<table>
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<tr>
<td><strong>Docket Number:</strong> 18-TRAN-01</td>
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<tr>
<td><strong>Project Title:</strong> School Bus Workshops</td>
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<td><strong>TN #:</strong> 226081</td>
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<td><strong>Document Title:</strong> Electric School Bus Infrastructure Workshop Presentation</td>
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<td><strong>Filer:</strong> Jessica Martinez</td>
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<td><strong>Organization:</strong> California Energy Commission</td>
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Housekeeping

• In case of emergency
• Facilities
• Sign-in sheet
• WebEx recording
The Energy Commission is collecting contact information for networking purposes in today’s workshop.

**If you do not want your information to be publically available, please let us or the WebEx administrator know today.**
Agenda

• Welcome
• Program Overview and Background
• Case Study: Twin Rivers Unified School District
• Utilities Assistance
• Infrastructure Development
• General Discussion: Questions and Answers
Senate Bill 110

- Funding: $75 million
- Eligible applicants: school districts, county offices of education (COEs) and transportation joint power authorities (JPAs).
- Priority given to the oldest school buses, school buses operating in disadvantaged communities and to schools that have a majority of students eligible for free or reduced-price meals.
- Any school bus replaced shall be scrapped.
Program Design

Three complementary funding components:

1. School Bus Replacement: to replace the oldest, dirtiest diesel school buses with clean battery electric school buses. (SB 110 Funding)

2. Fueling Infrastructure

3. Workforce Training
Distribution of $75 Million

• Each region has an approximate average daily attendance of 1.5 million.

• Approximately $18.75 M allocated to each region.

• Eligible applicants will compete for funding within each region.
Electric Infrastructure

- $26 million (ARFVTP Funds) for EV infrastructure.
  ✓ $60k per awarded school bus.

Compressed Natural Gas (CNG) School Bus Component

- $3.7 million (ARFVTP Funds) for CNG school buses.
  ✓ $165,000 per school bus.

- $2.4 million (ARFVTP Funds) for CNG infrastructure.
  ✓ Up to $500k per awardee.
## Electric Vehicle School Bus

<table>
<thead>
<tr>
<th>Region in California</th>
<th># of Counties scored</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>22</td>
</tr>
<tr>
<td>Central</td>
<td>18</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1</td>
</tr>
<tr>
<td>South</td>
<td>4</td>
</tr>
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</table>
Utilities in California

Utilities with highest ranking applicants:

- Pacific Gas & Electric (87)
- Southern CA Edison (47)
- San Diego Gas & Electric (9)
- Sacramento Municipal Utility District (5)
- Imperial Irrigation District (4)
- Modesto Irrigation District (4)
- Anaheim Public Utilities (3)
Utilities with highest ranking applicants:

- Anza Electric (1)
- City of Colton (1)
- City of Shasta (1)
- City of Ukiah - Electric (1)
- Calaveras Public Power Agency (CPPA) (1)
- Kenyon Energy (1)
- Liberty Energy (1)
- Liberty Utilities (1)
- Los Angeles Department of Water & Power (1)
- Pacific Power and Light (1)
- Redding Electric (1)
- Sonoma Clean Power (1)
## Milestone Targets

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
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<tbody>
<tr>
<td>School District Solicitation Release</td>
<td>May 31, 2018</td>
</tr>
<tr>
<td>Applications Due</td>
<td>September 20, 2018</td>
</tr>
<tr>
<td>Post Electric Bus List (Initial NOPA) and CNG School Bus List (final NOPA)</td>
<td>November 2018</td>
</tr>
<tr>
<td>Release Bulk Pricing for Electric Buses Solicitation</td>
<td>December 2018</td>
</tr>
<tr>
<td>Business Meeting Approval - CNG School Buses</td>
<td>February 2019</td>
</tr>
<tr>
<td>Award Manufacturer(s)/Dealer(s)</td>
<td>April 2019</td>
</tr>
<tr>
<td>Award Electric School Buses (Final NOPA)</td>
<td>April 2019</td>
</tr>
<tr>
<td>Install Infrastructure</td>
<td>April - December 2019</td>
</tr>
<tr>
<td>Begin Delivering Electric School Buses</td>
<td>Estimated: October 2019</td>
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Case Study

Tim Shannon
Director of Transportation
Transportation Services
Twin Rivers Unified School District
Timothy.Shannon@twinriversusd.org
Infrastructure in Review

Twin Rivers Unified School District

Tim Shannon
Director Transportation Services
Where to Start

• What are your current needs going to be?
• Are you going to expand your fleet in the future?
• Where is your Fleet going to be located?
• How close is your fleet to your power?
• Do you have adequate power or do you need to upgrade?
Our Path

• We assembled a Team.
• We created a plan and analyzed everything down to placement and power consumption.
• Filed all of the appropriate paper work and received approval.
Construction

• Be aware of Time & Delays
Completion

• Training and Operation

Twin Rivers Unified School District: Inspiring each student to extraordinary achievement every day!
Question's
Utilities Assistance

Terri Meyer
Electric Vehicle Implementation Manager
Specializing in City, Counties, and Schools
Pacific Gas and Electric
Terri.Meyer@pge.com
FleetReady Program Overview

PG&E will help you install EV make-ready infrastructure for medium- and heavy-duty fleets

$236 million budget over 5 years from 2019-2023

700+ sites supporting 6,500 new EVs

Support conversion of commercial and public fleets to electric

Examples:
Delivery vehicles, school buses, transit buses, and more…
PG&E will help you install EV make-ready infrastructure for medium- and heavy-duty fleets

Two ownership options offering significant cost benefits

PG&E constructs, owns and pays for all make-ready infrastructure from power pole to charger

Participant constructs, owns and pays for behind-the-meter make-ready infrastructure and receives cost offset*

Additional Electric Vehicle Service Equipment (EVSE=charger) rebate available for schools**

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* PG&E constructs, owns and pays for make-ready infrastructure from the grid to the customer meter
** EVSE must meet minimum and standard requirements
FleetReady Ownership—PG&E-owned

PG&E pays for a significant portion of the total costs

PG&E-owned

Program participant pays for charging equipment

Transformer
Panel
Wiring for parking spots
Charger
Plug-in electric vehicle

Disadvantaged Communities, Schools, and Transit Agencies
Eligible for EVSE rebate up to 50% of charger cost

PG&E pays for, constructs, owns, and maintains all make-ready infrastructure
FleetReady Ownership—Customer-owned

PG&E pays for a significant portion of the total costs

Customer-owned

PG&E pays for, constructs, owns, and maintains all make-ready infrastructure to the customer meter

Customer pays for, constructs, owns, and maintains make-ready infrastructure from customer meter to EVSE

Program participant pays for charging equipment

Disadvantaged Communities, Schools, and Transit Agencies

Eligible for EVSE rebate up to 50% of charger cost

All Customer-Owned Infrastructure

Eligible for incentive of the lesser of 80% of customer-owned infrastructure costs OR Capped amount based on vehicle sector cap per vehicle
What we need from you

Demonstrate commitment to procurement of a minimum of 2 electric fleet vehicles

Provide data related to charger usage for minimum of 5 years

Demonstrate long-term electrification growth plan and schedule of load increase

Maintain vehicles and chargers for minimum of 10 years
General process for stacking funding:


2. A PG&E representative will reach out to learn more about your project plans and will stay with you from application to electrification, including:
   - Review of participation pathways, PG&E Service Planning coordination (no separate application), rates and site assessment for capacity and feasibility

3. Final design, construction, EVSE activation

4. PG&E and CEC coordinate on awarded funding
   - Infrastructure costs not covered through FleetReady are eligible to be covered with CEC funding

5. Rebate and/or incentive issuance if applicable

6. Ongoing operations and maintenance of EVSE

CEC Electric School Bus Charging Infrastructure funding is stackable with PG&E FleetReady program funding
Thank you and any questions?

Terri Meyer

Electric Vehicle Implementation Manager
Specializing in City, Counties, and Schools

Email - Terri.Meyer@pge.com

www.pge.com/evfleet
Jaron Weston
Clean Transportation Business Development Advisor
San Diego Gas and Electric
Jweston@semprautilities.com
San Diego Gas & Electric
Transportation Electrification
Solutions for School Buses

Electric School Bus Charging Infrastructure Informational Workshop
Jaron Weston
November 29, 2018
Overview

- What electric utilities and utility programs bring
- Example customer journey
- How to best get involved
Medium-Duty | Heavy-Duty Program

Proposed Program Design
• SDG&E provides charging infrastructure to support a minimum 3,000 MD/HD vehicles (trucks, buses, forklifts, etc.)
• No limit on number of buses in program

Program Schedule
• California Public Utilities Commission proposed decision possible by 1\textsuperscript{st} quarter of 2019 \implies SDG&E implementation could happen by 2\textsuperscript{nd} half of 2019
• Five year enrollment period if approved
Vehicle to Grid Electric School Bus Pilot

**Proposed Pilot Design:**
- Deploy ten electric school buses at one school for a vehicle to grid pilot
- Buses operate normally, but during down time buses charge and discharge to optimize total cost of ownership
- Multi-year pilot with data collection analysis performed by SDG&E vendor

Light-Duty Vehicle Electrification for Schools (AB1082)

**SDG&E Proposal:**
- 184 Level 2 and 12 DCFC charging stations across 30 school facilities (K-12 and universities)
- For light-duty vehicles
- SDG&E owns, operates, and maintains the stations
- California Public Utilities Commission proposed decision possible by 1st quarter of 2019 ➔ SDG&E implementation could happen by 2nd half of 2019
What utilities and utility programs bring

Examples from Power Your Drive, a light-duty vehicle program
Example Customer Journey

First Contact: Screen for Program Requirements → Secure Easement and Program Commitment → Site Walk → Engineering Design

Customer Design Approval → Finalize Engineering Design → Permitting Requirements → Hazardous Materials Testing

Construction Start → Energization
How to best get involved

Communicate and involve us early

What are your needs, plans, and drivers?

• How many vehicles will you get? Timeframe?
• Where do you want them parked? Will this change if you expand?
• What cost drivers do you have? What space requirements do you have?
• What questions and unknowns do you have?
Q&A

Jaron Weston
jweston@semprautilities.com
Ed Munar
Director, Business Development
Rhombus Energy Solutions, Inc.
emunar@rhombusenergysolutions.com
School Bus Website/List Server:

- [http://www.energy.ca.gov/transpor
tation/schoolbus/index.html](http://www.energy.ca.gov/transpor
tation/schoolbus/index.html)

- Follow instructions on bottom left corner

Contact:

Schoolbusprogram@energy.ca.gov
(855) 279-6381
Thank You!