

Southern California Edison's School District Fleet Electrification Learning Session



HOUSEKEEPING

Please **mute yourselves** unless you are asking a question...

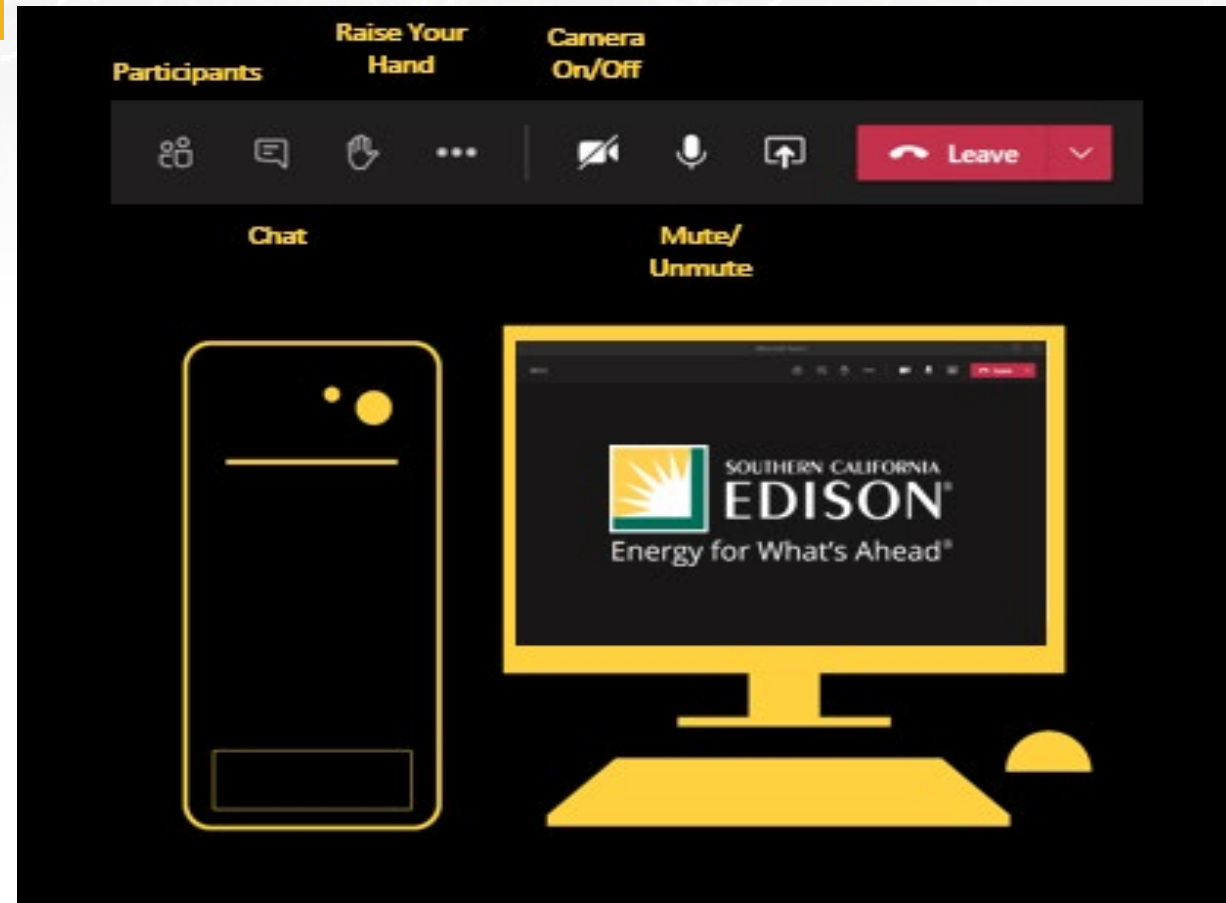
Please come **on camera!**

Meeting will be recorded, slides will be emailed

We encourage your participation!

ASK QUESTIONS:

- **Raise your hand** during the session or
- Use the **Chat Box** if you have a question or comment



School Districts:

If You Are Considering Transitioning Your Fleet to Electric You May Be Wondering...



What Does it Take To Install Commercial EV Infrastructure?



How Can I Access Technical Assistance That Will Provide The Guidance Necessary to Make The Transition A Reality?



What EV Grants, Resources and Infrastructure Programs Are Available To Help Offset The Cost Of The Transition?



Or You May Be Asking Yourself...

WHERE DO I EVEN BEGIN !?

This Fleet Electrification Session... Is All About YOU and YOUR Goals



Where Are You At Today?



What Are Your Goals?

Let's Keep This Interactive...Ask Questions In The Chat!

What We Will Be Covering Today...

Topic	Presenter
Zero Emission School Bus and Infrastructure (ZESBI) Project	Skyler Potocek , Electric School Bus Incentives Project Manager, CALSTART
Cal Fleet Advisor, Technical Assistance	Alise, Crippen , Lead Project Manager, Electric School Bus, CALSTART
What Does it take to install EV Charging Infrastructure?	John Nelson , Sr. Project Manager, Southern California Edison
Live Case Study-Orange Unified School District	Christina Celeste-Russo , Director of Transportation, Orange Unified School District
SCEs Transportation Electrification Pathways	Ramiro Lepe , eMobility Sr Advisor, Southern California Edison
Q&A	



Christina Celeste-Russo
Director of Transportation
Orange Unified School District



Skyler Potocek
Electric School Bus Incentives,
Project Manager, CALSTART



Alise Crippen
Lead Project Manager,
Electric School Buses, CALSTART



John Nelson
Sr. Project Manager
Southern California Edison



Ramiro Lepe
eMobility Sr. Advisor
Southern California Edison

Zero Emission School Bus and Infrastructure (ZESBI) Project



Skyler Potocek

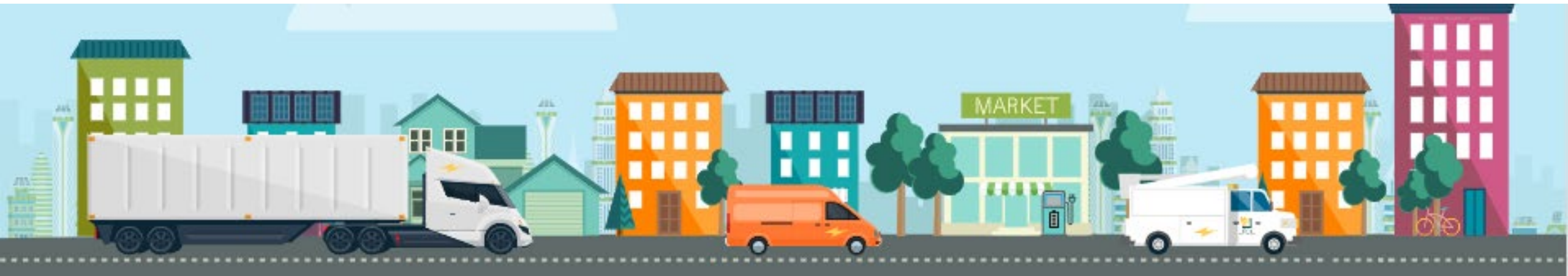
*Electric School Bus Incentives,
Project Manager, CALSTART*



QUESTION

We May Have Fleets In The Audience That Are New To ZESBI, So Let's Take It From The Top:

- What Exactly is ZESBI, And How Can School Districts Take Advantage Of This Funding Opportunity?



Energy for What's AheadSM



ZESBI Background & Eligibility Overview

ZESBI Background

The Zero-Emission School Bus and Infrastructure (ZESBI) project pairs zero-emission (ZE) school bus vehicle funding offered by the California Air Resources Board (CARB), with charging infrastructure funding offered by the California Energy Commission (CEC).

A total of \$500 million is appropriated by Senate Bill (SB) 114 for ZESBI for Fiscal Year 2023-24.

ZESBI Project Type	Awards
ZE School Bus	<ul style="list-style-type: none">\$375 million is allocated to support the replacement of old school buses with ZE school buses
Charging Infrastructure	<ul style="list-style-type: none">\$125 million is allocated to support complementary infrastructure and associated costs



Eligibility & Requirements

Eligible applicants*:

- California Public School Districts
- California Public Charter Schools
- California Joint Power Authorities (JPAs)
- California County Offices of Education (COEs)

Ineligible applicants:

- Private schools are not eligible applicants
- Charter schools classified as non-classroom-based charter schools as of FY 2021-22 are not eligible.
- Third-party student transportation providers

*** Eligible applicants can contract with third-parties to operate the school buses.**

*** All applicants must serve students within the K-12th grade level.**



Application Prioritization

Applicant Prioritization:

- **Tier 1** - Applicants defined as a small or rural school district, or applicants whose total enrollment is comprised of at least 80% unduplicated pupils
- **Tier 2** - Applicants that serve Disadvantaged Communities (DACs) and/or Low-Income Communities (LICs)
- **Tier 3** - Eligible applicants with an eligible school bus for replacement

***Applicants within each tier will be ranked based on the timestamp of their complete Application Part A submission.**



QUESTION

You Mentioned That ZESBI Combines School Bus Funding, With Infrastructure Funding..

- For Electric School Buses Specifically, What Are The Incentive Ammounts Per School Bus Type, And Is There A Vehicle Scrap Requirement?





ZESBI School Bus Overview

Eligibility & Requirements

Old School Bus Requirements:

- Chassis must be a 2010 model year or older per the DMV Registration Form.
- Must be applicant owned. The school bus cannot have a lienholder listed on the DMV Registration Form.
- Must have a Gross Vehicle Weight Rating (GVWR) greater than 10,000 pounds.
- Must have a current California Highway Patrol Safety Certification (CHP 292 or equivalent) at time of Application Part A submission. A non-certified school bus will not be able to continue within the application process.
- If the school bus is diesel-fueled and greater than 14,000 pounds GVWR, it must be compliant with the California Truck and Bus Regulation in order to receive a full voucher amount.

School Bus Incentive Amounts

- ZESBI incentive amounts intend to cover nearly, if not all of, the cost of a new ZE school bus.
- ZESBI incentives may cover taxes and other costs related to the purchase of the eligible zero-emission school bus, up to the maximum incentive amount.

Maximum Incentive Amounts

School Bus Type	Without a Wheelchair Lift	With a Wheelchair Lift
Type A	\$280,000	\$295,000
Type C	\$340,000	\$355,000
Type D	\$360,000	\$375,000



QUESTION

Let's Dive Into ZESBI's Infrastructure Incentives...

- What Are The Requirements For Eligibility, And How Much Funding Can A Qualifying School District Expect to Receive For Their Project?



ZESBI Infrastructure Overview

Eligibility & Requirements

Infrastructure Requirements:

- 1 ZESBI funded bus : 1 ZESBI funded charger
 - Charger requests may reflect up to the total number of ZE school buses requested.
 - For example:
 - If an Applicant requests four zero-emission school buses, the Applicant may be entitled to up to a total of four chargers.
 - If an Applicant requests two zero-emission school buses, the Applicant may be entitled to up to two chargers.

Infrastructure Incentive Amounts

Amount Per Charger

Charger Type	Infrastructure Award Amount
Level 2 (L2)	\$20,000
Direct Current Fast Charger (DCFC) or Bidirectional DCFC	\$75,000

An Incentive Recipient will be eligible for up to \$95,000 for the first bidirectional DCFC requested. All remaining bidirectional DCFC requested after the first bidirectional DCFC will be eligible for up to \$75,000 each.

Incentive Criteria

- Infrastructure incentive amount will be based on the type of charger with a maximum average infrastructure award of \$75,000 per bus for those receiving two or more busses
 - Exception: If an applicant is awarded 1 bus and requests a bi-directional charger, applicant will be eligible for \$95,000
- Eligible infrastructure costs include procurement costs, installation costs, and school transportation program costs
 - Up to 10% of the total grant award can be used to supplement an LEA's school transportation program.



QUESTION

So, I'm Sure A Lot Of People On This Call Are Wondering...

- **When And How Can School Districts Apply For ZESBI Funding?**



Energy for What's AheadSM



ZESBI Application

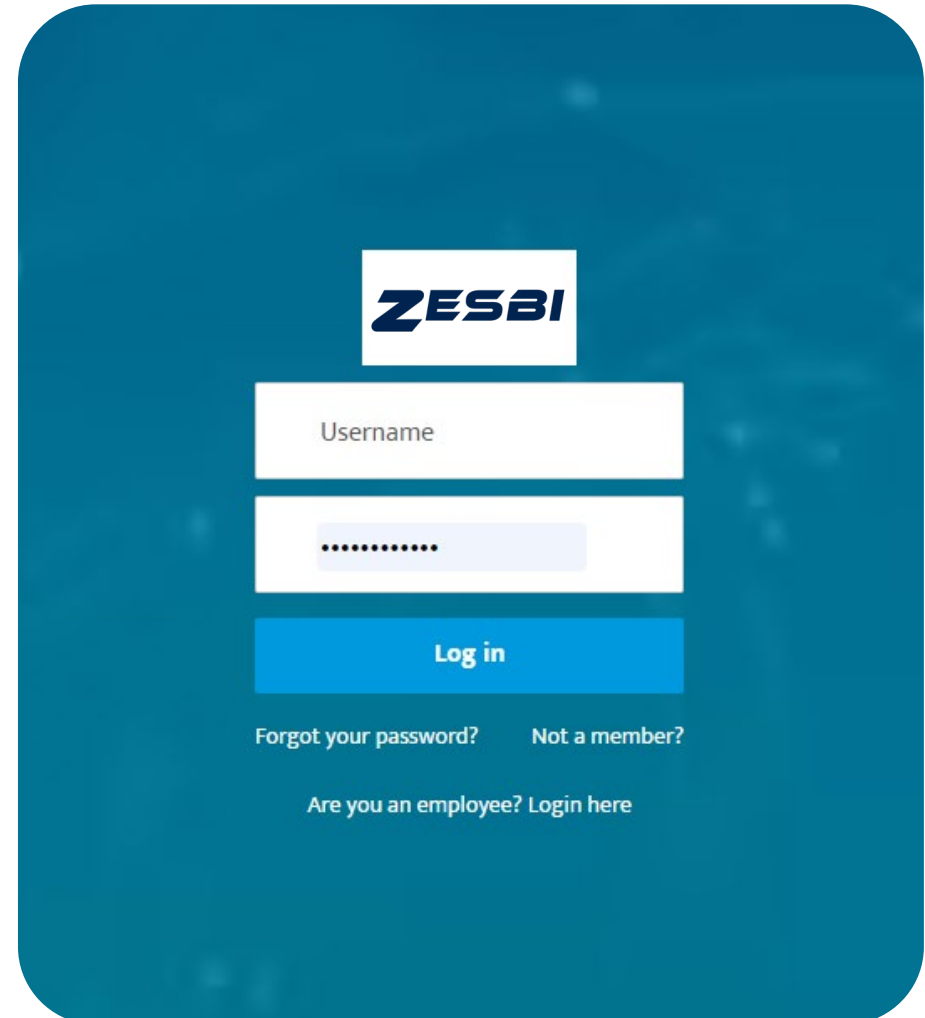
Application Part A

- **ZESBI Application Part A will remain open until November 22, 2024, at 5:00 pm Pacific Time.**
 - Application link can be found at www.californiahvip.org/zesbi.
- Applicant must submit the following:
 - A Letter of Intent signed by an authorized representative stating the applicant's intent to purchase ZE school bus(es).
 - A current copy of the DMV Registration for each old school bus included in Application Part A.
 - A current copy of the CHP Safety Certification (CHP 292) for each old school bus included in Application Part A. The old school buses must have a current, unexpired, (CHP 292 or equivalent) at time of application submittal.



ZESBI Applicant Portal

- Applicants will be required to create an account to access the application portal.
 1. Select "Not a member?" to be directed to the registration screen.
 2. Enter your name and primary email and select "Sign Up", you will receive a link to your email to create a password and Log In.



ZESBI

Username

.....

Log in

[Forgot your password?](#) [Not a member?](#)

[Are you an employee? Login here](#)



QUESTION

Fleets In The Transition Are Looking To Maximize Incentives As Much As Possible...

- Does ZESBI Allow School Districts To “Stack” With Other Utility, Air District, Or Even Voucher Incentive Programs?



Learn more at:

californiahvip.org/ZESBI

Questions?

SchoolBusTeam@CALSTART.org



Cal-Fleet Advisor, No-Cost Technical Assistance



Alise Crippen

Lead Project Manager,

Electric School Buses, CALSTART



QUESTION

Many School Districts Are At The Early Stage Of The Transition To Electric...

- What Is Cal-Fleet Advisor, And How Does The Program Help Fleets That Have No Idea Where To Start?



Cal Fleet Advisor

- Offering **free technical assistance** to California fleets transitioning to zero-emissions
- For fleets of **any size, any stage** of electrification



Personal
Advisor



Information & Resources



Fleet Transition Planning



Incentive Guidance



Industry & Peer Referrals



Deployment Optimization

Fleet Transition Plans

- Your **custom-tailored roadmap** outlining the next steps for your full fleet electrification
- Prepared based on your needs and vision for the future
- Full detailed report can include:
 - Fleet Phasing Plan
 - Route Optimization
 - Charging Strategy
 - Total Cost of Ownership Estimates
 - Funding Recommendations





Learn more at:
www.calfleetadvisor.org/esb

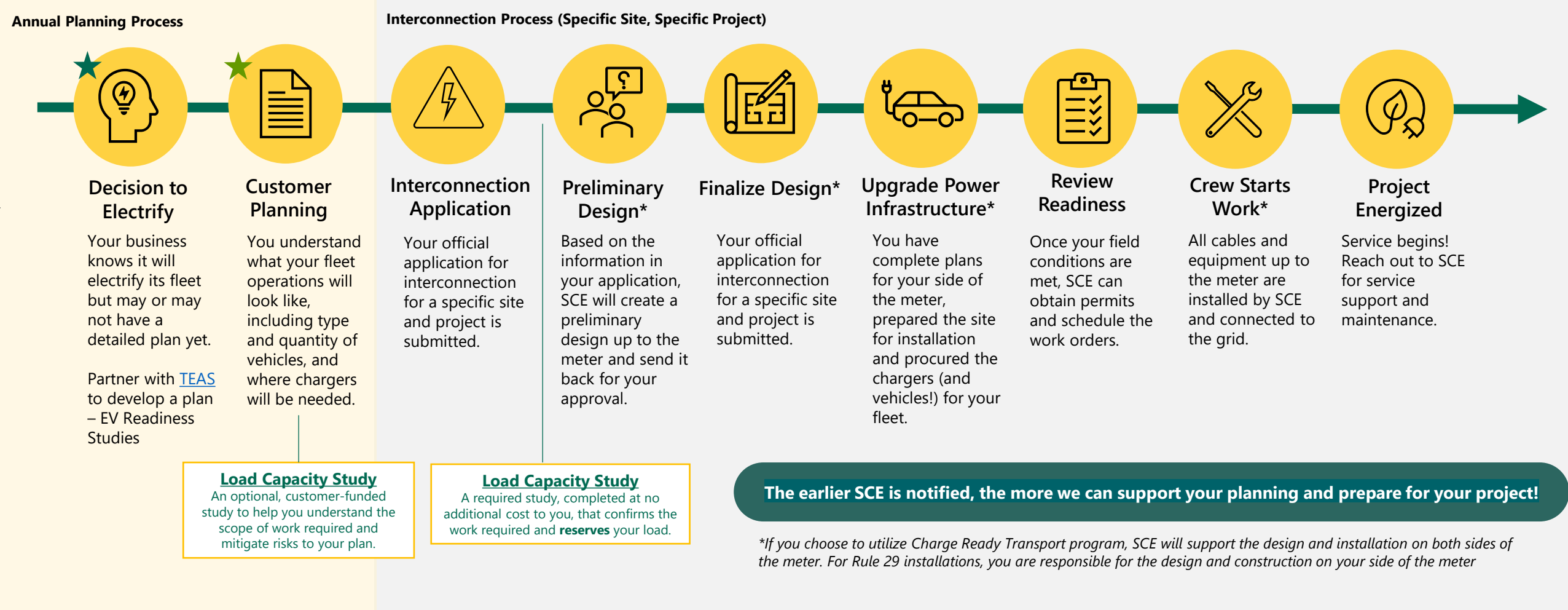
What Does It Take To Install EV Charging Infrastructure?

John Nelson, Sr. Project Manager, Charge Ready Transport



What Does It Take To Install EV Charging Infrastructure? ★ Current Point of Engagement ★ Desired Point of Engagement

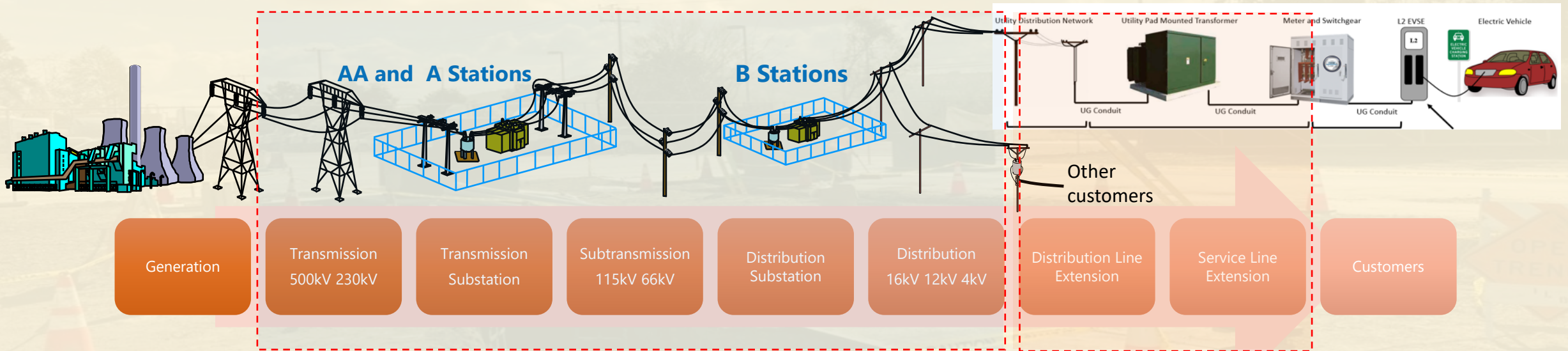
Understanding the process flow of installing electric chargers and the work that SCE is responsible for can ensure a smooth partnership from start to finish



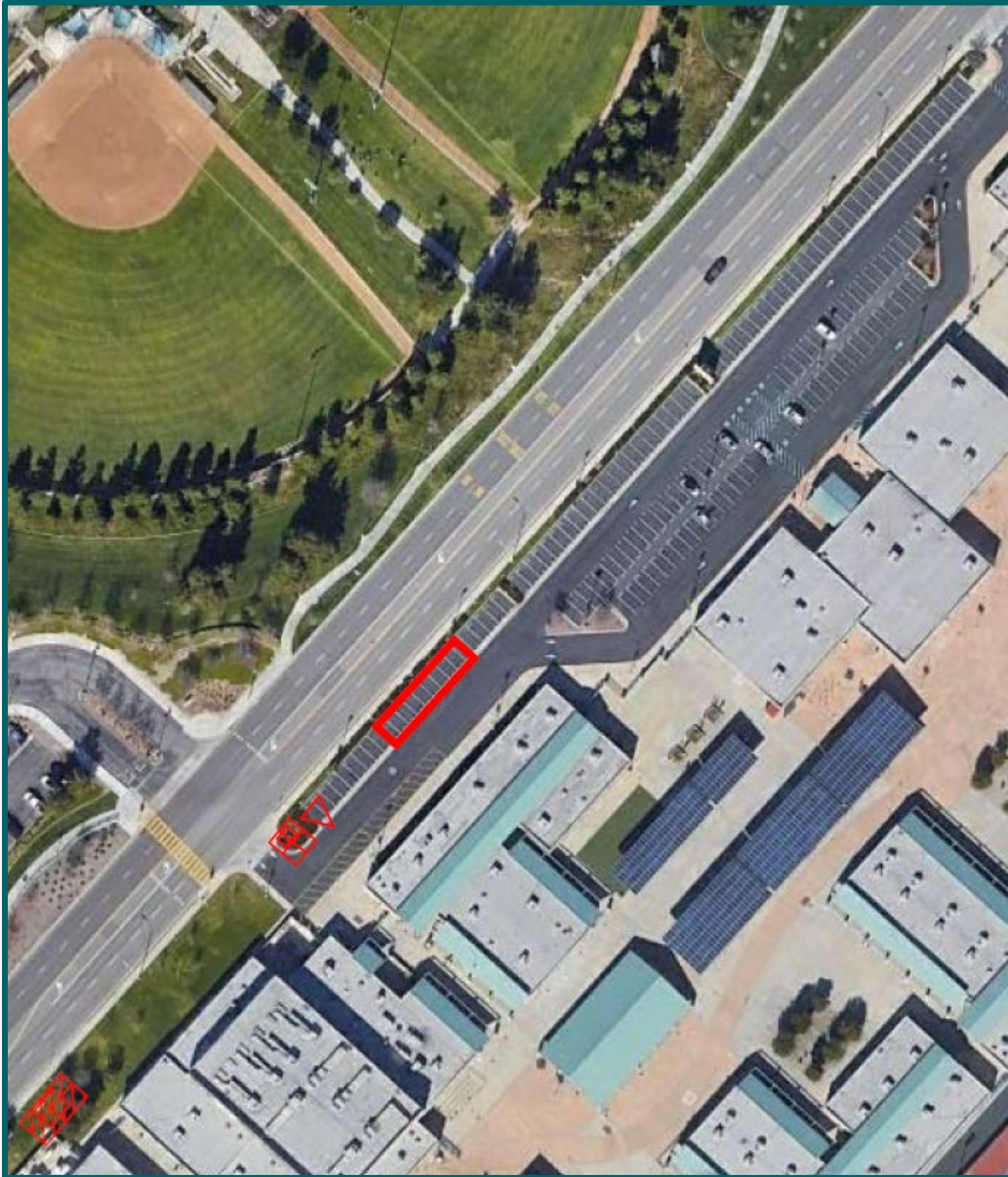
Overview of Utility Grid Planning Activities

Annual 10-year grid planning to meet forecasted load and DER growth, including EVs

Load energization / Service connection



EV Infrastructure Project Site Overview – Essentials



Charger Selection

- Make / Model / kW / Quantity – Utilizing Approved Product List (APL)

Operations

- Type and Quantity of EVs
- Establishing Use / Charging Windows

Proposed Site Map

- Spacing, Throughput, Overhead Obstructions (Solar Canopies), Existing Easements

Authority Having Jurisdiction Requirements (DSA or City/County)

- Knowledge of existing and ongoing DSA projects (Project A#'s)
- Understand how to generate Project Tracking Number (PTN)
- Inspector of Record (IOR) & Laboratory of Record (LOR)

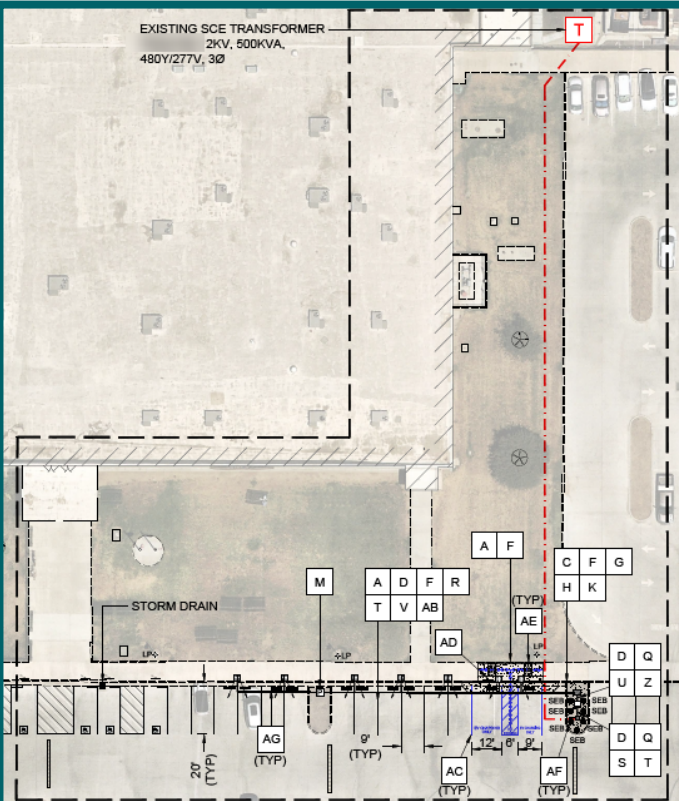
Review of Utility Easements & Agreements

- No Red Lines
- Conveyances of customer owned structures to SCE

Environmental Considerations

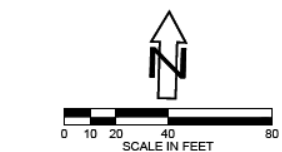
- SCE Does NOT Pay for Remediation

EV Infrastructure Project Site Overview - Conceptual Design Phase

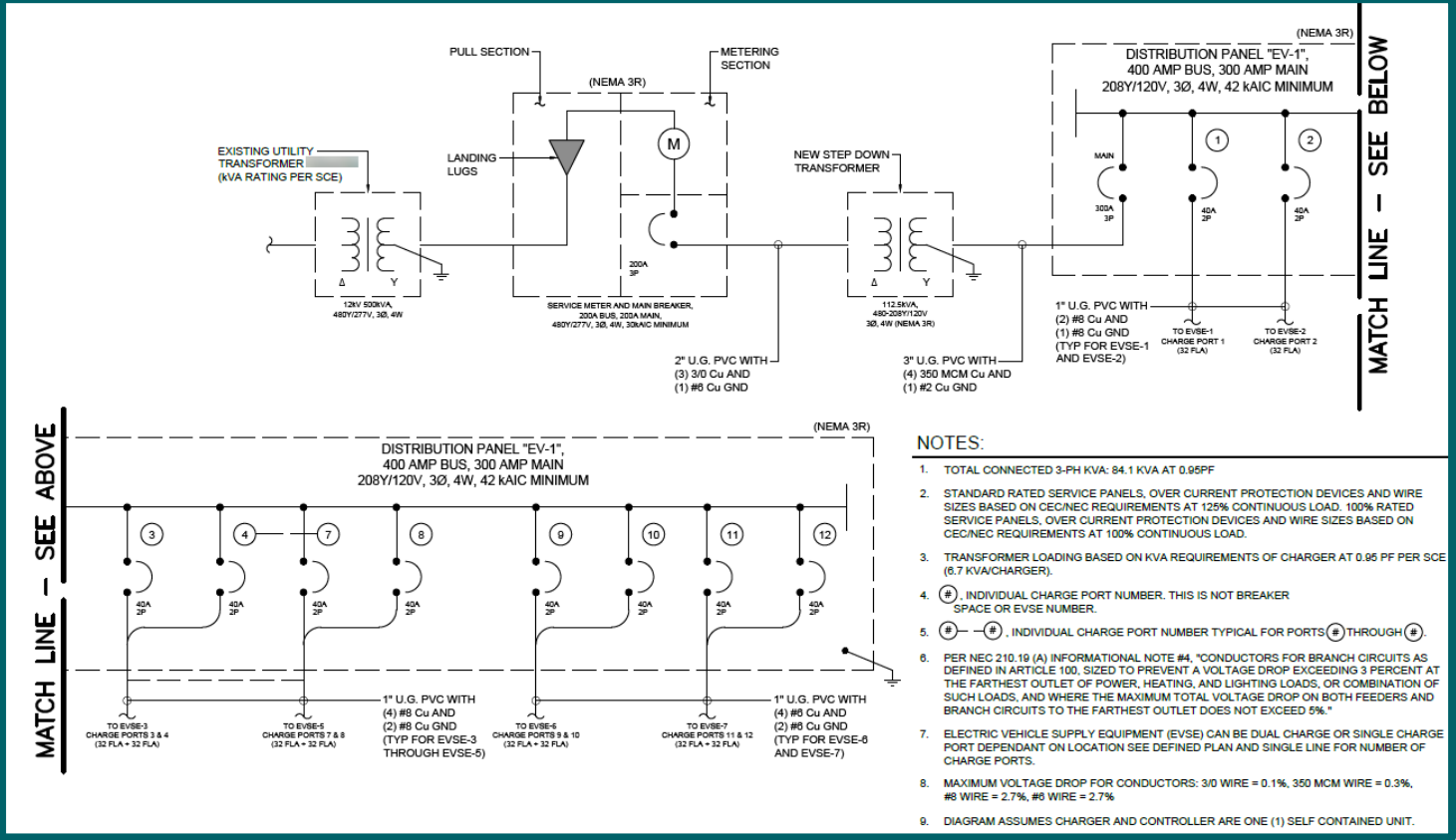


- NOTES:**
- UTILITY DISTRIBUTION INFRASTRUCTURE SHOWN IN RED BUILT BY OTHERS AND SHOWN ONLY FOR PROJECT CLARITY AND COORDINATION.
 - IMPACTED EXISTING PARKING = 13 TOTAL SPACES; 13 STANDARD SPACES

CUSTOMER INFRASTRUCTURE IMPROVEMENTS		
CONSTRUCTION NOTES		E.Q.
A	REMOVAL OF HARDEN SURFACING	655 SF
C	REMOVE VEGETATION	175 SF
D	2' WIDE UTILITY TRENCH	195 LF
F	PROPOSED CONCRETE	815 SF
G	INSTALL 400 AMP DISTRIBUTION SUBPANEL	1 UNIT
H	INSTALL 200 AMP SERVICE METER (NO PAN)	
K	INSTALL 112.5 KVA STEP DOWN TRANSFORMER	
M	INSTALL PULL BOX	
Q	INSTALL BELOW GRADE PVC CONDUIT +2"	
R	INSTALL BELOW GRADE PVC CONDUIT <2"	
S	3/0 WIRE CONDUCTOR	
T	#8 WIRE CONDUCTOR	
U	#2 WIRE CONDUCTOR	
V	#8 WIRE CONDUCTOR	
Z	350 MCM WIRE CONDUCTOR	
AB	DATA CAT5E CABLE	
AC	STRIPING FOR ADA STALLS	
AD	INSTALL ACCESSIBLE EVSE SIGNAGE	
AE	INSTALL TRUNCATED DOMES	
AF	INSTALL SERVICE EQUIPMENT BOLLARDS	
AG	INSTALL WHEELSTOPS	

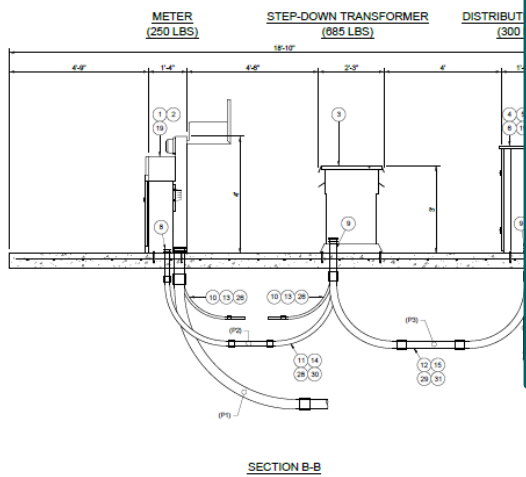
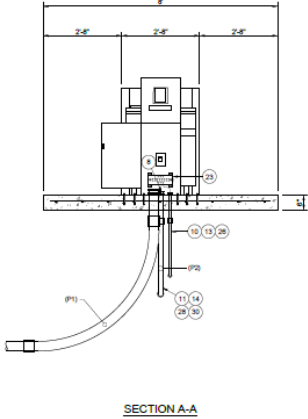
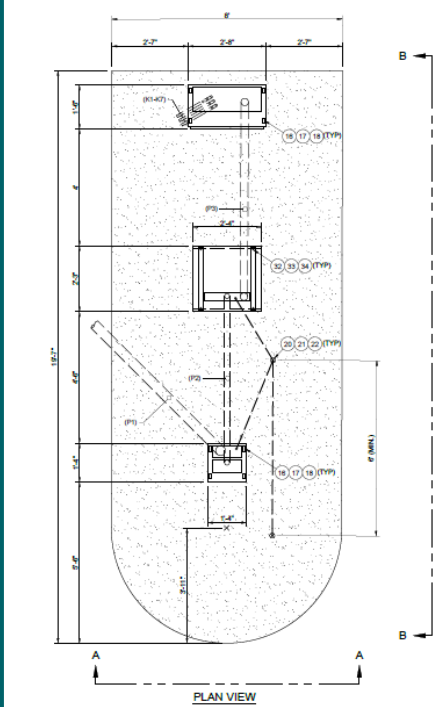
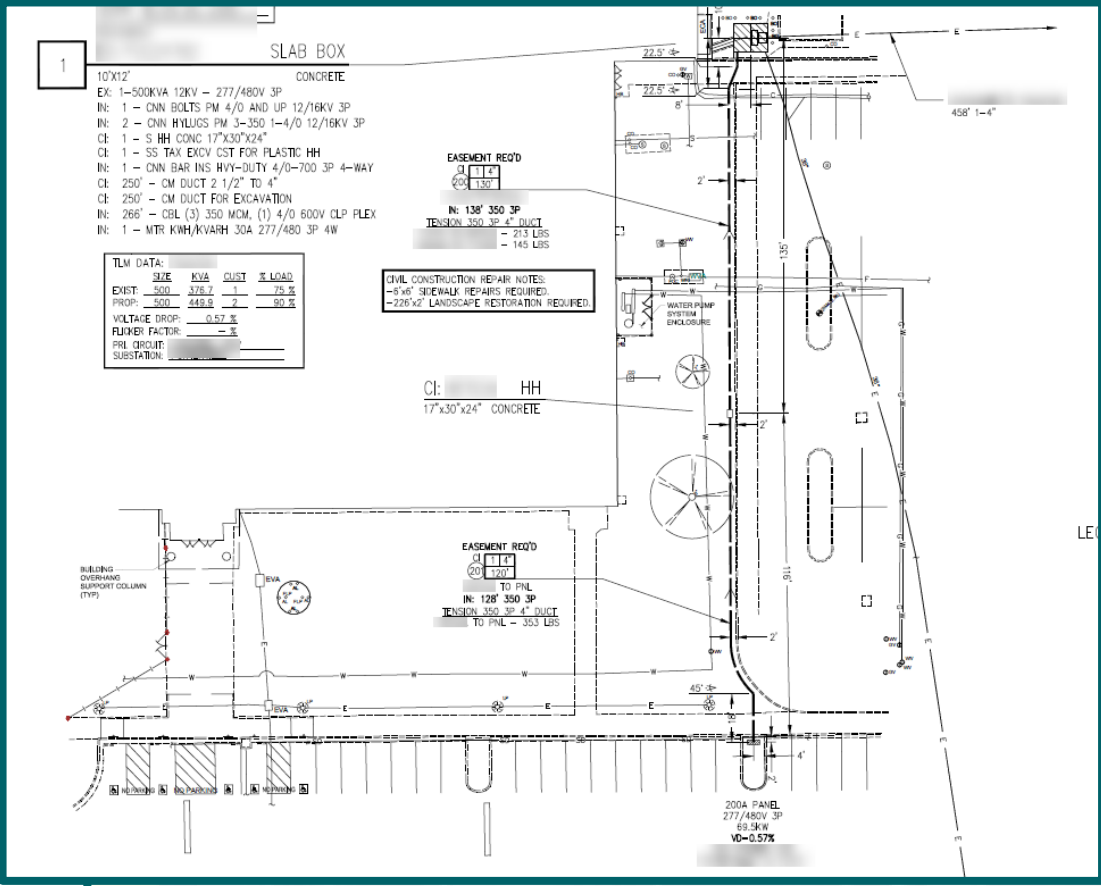
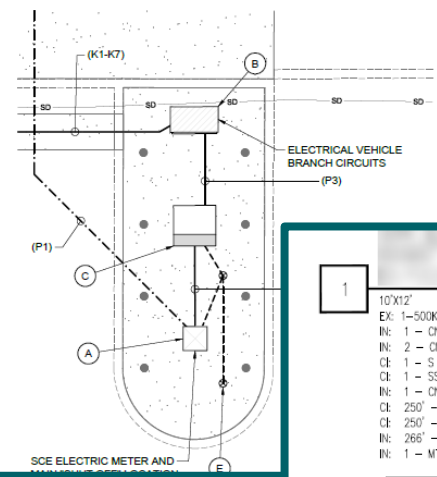
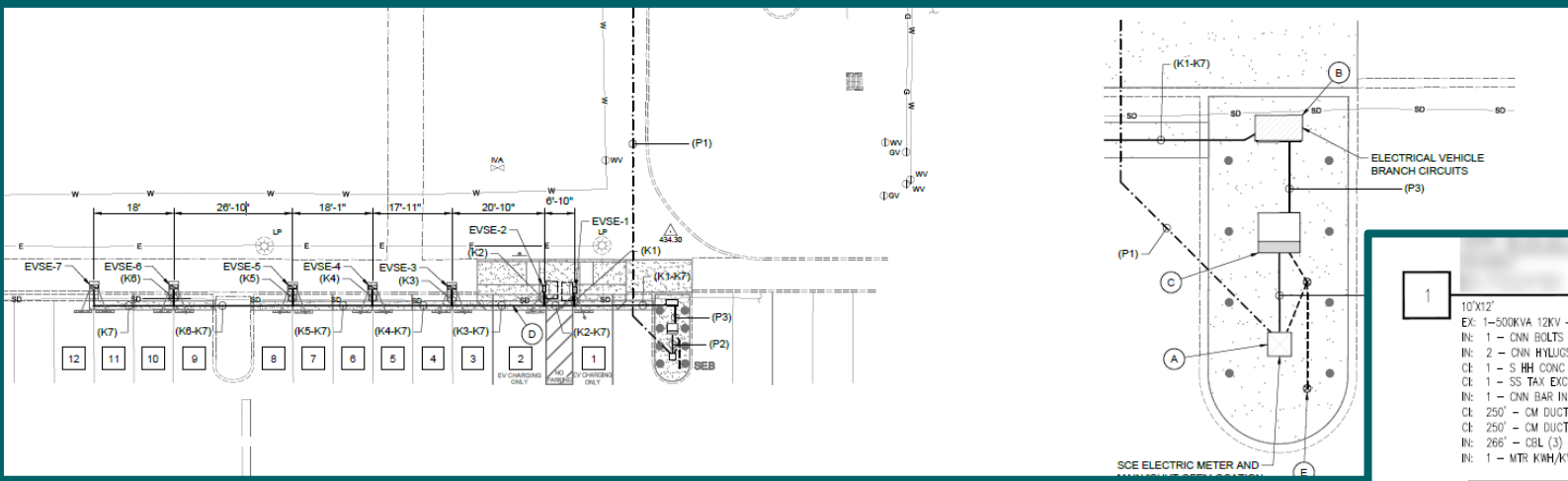


- SYMBOL LEGEND:**
- ▭ EXISTING WHEELSTOP
 - EXISTING SIGN
 - ⊕ LP EXISTING LIGHT POLE
 - ▭ PROPOSED SERVICE EQUIPMENT

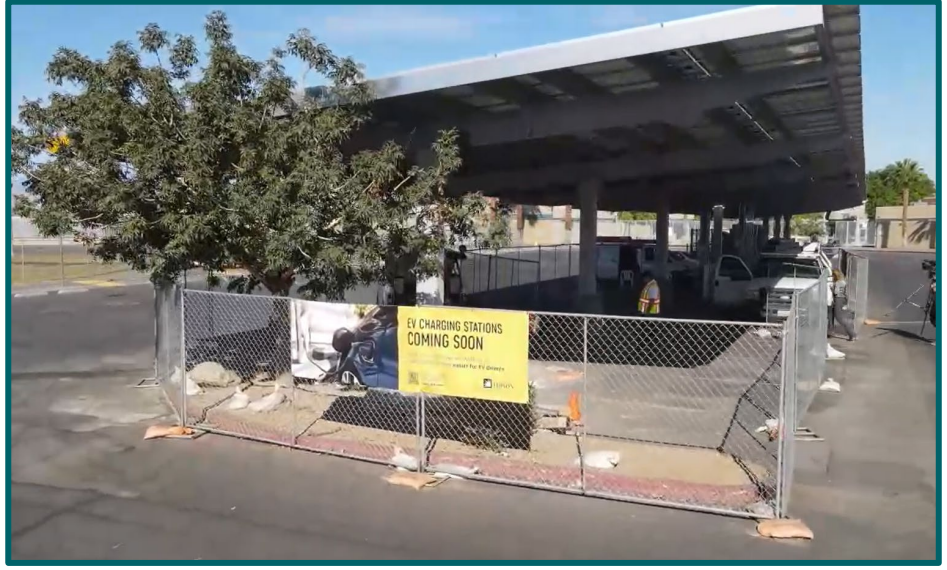


- NOTES:**
- TOTAL CONNECTED 3-PH KVA: 84.1 KVA AT 0.95PF
 - STANDARD RATED SERVICE PANELS, OVER CURRENT PROTECTION DEVICES AND WIRE SIZES BASED ON CEC/NEC REQUIREMENTS AT 125% CONTINUOUS LOAD. 100% RATED SERVICE PANELS, OVER CURRENT PROTECTION DEVICES AND WIRE SIZES BASED ON CEC/NEC REQUIREMENTS AT 100% CONTINUOUS LOAD.
 - TRANSFORMER LOADING BASED ON KVA REQUIREMENTS OF CHARGER AT 0.95 PF PER SCE (8.7 KVA/CHARGER).
 - Ⓜ INDIVIDUAL CHARGE PORT NUMBER. THIS IS NOT BREAKER SPACE OR EVSE NUMBER.
 - Ⓜ-Ⓜ INDIVIDUAL CHARGE PORT NUMBER TYPICAL FOR PORTS Ⓜ THROUGH Ⓜ.
 - PER NEC 210.19 (A) INFORMATIONAL NOTE #4, "CONDUCTORS FOR BRANCH CIRCUITS AS DEFINED IN ARTICLE 100, SIZED TO PREVENT A VOLTAGE DROP EXCEEDING 3 PERCENT AT THE FARTHEST OUTLET OF POWER, HEATING, AND LIGHTING LOADS, OR COMBINATION OF SUCH LOADS, AND WHERE THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET DOES NOT EXCEED 5%."
 - ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) CAN BE DUAL CHARGE OR SINGLE CHARGE PORT DEPENDANT ON LOCATION SEE DEFINED PLAN AND SINGLE LINE FOR NUMBER OF CHARGE PORTS.
 - MAXIMUM VOLTAGE DROP FOR CONDUCTORS: 3/0 WIRE = 0.1%, 350 MCM WIRE = 0.3%, #8 WIRE = 2.7%, #6 WIRE = 2.7%
 - DIAGRAM ASSUMES CHARGER AND CONTROLLER ARE ONE (1) SELF CONTAINED UNIT.

Final Engineered Design Phase



EV Infrastructure Project Site Overview - Construction Phase



PRE-CONSTRUCTION FOOTAGE



EV Infrastructure Project Site Overview - Construction Complete





AUDIENCE QUESTION

Many Fleets Are At The Early Stage Of The Transition, and May Not Be Ready To Commit To A Multi-Year EV Acquisition Plan...

- How can School Districts Work With SCE to Future Proof Their Yards for EV Deployments Over The Next 5-10 Years?
- What about Civil Improvements on the Utility Side?





QUESTION

Given the Complexities Involved with EV Infrastructure Installation...

- What Are the Primary Factors That Tend to Impact the Overall Timeline for EV Infrastructure Installation Projects?



Every EV Charging Infrastructure Project is a **MAJOR** Construction Endeavor

Each project is unique, there are 6 high level factors that influence how long completing an EV Infrastructure project will take:

Type of Project. Make Ready or Utility Infrastructure Only? Make-Ready projects take longer, Utility is completing designs, obtaining permits, securing material, & completing construction on both sides of the meter

Site Characteristics. Does electric service already exist, or will site require distribution or service line extension? Environmental Remediation, Existing UG Utilities (natural gas, gasoline, etc.)

Capacity. Does it currently exist, or will added capacity be needed to serve a project? Projects may require a lot of capacity. See us as a partner! We may need to upgrade substation or reallocate circuit load

Permits & Clearances. Utilities have to be given permission to complete the construction work required for EV charging from the AHJ (Cities, Counties, State or Federal Entity). *Permit approval times are taking longer*

Materials & Equipment. Industry has seen a shortage of key materials and equipment needed to complete EV Charging Infrastructure projects to include *Switchgear, some Transformers & smaller materials*

Customer Engagement. Lead times in receiving customer applications, submitting designs, providing clearances, signing agreements, approving preliminary and final designs, etc. *Customer requested changes*



QUESTION

Recognizing That EV Infrastructure Deployments Can Span Multiple Years...

- When Would You Recommend School Districts to Engage Their Utility, and What is the Typical Timeframe for Completing Necessary Grid Upgrades?



Engage With SCE **Early & Often** For Your Load Energization Project

In Addition to Sharing the Long-Term Electrification Plan, **Customers Should Contact SCE as Early as Possible for Your Load Energization Project!**

While ***Each Location Has Different Levels of Capacity and Complexity***, In General, SCE Strongly Suggest That Applicant Should Inform SCE As Follows:

- **Any Size Project:** No lesser than 2 years
- **3-10 MW Project:** No lesser than 3 years
- **10-15 MW Project:** No lesser than 5 years

*Timing **depends on the capacity & complexity of the localized distribution grid**. The times suggested above are for guidance only and may be substantially longer if project with licensing requirements are triggered

System Upgrades Take Time! ○ **18 months+ for simple upgrades** (e.g. upgrade to existing circuits)
○ **3+ years for moderate upgrades** (e.g., new circuits)
○ **6+ years for major upgrades** (e.g., new substations)

Approximately....



Live Case Study
Orange Unified School District
Christina Celeste-Russo, Director of Transportation, Orange USD





Disclosure

Before We Dive In:

- Southern California Edison Does Not Endorse Or Promote Any of the Third-Party Vendors, Manufacturers or Service Providers Mentioned In This Presentation . SCE Remains A Neutral Party, Committed to Being A Trusted Partner In Your Transition To Electric Vehicles.





Question

Let's Start With The Results Of Your Hard Work...And Dedication...

- Can You Provide An Overview Of Your School's Current Fleet Electrification Status? How Many EVs Are In Your Fleet, What Stage Are You At, And What Did You Have To Do To Get Here?





OUSD Fleet Electrification Overview



PHASE 1

- (15) Blue Bird T3REs
- (15) Nuvve 19.2kW
- Charge Ready Transport – SCE Built



PHASE 2

- (8) Blue Bird T3REs & 8 Micro Bird G5
- (13) Nuvve 19.2kW
- (3) Nuvve 60kW V2G
- Charge Ready Transport – SCE Built



PHASE 3

- (10) Micro Bird G5
- (5) 60kW V2G
- (5) 125kW V2G
- Charge Ready Transport – SCE Built

Total Vehicles in Fleet: 119
How many EVs in operation today? 17





Question

Let's Take A Step Back And Talk About The Early Stages Of Your Projects...

- How Did You Assess The Feasibility Of Transitioning To Electric Buses During The Early Ideation Stage And What Factors Where The Most Influential In Making The Decision To Proceed With Fleet Electrification?



The Feasibility of Transitioning to Electric



- Operational Considerations & Regulatory Factors
- Charging Infrastructure & Site Planning
- Funding & Incentives
- Utility Engagement & Managed Charging
- Environmental Impact & Stakeholder Engagement
- Training, Maintenance & Operational Readiness





Question

Diving Into Your ZEV Transition Plan...

- How Did You Go About Creating The Plan, And What Factors Should Others Consider When Creating Their Own?





Key Steps for a Successful ZEV Transition

Comprehensive Fleet Assessment

- Define Goals & Objectives

Roadmap for Implementation & Infrastructure

- Outline a Phased Approach

Stakeholder Engagement & Partnerships

- Internal & External

Training & Support Program

- Shop & Driver Training



What is the #1 piece of advice you would give other fleets who are starting their electrification journey?



Question

We Hear It All The Time “Engage Your Utility Early And Often”...

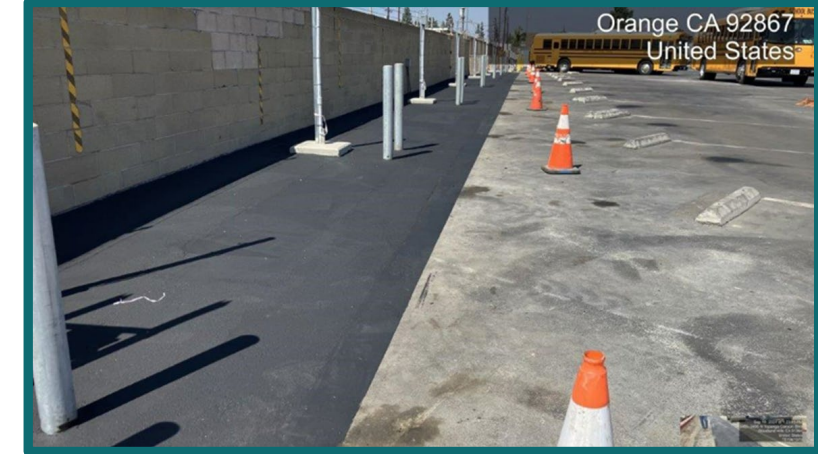
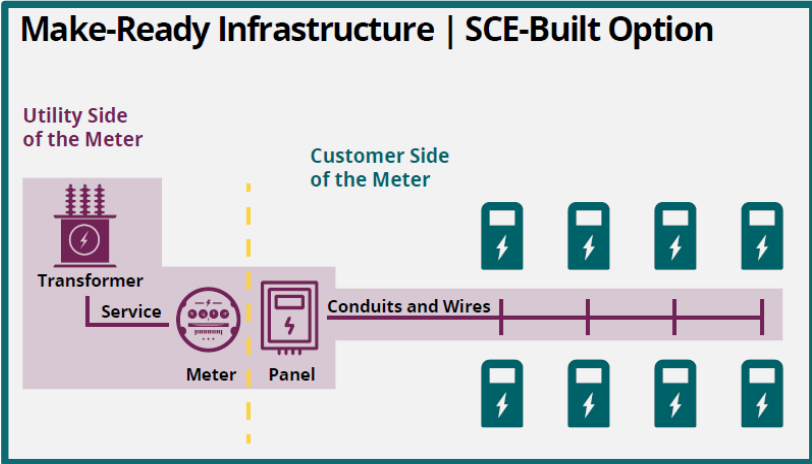
- Can You Walk Us Through Your Initial Conversations With Southern California Edison?
- What Was That Process Like, And What Type Of EV Infrastructure Support Did You Receive From Your Electric Utility?





EV Infrastructure Installation Support

SCE's Charge Ready Transport Program



What "AHA!" moments did you uncover during your conversations with SCE?

Charger Hardware Rebate of up to 50% For Qualifying Customers

Power Band	Rebate Cap
0 kW - 19.2 kW	\$1,700
19.3 kW - 49.9 kW	\$7,400
50 kW - 149.9 kW	\$22,000
150+ kW	\$37,000



Question

Let's Dive Into EV Infrastructure Planning...

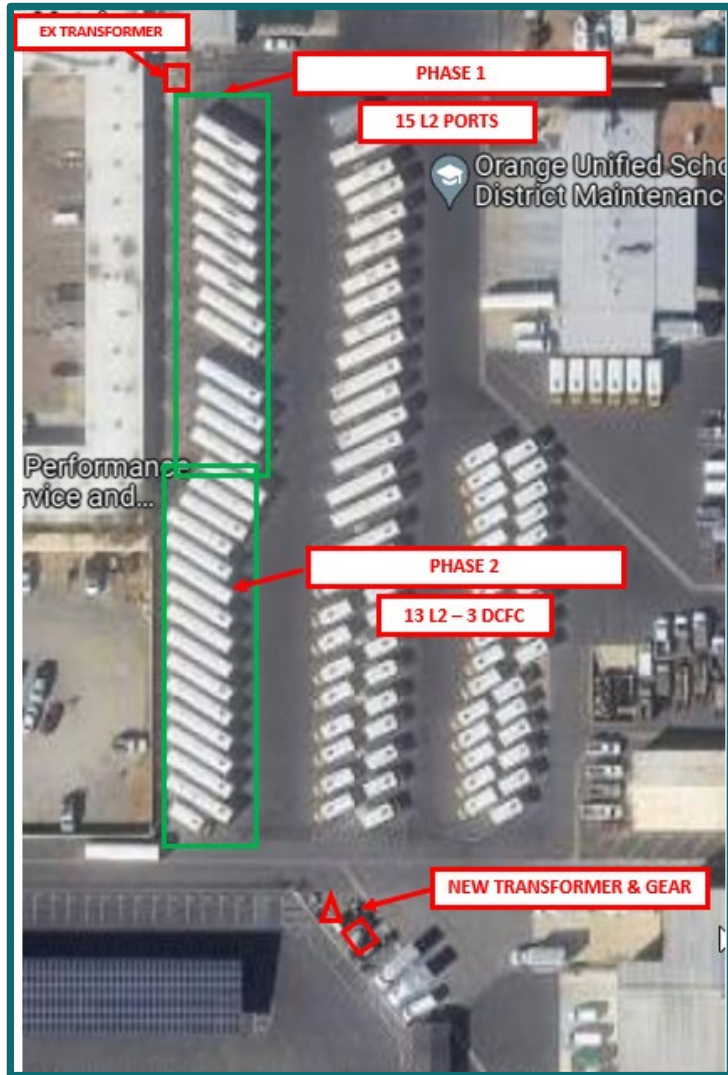
- Can You Describe How You Executed Your EV and Charger Procurement In Phase 1 and 2?
- How Did You Collectively Decide On Your Site Layout And Did Factors Such As Throughput, Spacing, Existing Easements Affect Your Overall Design?



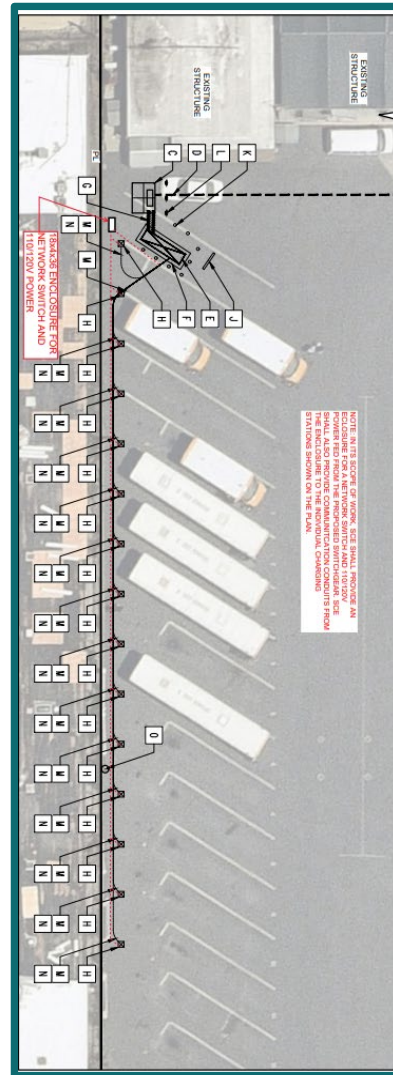
OUSD - Infrastructure Layout



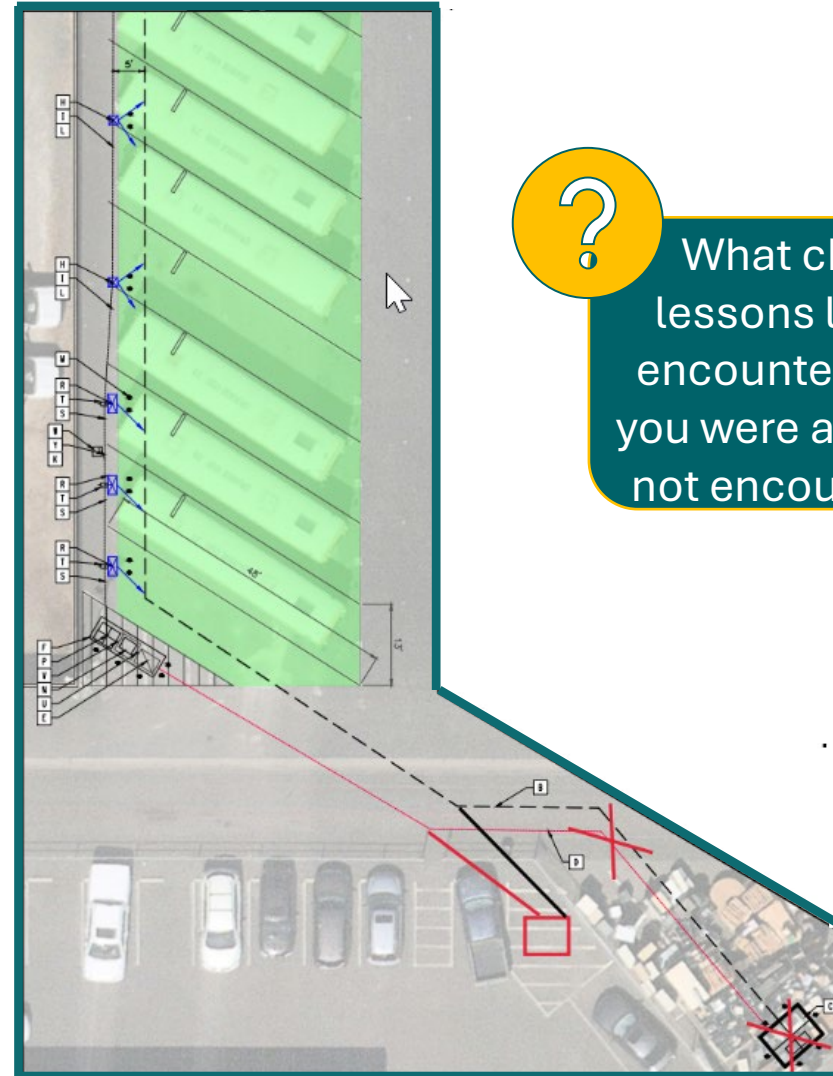
SITE LAYOUT



PHASE 1



PHASE 2



What challenges and lessons learned did you encounter in phase 1 that you were able to mitigate to not encounter in phase 2?



Question

Phase 3 Of Your Project Is Now Underway...

- What Technical Considerations Did You Have To Address Before You Were Able To Start This Project, And What Lessons Learned From Phase 1 and 2 Did You Incorporate Into Phase 3?



OUSD - Infrastructure Layout



PHASE 3 PROPOSED SITE MAP



Charger Selection

- (5) 60kW V2G
- (5) 125kW V2G

EV Types Supported

- (10) Micro Bird G5

Question



Let's Talk Charger Selection...

- In Phase 1 You Elected 19.2kW Chargers, Phase 2 Also Deployed 19.2kW and A Few 60kW Chargers...While Phase 3, You Are Planning to Install 60kW and 125kW Chargers....
- **What Lessons Learned and Operational Considerations Influenced Your Decision To Increase the kW Rating of Your Chargers Progressively?**

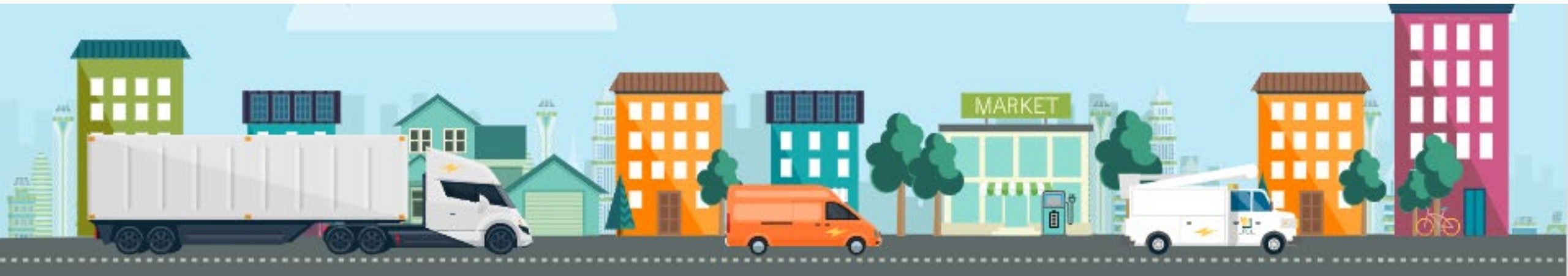




Question

Let's Talk About Money And The Offsets Needed To Make This Transition A Reality...

- How Crucial Were Grants and Incentives Such As VW Mitigation, HVIP and Southcoast Air Quality Management District Funding In Enabling Your Fleet Electrification?
- Also, What Complexities Did You Encounter With Each Funding Source?





Navigating Grants and Incentives

EVs Procured	7	2	6	2	17
Dates Arrived	2021	2022	2023	2024	Pending
Funding Program	VW Mitigation Trust Fund	SCAQMD & HVIP	HVIP	HVIP	EPA, HVIP, HTST Plan
Funding Amount	\$2.8M	\$800,000	\$1.26M	\$396,000	\$5.57M
District Out of Pocket Cost	\$220,000 (sales tax)	\$30,612 (sales tax)	\$1.23M	\$542,000	\$1.53M
Challenges	None	None	None	None	None
Funding Timeline	1 year	1.5 years	6 months	6 months	Pending



**Did you receive any funding for your chargers?
If so, from what funding source?**

**How can other fleets manage the complexities
of stacking different funding sources?**

Question



Range Anxiety Is A Concern For Many Fleets...

- What Are Your Strategies For Route Planning And What Have You Done To Ensure That The New EVs Meet Your Operational Needs From Day One?



Energy for What's AheadSM



Navigating Range Anxiety



Route Optimization & Planning

- Route Design / Data Analysis

Battery Management & Range Assessment

- Maintenance / Energy Management

Flexibility & Adaptability

- Monitoring / Feedback

EV Bus Spec's

- Choosing the right battery size



Question

How About The Internal Preparation For Adding EVs To Your Fleet..

- How Did You Prepare Your Staff and Drivers For The Transition to Electric Buses in the Early Stages?
- What Changes Did Your Maintenance Team Implement As A Result of the Transition?





Driver & Mechanic Training



Comprehensive Training Program

- Driver / Maintenance Staff Training

Familiarize Staff with Infrastructure

- Charger Operation Training

Feedback & Support

- Regular Updates

Question



Data Analytics & Charge Management

- What Data Analytic Tools, Are You Using To Monitor and Optimize The Performance, Efficiency and Utilization of Your Electric Buses and Chargers?
- Have You Instituted Any Charge Management Programs to Help Minimize Demand Charges and Maximize Battery Life?





Data & Managed Charging



Nuvve – Fleet Management

- Get instant access to view vehicle charging status, schedule charge levels for each vehicle, and trigger instant charging if needed.



Question



We All Know That Electrifying A Fleet Is No Easy Task...Looking Back...

- What Have Been The Most Significant Achievements, Challenges and Lessons Learned That You Encountered Through the Process of Deploying Electric Buses Into Your Fleet Operations?



Overcoming Electrification Challenges



Challenges

- Range Limitations
- Charging Time
- Space Constraints
- Driver Monitoring & Data Utilization

Achievements

- Reduced Emissions
- Operational Cost Savings
- Improved Rider Experience

Lessons Learned

- Infrastructure Needs – must be addressed early
- Scalability Considerations



If you had to do this project all over again, but this time, with all the learning that you had along the way...what would you do differently...and WHY?

THANK YOU!!!
Orange Unified School District
Christina Celeste-Russo, Director of Transportation, Orange USD

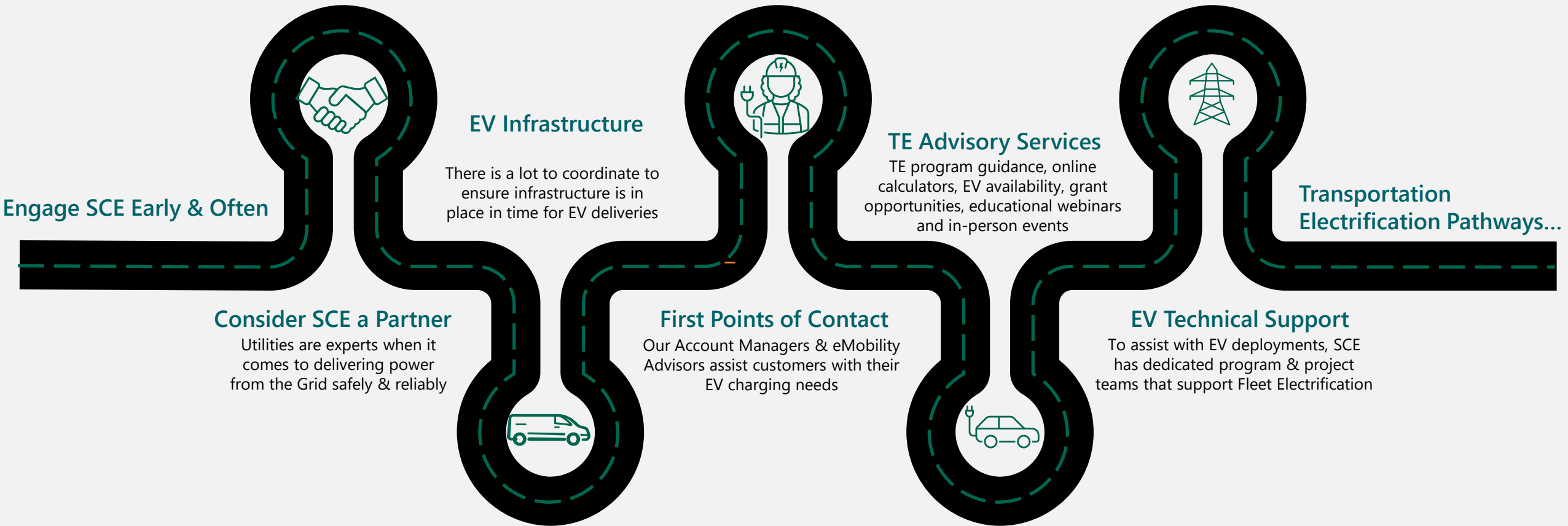


Supporting Every Step of
Your Electrification Journey
Ramiro Lepe, eMobility Sr Advisor, Charge Ready Transport



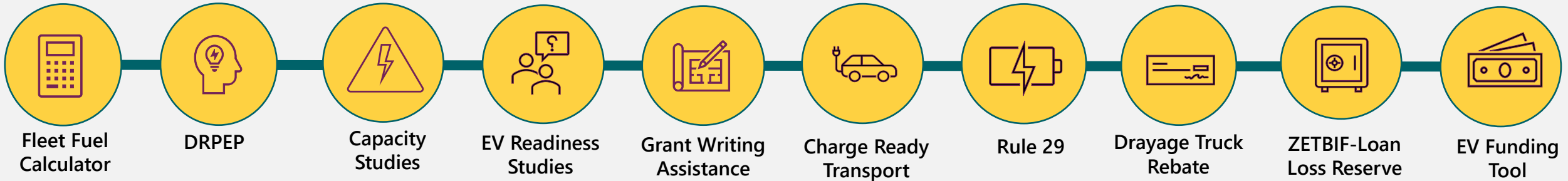
Working With SCE For Your Power Needs

Requesting or upgrading power can seem like a long and complicated process, but by planning ahead, you don't have to do it alone



SCE Supports Every Stage of Your Electrification Journey

Programs and self-serve resources are available to help you understand the impact of electrification, define requirements, and access funding for your fleet transition



START HERE:

- [Power Service Request](#)

SHARE YOUR PLANS:

- [EV Acquisition Plan Survey](#)
- SCE Forecasting Process
- SCE System Planning Process

EARLY STAGES-PLANNING:

- [SCE Distribution Resources Plan External Portal \(DRPEP\)](#)
- Engineering Analysis Reports
- [Electric Fleet Fuel Calculator](#)
- [Drayage Truck Rebate](#)
- [ZETBIF-Loan Loss Reserve](#)
- [EV Funding Tool](#)

TE ADVISORY SERVICES:

- [EV Readiness Studies](#)
- [Grant Writing Assistance](#)
- [In Person Events & Webinars](#)

EV INFRASTRUCTURE:

- [Charge Ready Transport](#)
- [EV Infrastructure \(Rule 29\)](#)
- [SCE Approved Product List](#)

Introducing *Charge Ready Transport*. Electric Infrastructure for EV Truck, Bus & Off-Road Fleets

Charge Ready Transport is SCE's program to help meet California GHG goals while providing clean air to local communities.

We build EV charging infrastructure for SCE customers deploying EV trucks, buses, and off-road equipment.

We collaborate with fleets to design infrastructure to meet your needs while managing potential grid impacts.

Four Elements of *Charge Ready Transport*

Provides low- to no-cost distribution electrical infrastructure for fleet customers on both the utility- and customer-side of the meter. Customer purchases and installs charging equipment. Customer Built Infrastructure option is available as well.

Charger hardware rebates up to 50% for eligible customers

Commercial Time-Of-Use rates designed for EV fleets

EV Advisory Services for fleet evaluation



CR Transport Fast Facts

- Seven-year program, launched in 2019
- \$342 million budget
- Minimum 500 sites and 8,490 MDHD EVs deployed
- At least 15% of the Infrastructure budget must go to transit agencies
- At least 40% of the Infrastructure budget must go to Disadvantaged Communities (DACs)



Charge Ready Supports A Variety Of Medium and Heavy-Duty Electric Vehicles

On-road vehicles

Eligible Classes:

- Medium-Duty vehicles
- Heavy-Duty vehicles
- School Buses
- Transit Buses
- Truck Stop Infrastructure

Vehicles must have GVWR (max loaded weight) 6,000 lbs. and above (class 2-8)

Off-road vehicles

Eligible Classes:

- Yard trucks
- Forklifts
- Transportation Refrigeration Unit (TRU) infrastructure
- Airport ground support equipment (GSE)

No specific weight minimum

New-Technology Vehicles:

Contact us for eligibility about new vehicle types coming to market, such as cargo handling equipment, agricultural vehicles, or construction vehicles.



Eligible Chargers Are Listed on SCE's Approved Product List

AC Level 2

- Up to 80 amp (19.2 kW).
- Standard J-1772 connector.



DC Standalone

- Up to 180 kW.
- CCS-1, CCS-2, CHAdeMO connectors.



DC Power Cabinet

- Modular cabinet with one or more dispensers.
- Up to 350kW.
- CCS-1, CCS-2, CHAdeMO connectors.



Off-road TRU & Forklift

- TRU: 4-pin and 6-pin, up to 32 amp, UL listed.
- Forklift: variety of chargers for different forklift models, UL listed.



Approved product list available at <http://www.sce.com/apl>.
New models are added regularly. Check for the newest availability list.

Many Fleets Qualify for Charging Hardware Rebate Up to 50%

Do you qualify for a charger equipment rebate?

Three customer classes qualify for the charger equipment rebate:

1. **Transit agencies**
2. **School District**
3. **Project sites in Disadvantaged Communities, except for businesses on the Fortune 1000 list.**

[Map of Disadvantaged Communities](#)

Charger Info

Rebates cover 50% of equipment cost, up to a cap by power band.

Chargers must meet AC or DC charging standards for on-road vehicles

Equipment must be listed on SCE's [Approved Product List \(APL\)](#).

For AC chargers and DC standalone chargers, there is one rebate per charger, regardless of the number of ports / connectors.

For DC modular power cabinet chargers, there is one rebate per power cabinet, regardless of the number of dispensers.

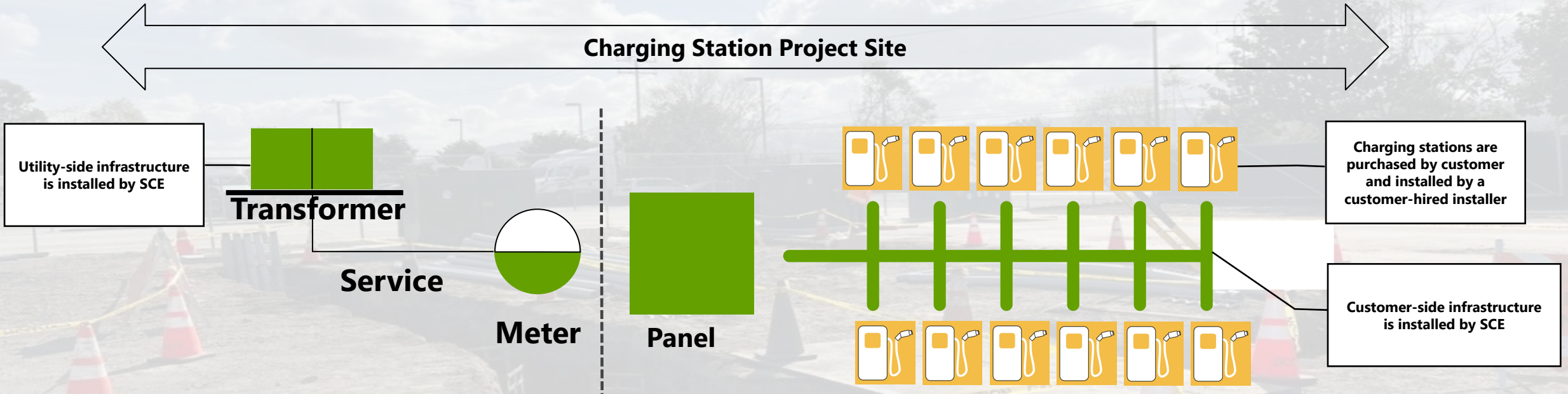
No rebates available for forklift, TRU, and other off-road chargers.

Rebate covers 50% of the EVSE cost, up to the rebate cap

Power Band	Rebate Cap
0 kW - 19.2 kW	\$1,700
19.3 kW – 49.9 kW	\$7,400
50 kW – 149.9 kW	\$22,000
150+ kW	\$37,000

Rebate table is current as of March 2021. Rebate structure may be updated in the future. View the current rebate structure at the [Approved Product List \(APL\)](#) website.

CR Transport Project: SCE-Built Infrastructure



Utility-side infrastructure is installed by SCE

Transformer

Service


Meter

Panel

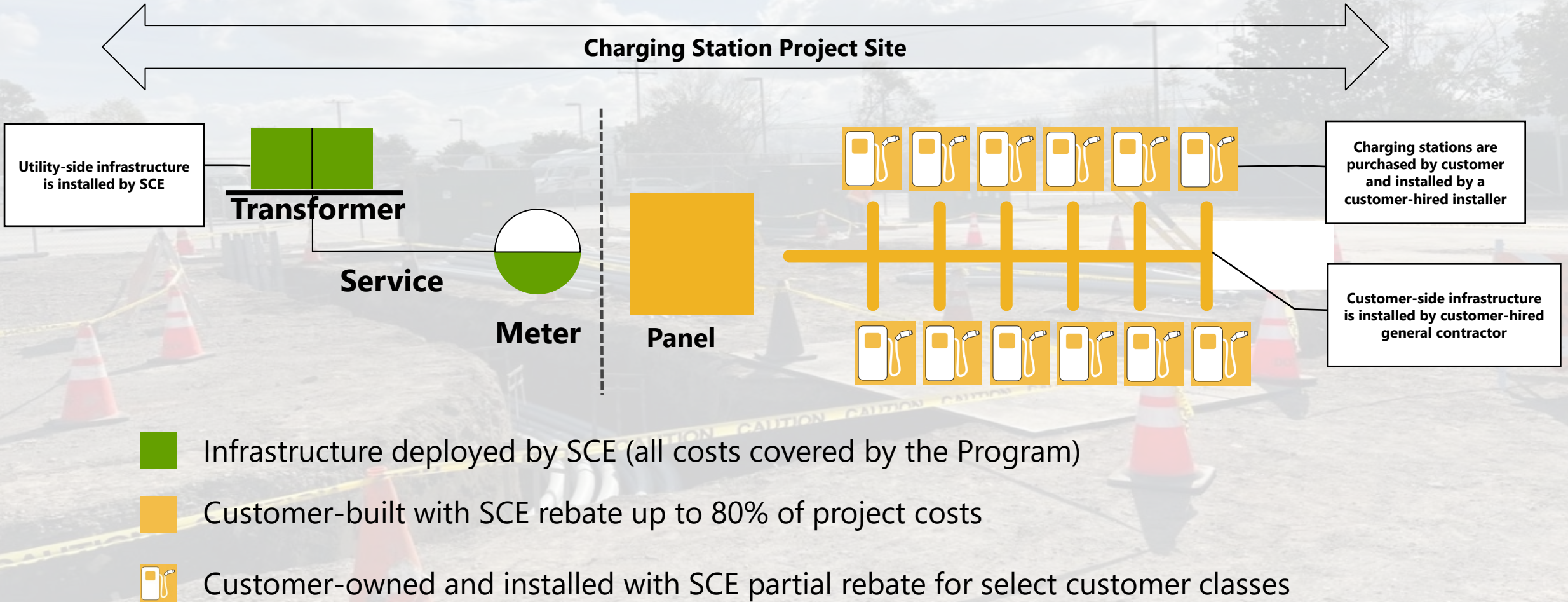
Charging stations are purchased by customer and installed by a customer-hired installer

Customer-side infrastructure is installed by SCE

 Infrastructure deployed by SCE (all costs covered by the Program)

 Customer-owned and installed with SCE partial rebate for select customer classes

CRT Project: Customer-Built Infrastructure



Let's Plan Your Fleets Future!

Ramiro Lepe

(626) 842-7129

Ramiro.Lepe@SCE.com

-OR-

Contact Your SCE Account Manager

SCHEDULE YOUR 1:1 CONSULTATION



Your Turn: Ask Away!



Christina Celeste-Russo
Director of Transportation
Orange Unified School District



Skyler Potocek
Electric School Bus Incentives,
Project Manager, CALSTART



Alise Crippen
Lead Project Manager,
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eMobility Sr. Advisor
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