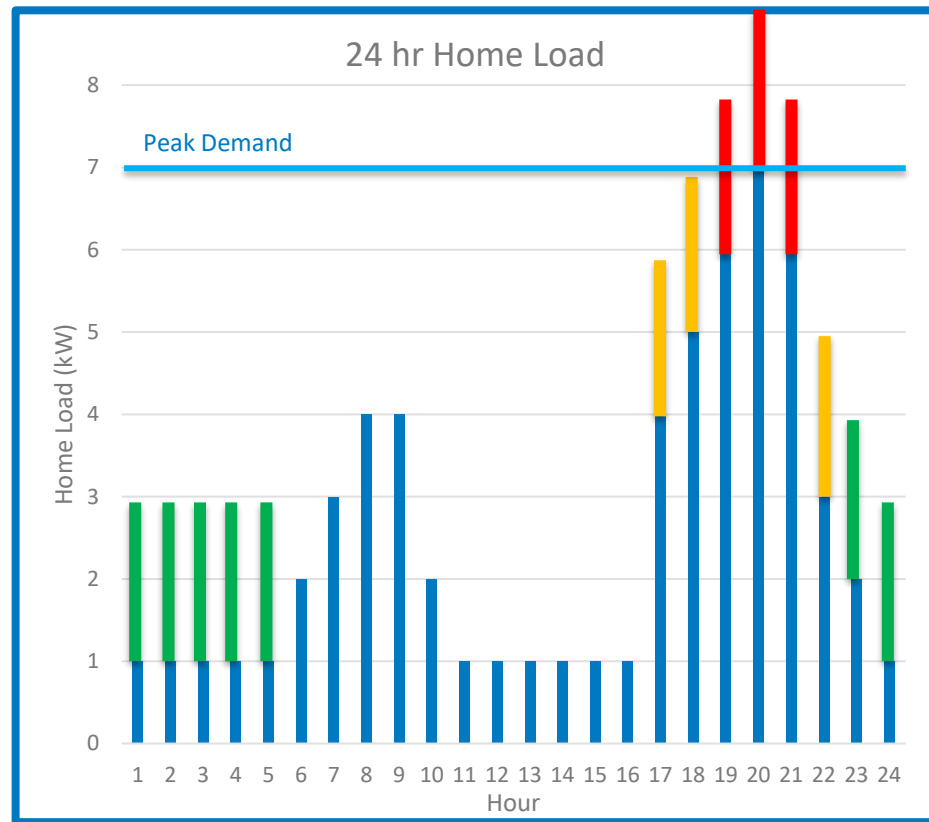
## Tiered

- Each unit up to a base amount is charged one unit price, with additional energy charged at a higher unit price
- Increasing (\$/kWh) or (\$/kW)

# Utility Rate Terminology

# Demand Charges

- The **highest load** (in kW) at a facility throughout a billing period determines the peak load
- Monthly demand charges are determined by the **facility peak** (including building and EV loads)
- Charging an EV at the same time as the building peak load will increase **demand charges**
- Long EV **dwell periods** enable charging to mitigate peak load

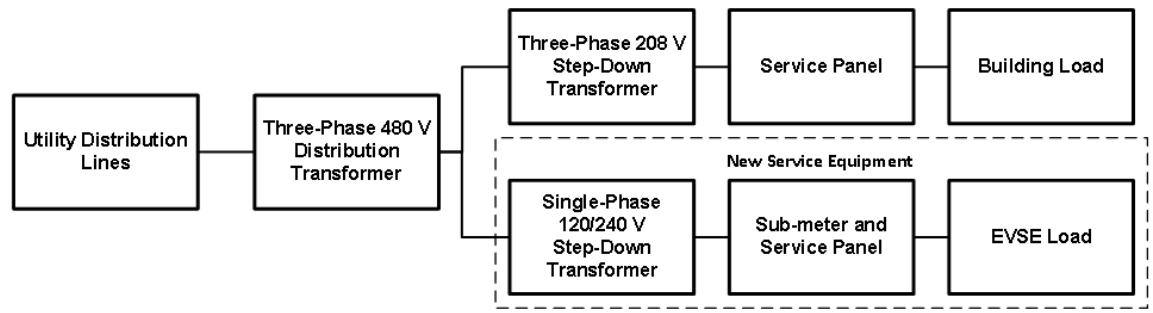
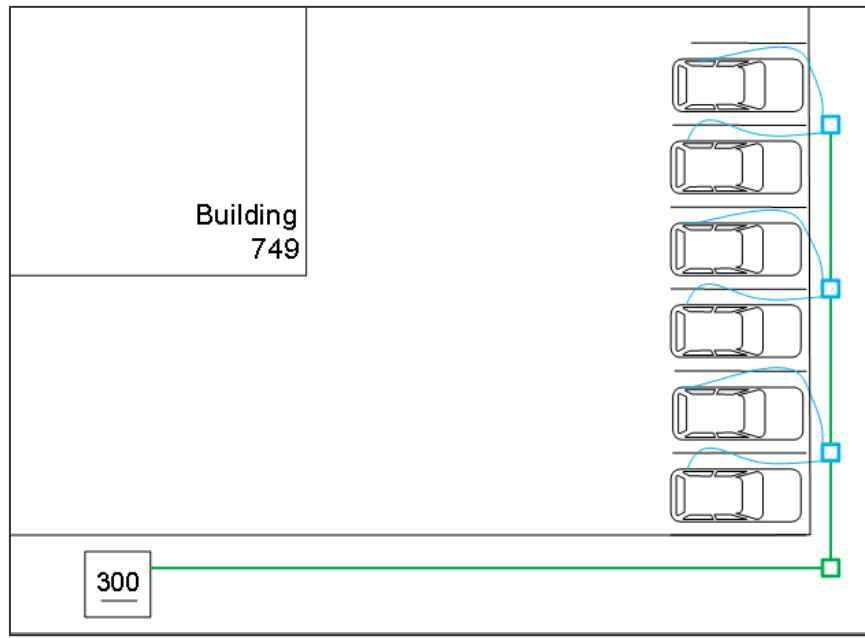


- **Dwell Period**
- **Ideal Charging Time**



# Mitigate Upgrade Costs

- All equipment owned by the utility and facility must be rated to support the **highest possible load**
- Installing EV chargers could increase loads beyond equipment ratings (**requiring upgrades**)
- Total EV charging can be limited by a managed charging **power ceiling** or **power sharing** feature to avoid overloading equipment and mitigate upgrade costs

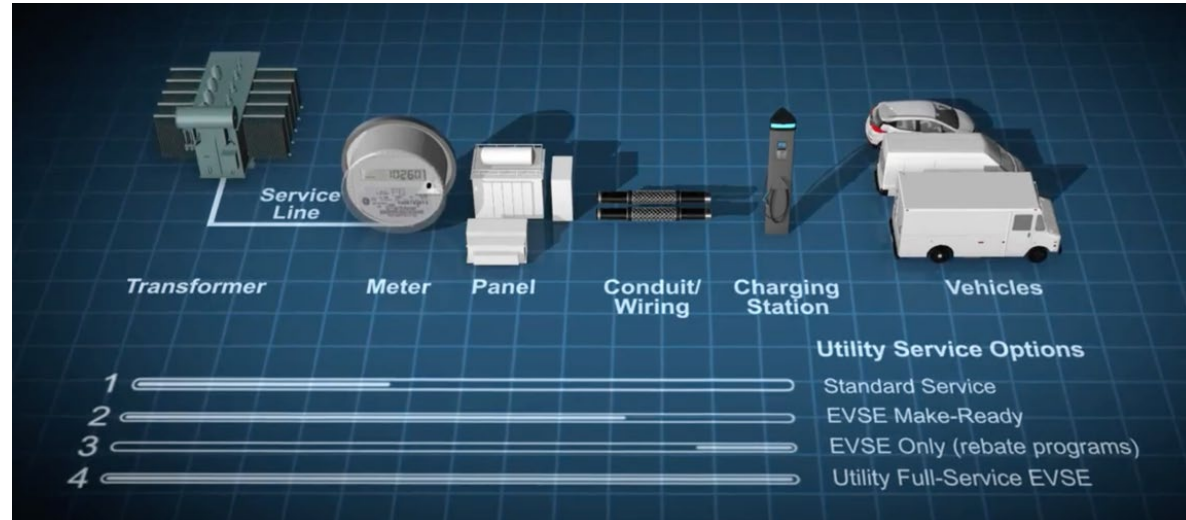
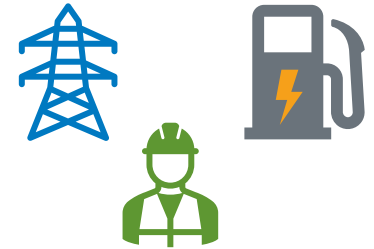


# Interconnection Solutions

Utilities are beginning to offer customers new and innovative service options to meet EV energy needs.

Programs that can support EV charging infrastructure installation through infrastructure development or financial support:

- Standard service
- EV charger make-ready
- EV charger rebates
- Utility full-service

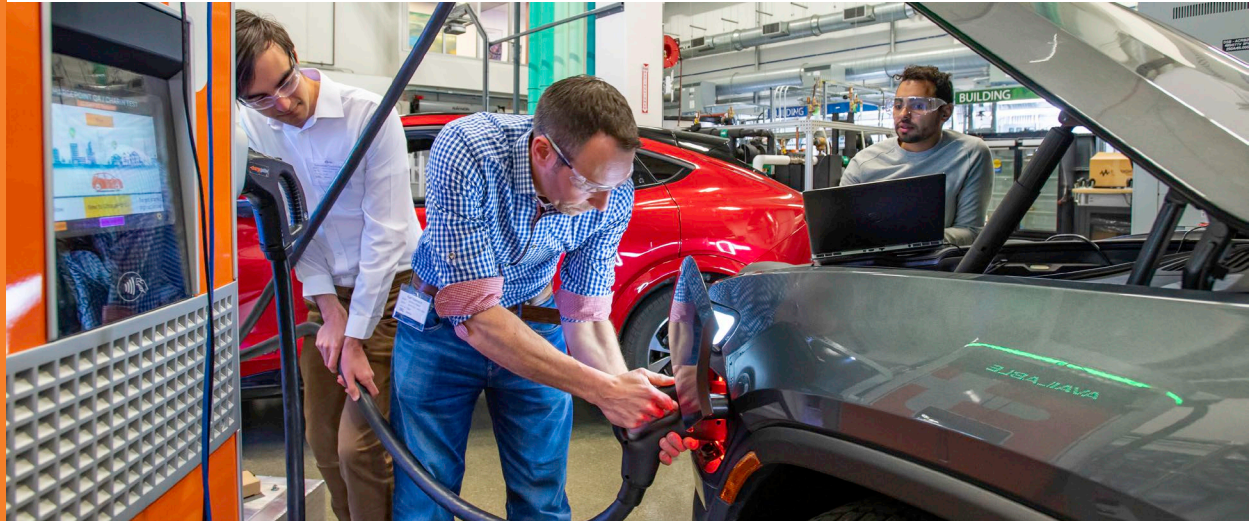




# Discussion Topics

- Peak demand
- Demand charges
- Upgrade needs
- Mitigation options

- Work with fleet and facility operations to determine if peak demand will increase
- Discuss with utility if demand charges will increase or if upgrades will be needed
- Consider possible mitigation techniques like managed charging



## Contact Us

Use this contact form to submit a media inquiry, ask a general question about Joint Office of Energy and Transportation resources and activities, or request technical assistance for states, tribal nations, or clean school buses or transit buses.

Required fields are marked with an asterisk (\*).

Inquiry type \*

Clean School Bus Technical Assistance

Name \*

Email \*

Subject \*

Message \*

Send

[driveelectric.gov/bus-contact](https://driveelectric.gov/bus-contact)

[CleanSchoolBusTA@nrel.gov](mailto:CleanSchoolBusTA@nrel.gov)

- Request assistance via online form

- Initial response within 48 hours

- General questions and feedback welcome!



Joint Office of  
**Energy and  
Transportation**

Thank You

February 9, 2023

*[CleanSchoolBusTA@nrel.gov](mailto:CleanSchoolBusTA@nrel.gov)*

[driveelectric.gov](http://driveelectric.gov)

# Question & Answer Session



Upvote and comment on questions similar to your own.  
Type your full thought so we can follow-up with an answer.  
Speak slowly and clearly for the captioner/interpreter.

# Coming Soon to the Clean School Bus Website



Recording of today's webinar



Electric School Bus (ESB) Charging Station Form



The Transition to Electric School Buses: Considerations and Resources

- Infrastructure Planning with Your Local Utility
- Calculating Up Front Installation and Operating Costs with Your Local Utility
- Selecting and Installing Electric Vehicle Supply Equipment (EVSE)
- Finalizing Your Fleet Composition



Electric School Buses Infrastructure 101: Quick Reference Guide

- Breakdown of Required Infrastructure
- Electric School Bus Charging Options
- Electrification Vocabulary



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



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# Important SAM.gov Reminders

## Clean School Bus Rebate Forms: Applicant Login



No SAM.gov records match your email. Only Government and Electronic Business SAM.gov Points of Contacts (and alternates) may edit and submit Clean School Bus Rebate Forms.

**If you receive the error message above when trying to login, please confirm that:**

1. The organization you intend to apply for is *actively* registered as an entity on SAM.gov and has a [Unique Entity Identifier \(UEI\)](#).
2. You are listed as one of the following four Points of Contact (POC) in your organization's entity registration on SAM.gov:
  - i. Electronic Business POC
  - ii. Alternate Electronic Business POC
  - iii. Government Business POC
  - iv. Alternate Government Business POC
3. The login.gov account you are using to access the rebate application form uses the exact same email address as is listed in your POC information in your organization's SAM.gov entity registration.

**Note:** If you update the POC information in your organization's SAM.gov entity registration, there may be a delay of 1-2 business days before that change will be reflected on the Clean School Bus Rebate Forms site.

**PLEASE KEEP YOUR SAM.gov REGISTRATION ACTIVE FOR THE ENTIRE LIFETIME OF THE REBATE**



<https://sam.gov/content/status-tracker>



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# Conclusion

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**Submit your Payment Request Form by April 28, 2023.**

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EPA will be hosting office hours on February 22nd and April 19th to answer more of your questions as you complete the Payment Request Form and prepare for the transition to cleaner buses.

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This presentation has been recorded in both English and Spanish. The recordings and slides will be posted to the Clean School Bus website. A follow-up email will be sent out with the resources.

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Sign up for the [Clean School Bus Listserv](#) and continue to check [www.epa.gov/cleanschoolbus](http://www.epa.gov/cleanschoolbus) for updated resources and information future funding opportunities.

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If you have any questions or additional feedback, please contact [cleanschoolbus@epa.gov](mailto:cleanschoolbus@epa.gov).





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**THANK YOU**