
SCZET FORUM 2025

Southern California ZE Transit Forum

June 18, 2025



calstart.org



Please Sign In
Slides and materials will be
emailed to attendees who sign in.

EnergIIZE Transit Set-Aside

Transit Eligibility Criteria

- Included in the CARB Innovative Clean Transit (ICT) program's list of compliant transit agencies
- California city or county government, transportation district/transit district, or public agency
- California Native American Tribe, California Tribal Organization, or Non-Governmental Organization Serving Tribal entities
- Must show proof of vehicle voucher request by Step 3 of the EnergIIZE process



- **The Set-Aside lanes pair EnergIIZE infrastructure funding with vehicle funding such as [HVIP](#) vouchers**
- **Open with application window extended to October 2nd, 2025**
- **Up to \$5 million per project**
- **Per port / nozzle incentive structure**
- **Apply for Set-Asides through the [IPC](#)**

Energize Transit Set-Aside

Qualified Applicants are eligible to receive the following incentives:

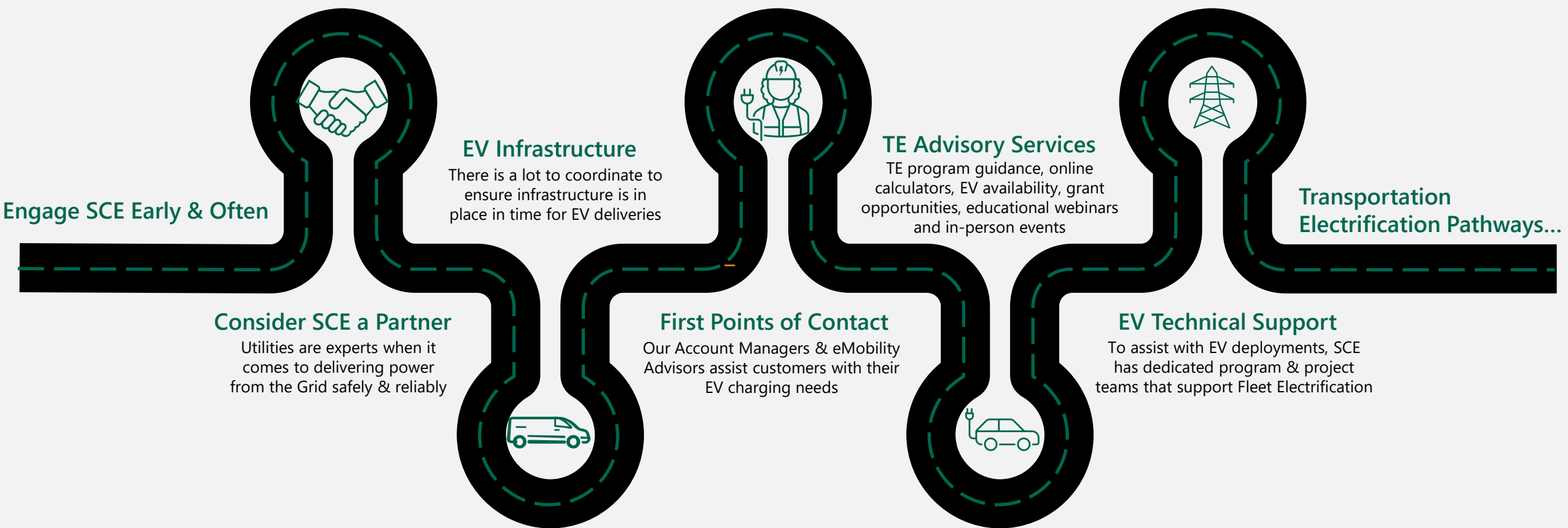
Infrastructure Type	Set-Aside Per Charger Port/ Hydrogen Dispenser Incentive Amount
≤50kW EV Port	\$31,250
51kW - 150kW EV Port	\$93,750
151kW - 350kW EV Port	\$187,500
≥351kW EV Port	\$375,000
Hydrogen Dispenser	\$2,500,000

Southern California Edison's Transportation Electrification Pathways



Working With SCE For Your Power Needs

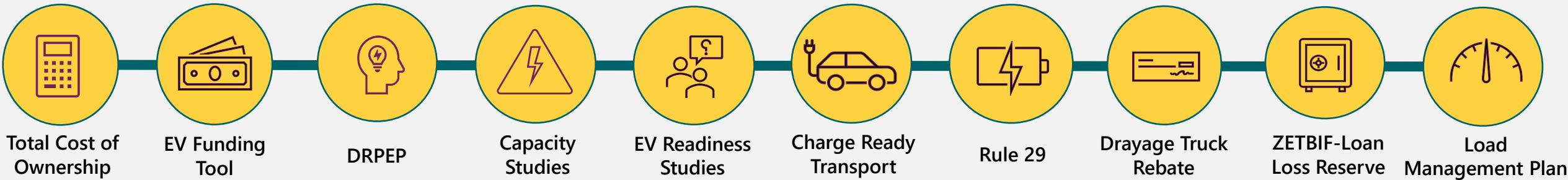
Requesting or upgrading power can seem like a long and complicated process, but by planning ahead, you don't have to do it alone



Energy for What's AheadSM

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
- [Total Cost of Ownership](#)
- [Drayage Truck Rebate](#)
- [ZETBIF-Loan Loss Reserve](#)
- [EV Funding Tool](#)

TE ADVISORY SERVICES:

- [EV Readiness Studies](#)
- Load Management Plans
- [In Person Events & Webinars](#)

EV INFRASTRUCTURE:

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

MDHD Electrification - Low to No-Cost EV Infrastructure Installation

Charge Ready Transport

Offset the Cost of EV Infrastructure Installation Up to a 10 – Year Fleet Deployment Strategy



Program Considerations

Highlights

- Program Open Until December 31, 2026
- Provides Two Construction Tracks
- Can Apply for Multiple Phases / Sites
- Supports 100% Electric Class 2-8 & Off-Road EVs



EV & Charger Requirements

Supports Phasing in of EVs up to 10 Years

- PO's Are Not Required Up Front
- 2 EVs Must Arrive Within 2 Years of Application
- Supports Level 2 and DCFC Chargers
- Chargers Must be On SCEs Approved Product List



Financial Offsets

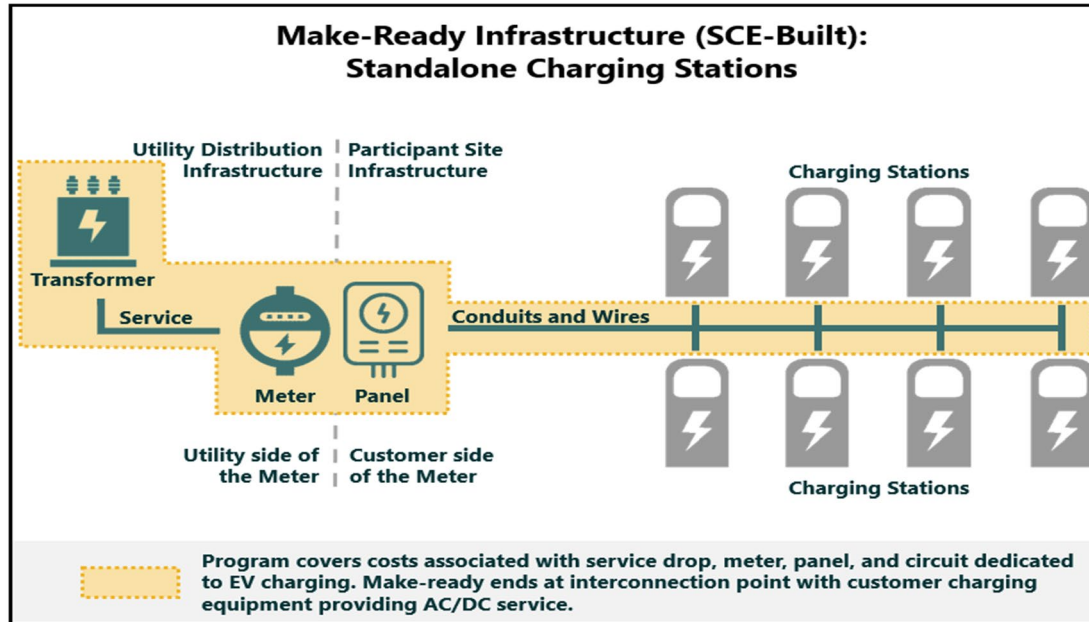
Charger Hardware Rebate up to 50%

- School District, Transit Agency or Project Site in a DAC, and Applicant not on Fortune 1000 List
- Rebate Cap \$1,700 to \$37,000 per Charger

SCE & Customer Built Infrastructure Installation Options

CRT: SCE Built & Customer Built Infrastructure

Two Distinct EV Infrastructure Installation Options:

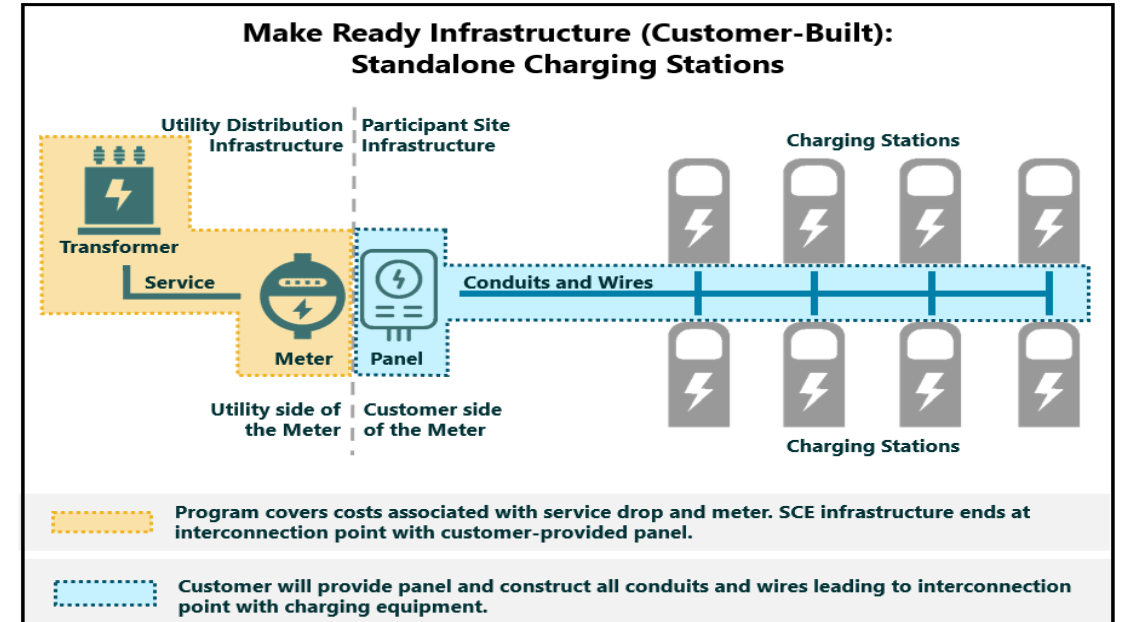


SCE Built

- Turn-Key Solution
- Distribution to First Point of Interconnection
- No DER Interconnection in Perpetuity
- No Site Alterations or Increase of Charger kW
- More Intrusive Easement

Commonalities

- No Red-Lines on Easement and Program Participation Agreement
- Chargers Must be On SCEs Approved Product List
- Separate Meter With Commercial TOU Rate Structures
- 1:1 EV to Port Ratio



Customer Built Option

- Allows for DER Integration with R21
- Less Intrusive Easement
- More Flexibility on Customer side Infrastructure
- Build Must Be Completed by IBEW Labor
- Up to 80% Project Cost Rebate

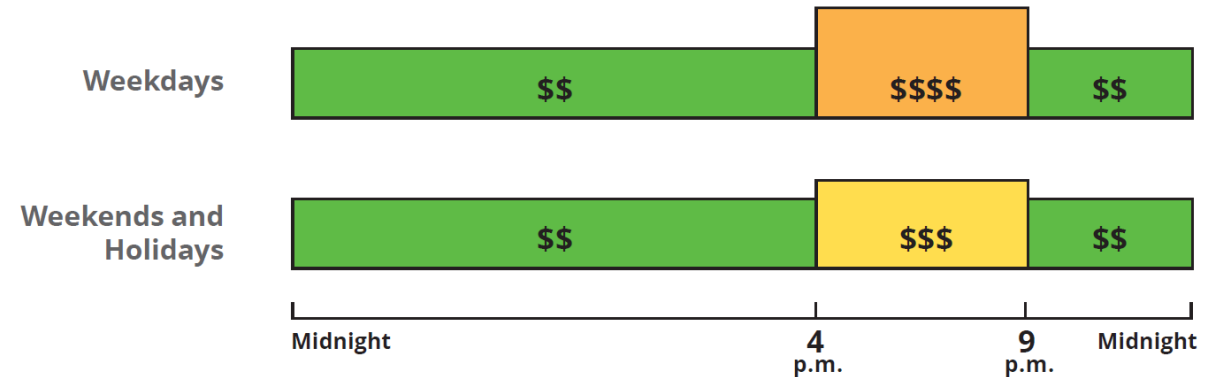
SCE's New EV Rates & Demand Charge Holidays

Highlights of New EV Rates

- **TOU-EV-7:** No demand charges from 2019-February 2024. Demand phases back in from 2024-2029.
- **TOU-EV-8 & 9:** No demand charges 2019 through 2025. Demand phases back in from 2026-2031.
- Save money by avoiding the peak hours of 4pm-9pm.
- New Super Off-Peak period with lowest pricing during 8am-4pm from October – May.
- You can estimate your electricity costs using SCE's Fleet Fuel Calculator, fleetfuelcalculator.sce.com.

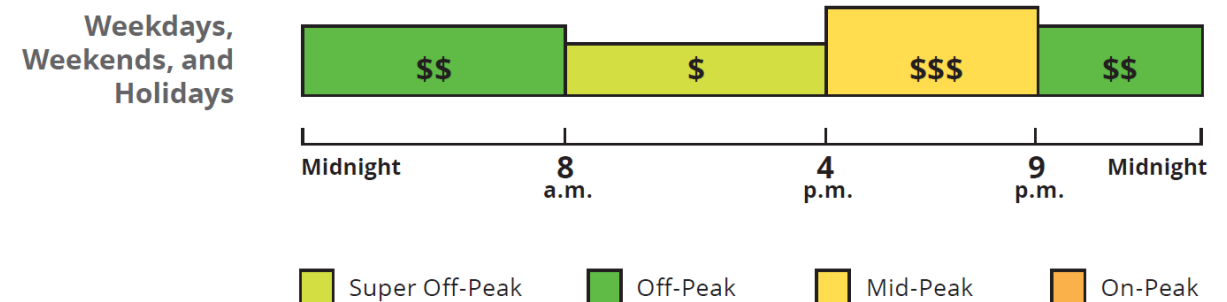
SUMMER

June 1 – September 30 (4 Months)



WINTER

October 1 – May 31 (8 Months)



TOU-EV-7
20kW or less



TOU-EV-8
above 20 kW
& up to 500kW



TOU-EV-9
above 500 kW

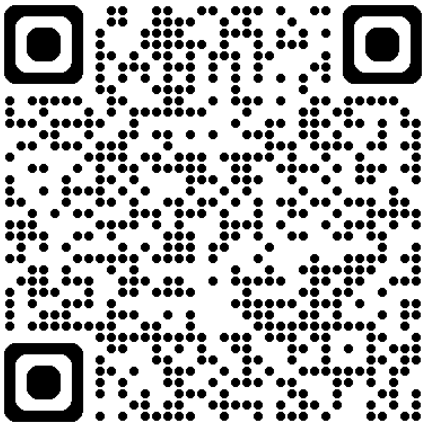
Transportation Electrification (TE) Advisory Services

TE Advisory Services is Available to Support Customers Early in the Electrification Planning Phase

EV Readiness Studies *(No Cost Project Site Study)*

- Helps multifamily property owners, tribal communities businesses and medium- and heavy-duty fleet owners determine the feasibility of their specific electrification project. **Customers will receive the following:**

- **Consultation call with a TE Advisor**
- **High-level study of their site**



Request Your Study

www.sce.com/teas



Transportation Electrification Advisory Services



Vehicle Availability

- One of the first steps is determining which EVs are the best fit for your business. You will want to consider how much energy each vehicle will need to operate on an average day and how much time it will take for that vehicle to charge.
- Vehicle fleet size, vehicle type, and vehicle usage will all impact the amount of energy needed to operate on an average day and how much time it will take to charge.



Transportation Electrification Advisory Services

Customer Information

Company Name
ROYAL PAPER BOX

Site Address
1033 S MAPLE AVE
MONTEBELLO, CA 90640

Contact
John Smith, 123-456-7980

Fleet Information

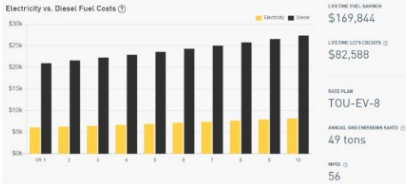
Number of Vehicles Planned for EV (used for analysis)
42

Vehicle Information
Class 3: Truck - lifetime of 15 year(s)

Vehicle Operations
5 workdays/week, 200 avg. daily miles/vehicle

Fleet

Over 10 years, you could save approximately \$_____ in fuel costs by going electric.



Category	Value
LIFETIME FUEL SAVINGS	\$169,844
LIFETIME LYS CREDITS	\$82,588
BASE FLUOR	TOU-EV-8
ANNUAL GAS CREDITS	49 tons
WELL	56

This site analysis is based on applicable Southern California Edison (SCE) Electric Vehicle Rates and is provided to illustrate a high-level comparison to conventional fuel costs and may not include all applicable rate options or available savings. This analysis is based on information you provided and certain assumptions for charging patterns, usage, and applicable rate factors. SCE can neither predict nor guarantee any actual cost savings or increases due to the changes for usage variables or applicable rate factors such as: charging assumptions, operating factors, equipment, EV charging, weather patterns, service voltage, firm service levels, taxes, and add-on facilities charges. These rates are based on secondary voltage (< 24 KV) and bundled service.

Auditor Notes

asfasd asd fsaf of awf ewa fewar was nwea rwaef wae fawef waefwaef waef waef waef ewa afeawf ertawf wer uwaeior upwaeiorupwaeior waeh fkywaehf kwae fowefwae waefwaefwahof ewhf weahf ewhf; waehwa fhwaef hwaehf waefkfwefkfwef jwefwef waeef pwaef ewf fwaef ewpf awf-br/br>awf alef,eiof afj waeef waeef .aofaesjfluehf owafnszf hgz.eshj frfntzuezn.ef ue true



Page 1 of 3

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*

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!

Approximately....

- **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)



SCE Supports Every Stage of Your Fleet Electrification Journey

For More Information:

Bradley Hooker

Bradley.Hooker@SCE.com





Building the Hydrogen Economy Workforce: Lessons from Cal State LA and Opportunities for Collaboration with Transit

**Dr. David Blekhman, Technical
Director, Professor
2025**

Cal State LA Hydrogen Research and Fueling Facility

CARB No. 06-618 \$2,700,000

DOE Award #DE-09EE0000443 \$475,750

AQMD, MSRC, Ahmanson Foundation, AAA



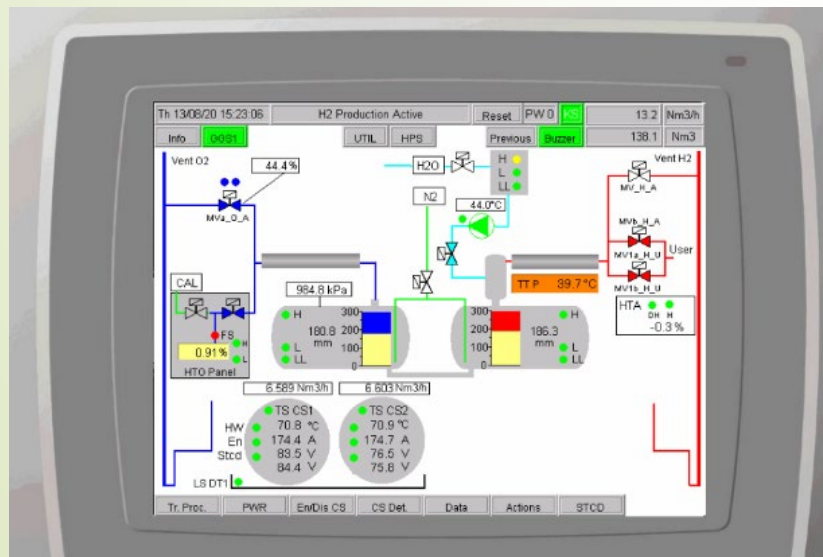
Cal State LA Electrolyzer, Hydrogen Production From Water

Manufacturer: Hydrogenics

Model number: HySTAT[™] - A 1000

D/30/10

60 kg/day production capacity



New
stacks,
~\$200K,
6-9
months



CSULA Hydrogen Station Specs

Production: 60 kg/day

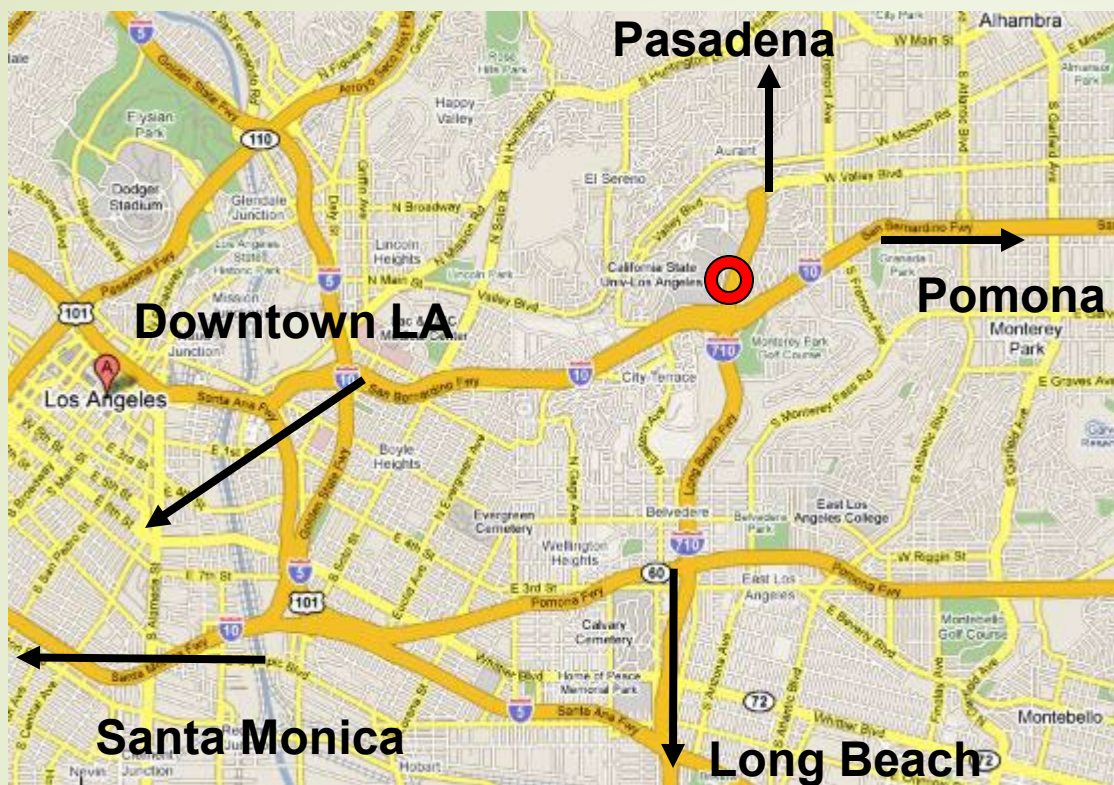
Storage: 60 kg

Pressure: 350 and 700 bar

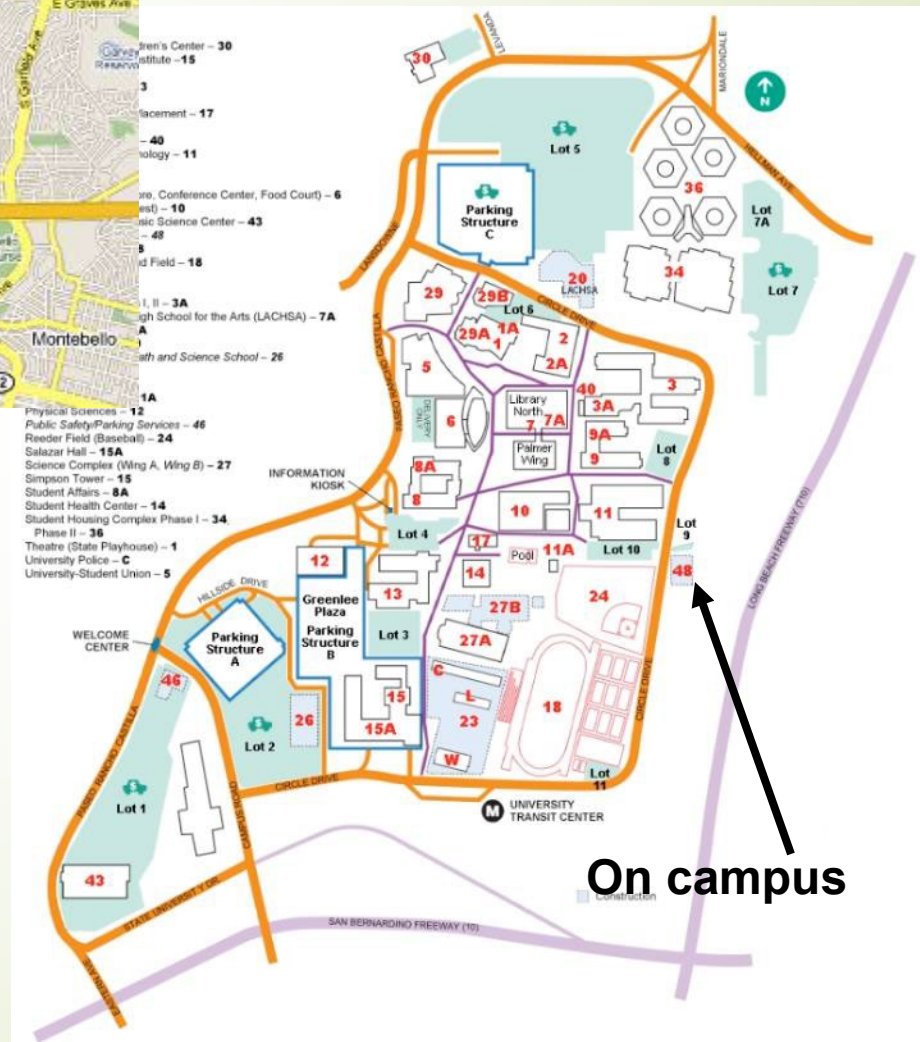
Temperature: -20 deg C

Capacity: 15-20 fuel cell vehicles per day





Alternative Fuels Corridor



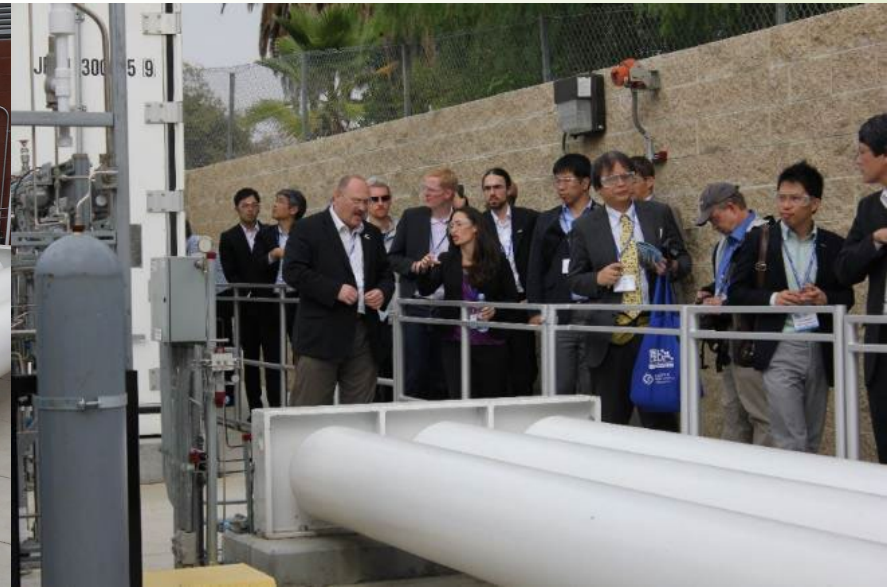
Public Tours > 10,000



John Frala and students from Rio Hondo
Michael Dray conducts a tour



German Government 2022
Fuel Cell Seminar 2014



Fueling All

Passenger Cars, Busses, Trucks, Trailers



California ZEV Engineering Workforce Pilot by Cal State LA and Cerritos Community College

GFO-21-602: IDEAL ZEV Workforce Pilot



CALIFORNIA
AIR RESOURCES BOARD

\$500,000



SoCalGas™

\$50,000



Partner



Preparing Next Generation



Classes

Visiting
Researchers

Interns

Train the
Trainer

Public Tours



MS and PhD Visiting
Researchers

Sponsors?

TRAIN THE TRAINER HYDROGEN TECHNOLOGY AND INFRASTRUCTURE

MAY 30-31, 2024

Limited seating available for
up to **16 participants**. Lunch
and refreshments provided.



THE WORKSHOP

The Cal State LA Hydrogen Research and Fueling Facility, in collaboration with Cerritos Community College, extends an invitation to community college instructors, educators, and technology experts for a two-day train-the-trainer workshop on hydrogen technology and infrastructure. The workshop aims to provide foundational training on hydrogen technologies and initiate discussions for future collaboration in integrating hydrogen-related curriculum into community college settings. Upon completion of the in-person workshop, recognition certificates will be presented.

THE INSTRUCTOR

Dr. Blekhman is internationally renowned as an author and presenter. He is a Cal State LA Outstanding Professor and the 2019-20 Fulbright Distinguished Chair in Alternative Energy Technology at Chalmers University of Technology in Sweden. Since the inauguration of the Cal State LA Hydrogen Research and Fueling Facility in 2014, Dr. Blekhman has served as its technical director, overseeing groundbreaking initiatives.

SCAN ME TO REGISTER



FOR MORE INFORMATION, PLEASE CONTACT US AT:



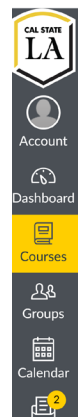
longbeachcleancities@gmail.com

DAY ONE

- Renewable Energy Overview
- Hydrogen Investment and Hydrogen Hubs Programs
- What is Hydrogen Workforce Development
- Fuel Cell Technology Principles
- Vehicle Electrification & Hydrogen Fuel Cell Integration
- Applications for Transportation, Marine, Aviation, & Rail
- Hydrogen Production from Natural Gas & Synthetic Fuels

DAY TWO

- Hydrogen Production via Electrolysis
- Tour of Cal State LA Hydrogen Research and Fueling Facility
- Understanding of Safety and Regulations, Resources
- Technician/Intern Training for Hydrogen Infrastructure
- Additional Topics by Request and Future Plans



Home
Announcements
Grades
People
Modules
Assignments
Discussions
Pages
Files
Syllabus
Outcomes

Publish

Hydrogen Station Phase I Training
Hydrogen Station Phase I Trai...

Publish

Hydrogen Station Phase II O&M
Hydrogen Station Phase II O&M

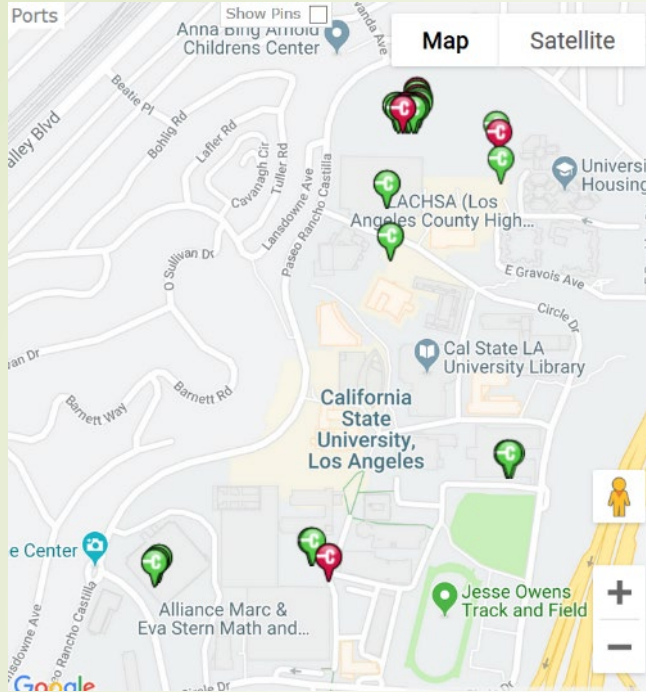
63 Student View

Publish All + Module

Table of Contents - Authors, July 26		
Favian Orozco	✓	
Israel Gutierrez	✓	
Luigi Ciccio	✓	
Jesus Sanchez	✓	
Rommel Contreras	✓	
Javier Martinez	✓	

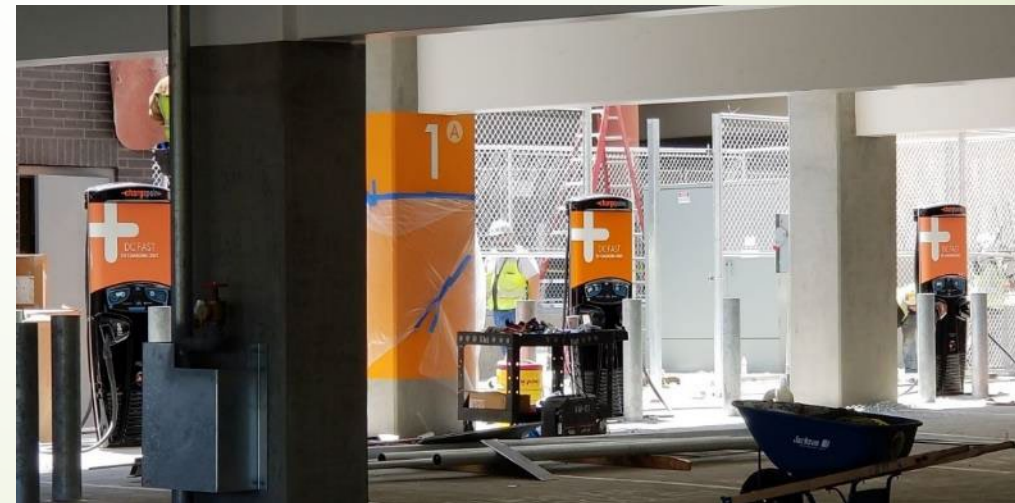
Training Module 01 Hydrogen Station Introduction		
Introduction and Topics 01	✓	
Walk Through (Jesus & Luigi,1)	✓	
Hydrogen Station layout and Basic processes (Jesus and Luigi,2)	✓	
Personnel Records Database (Rommel, Jesus)	✓	
Training Records (Jesus, Rommel&Co), 17 July	✓	
Cleanup and Station Appearance (Israel and Favian,1)	✓	
Hydrogen station Intro Quiz 10 pts		

59 Level 2 and 6 FCDC Charge Point



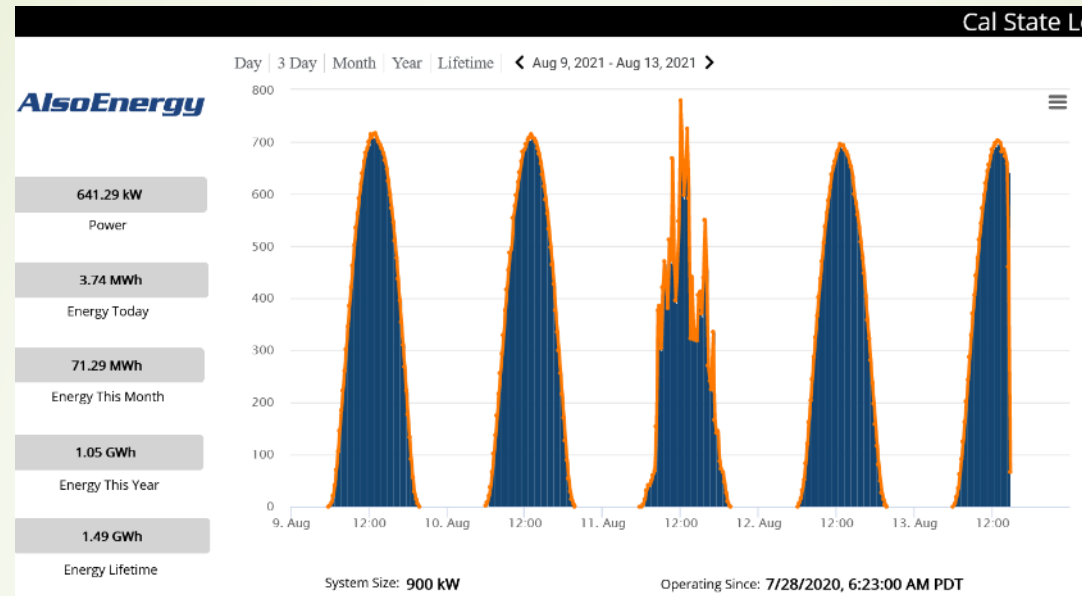
3 Charge Point FCDC in parking structure B, B level

Dept. of Technology (Dr. Blekhman) collaborated with its industry partner Green Commuter and the university offices of Planning and Construction and Parking and Transportation to expand the campus alternative fuels infrastructure with 6 new FCDC by Charge Point. Value ~\$300, 000 funded by California Energy Commission.



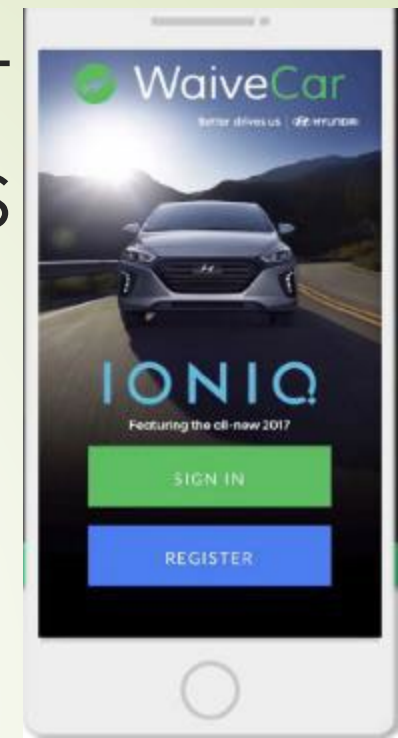
3 Charge Point FCDC in new parking structure E, 1st level

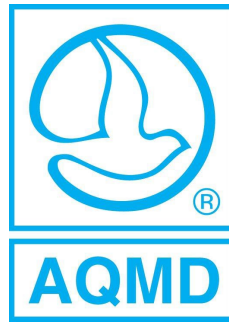
1 MW Solar on Campus



Campus Shared Mobility Fleet 18 Vehicles

World's first H2 zero emission, zero cost car-sharing program. Did not survive COVID.





Charging Eagles

BATTERY
WORKFORCE
CHALLENGE



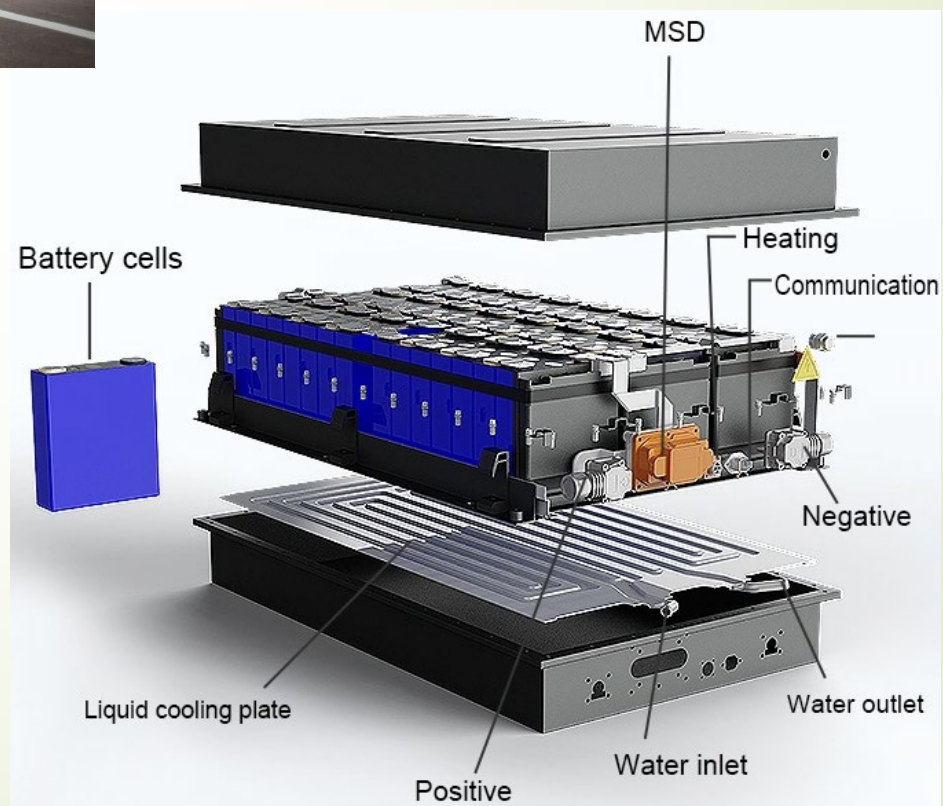
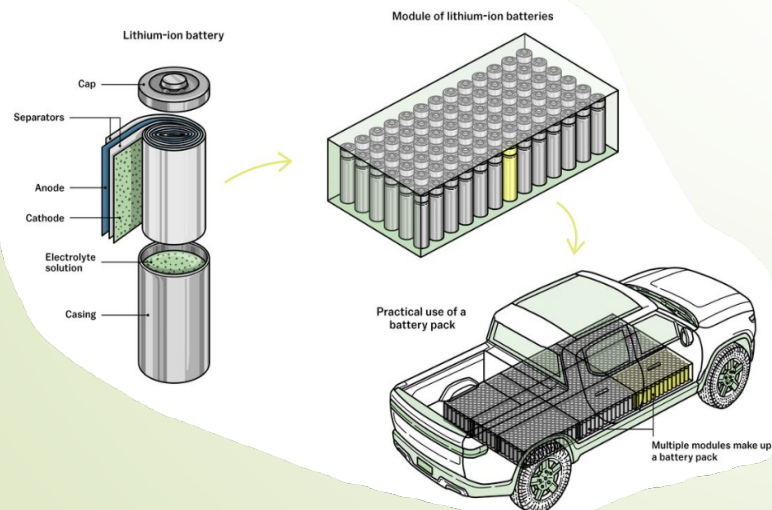


Battery Pack Overview

Battery Module

Lithium-ion battery

An electric vehicle is powered by thousands of lithium-ion battery cells



Cal State LA Team





Alternative Project Delivery Battery Electric Bus Depot

Ken Jarocki, Deputy Director of Operation , Anaheim Transportation Network

Public Transit Operator for the City of Anaheim

66 Buses with 46 ZEBs

10 MicroTransit Zero Emission Vehicles

2 10-passenger Zero Emission Vans

Additional 25 bus order in 2025 - Delivery 2027

100% ZEB Operation by LA28 Olympic Games

9 Million Annual Passengers Served





Battery Electric Bus Depot

Project Highlights:

Phase 1

- **Charging-as-a-Service (CaaS)**
 - **Power Purchase Agreement (PPA) Concept for a 20-year term**
 - **Renewable energy and battery storage design to provide resiliency and cost-saving**
- **Parking Spaces - 78**
 - **36 BYD 80kW chargers**
 - **10 BYD 200kW chargers**
 - **An on-site microgrid:**
 - **Solar Panel Generation @ 514kW solar canopy**
 - **25 percent of the total energy consumption**
 - **Battery storage capacity - Tesla 2.5MWh Mega Pack**
 - **Charge Management System (CMS) – AMPLY Site Controller**

Battery Electric Bus (BEB) Depot

Project Highlights:

Phase 2

Parking Spaces - 78

- **25 Additional BEB**
 - **15 40-foot buses**
 - **10 60-foot buses**
 - **Additional Charging Equipment – TBD**
 - **Use Existing Microgrid and CaaS Structure**



Battery Electric Bus Depot Financial Structure

Energy Cost

CMS Cost per kWh	\$ 0.049000
PPA Price per kWh	\$ 0.191000
APU Rate per kWh DEV-D-EV-2	\$0.114349
Total Rate per kWh	\$0.354349

Cost Assumptions 20-yr Life Cycle	No MicroGrid No BSS	With MicroGrid & BSS (10% improved efficiency)
Total Cost of Energy (including CMS & PPA)	\$30.20 M	\$27.20 M
Total Cost Fossil Fuel	\$35.09 M	\$35.09 M
LCFS Credits - Net	\$15.90 M	\$17.50 M
Liability (Land Acquisition)	\$7.41 M	\$7.41 M

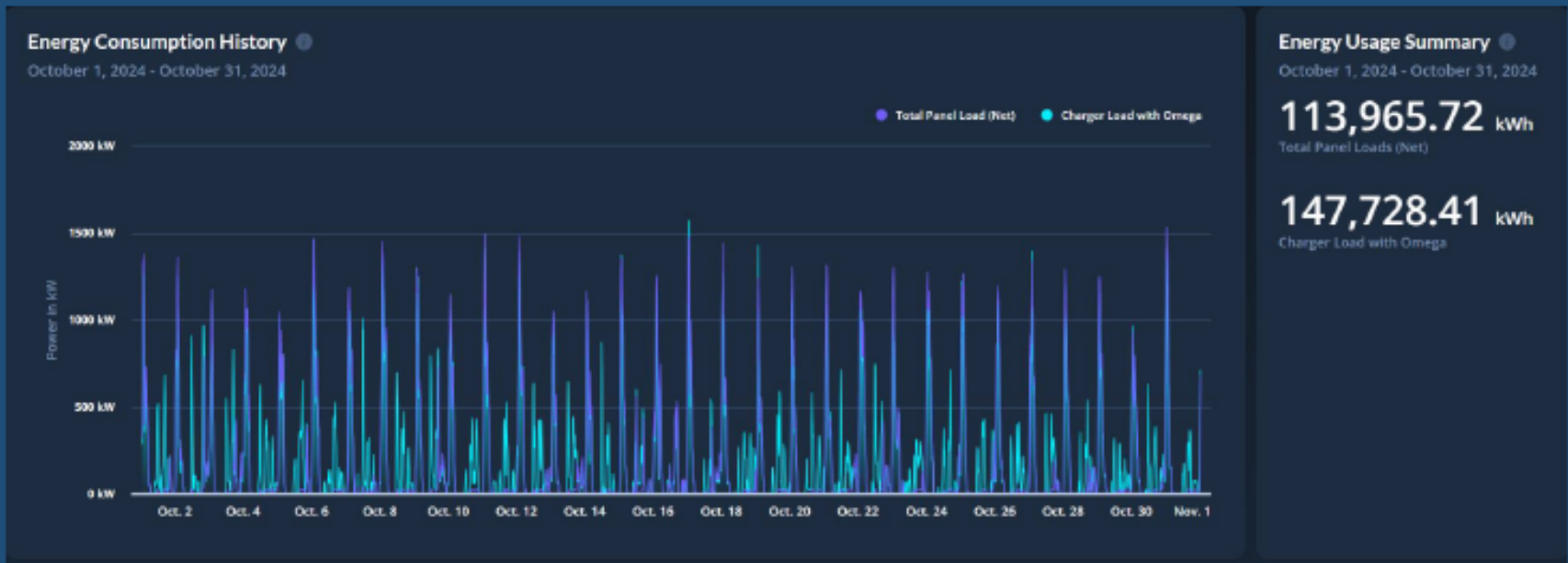




Is It Working?

FY 24

	FY24 electric miles	kWh per mile
July	117,553	2.34
August	115,077	2.52
September	113,554	2.19
October	116,502	2.32
November	113,633	1.92
December	116,831	1.89
January	113,255	1.90
February	96,129	2.09
March	108,702	2.02
April	102,109	2.22
May	103,487	2.15
June	100,910	2.11



Total Energy Use
Energy from the Grid

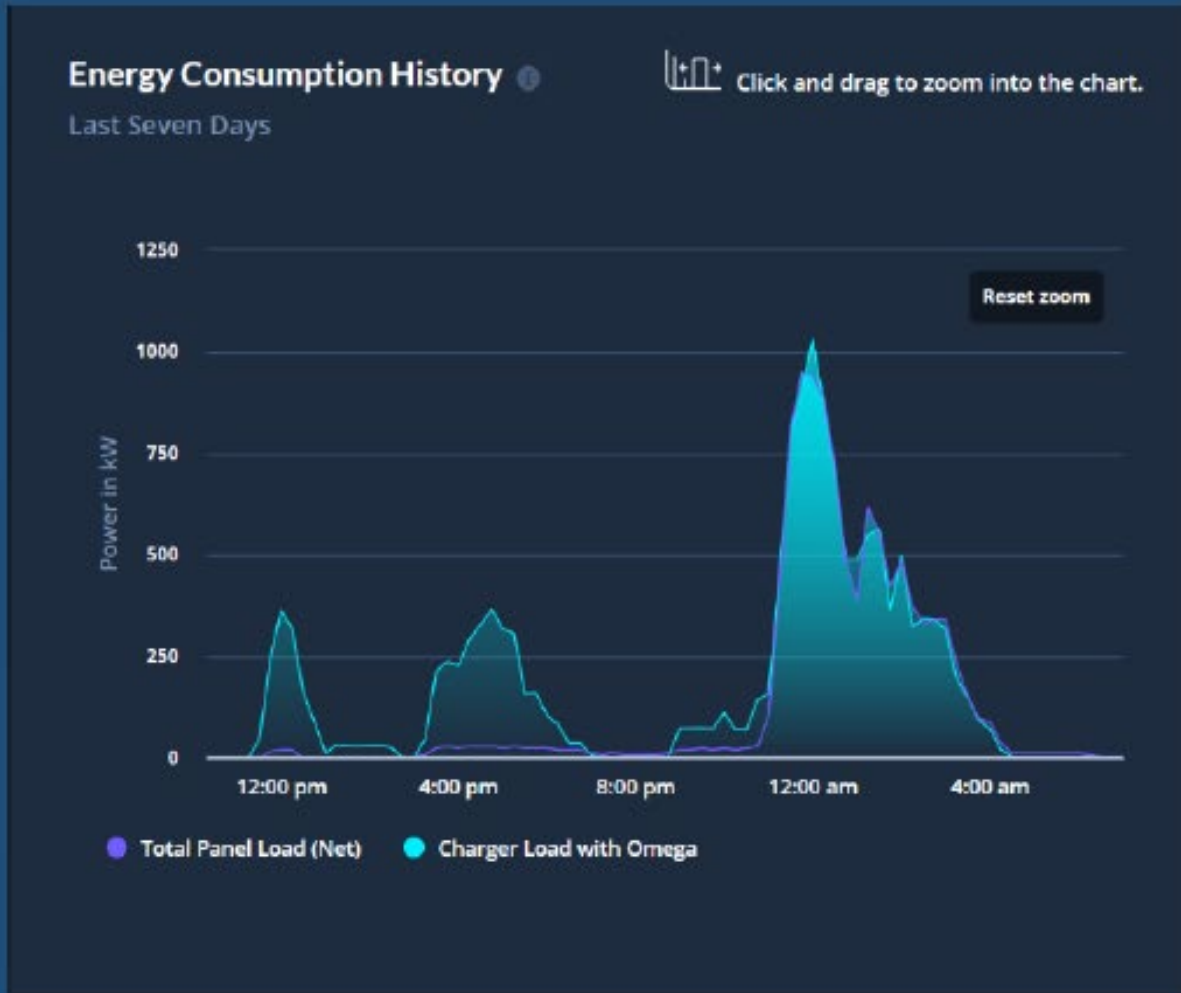
147,728 kWh
113,965 kWh (76%)

FY 25

	FY25 electric miles	kWh per mile
July	102,061	1.78
August	98,662	1.83
September	94,897	1.78
October	95,725	1.76
November	90,843	2.01
December	97,135	2.02
January	94,218	1.86
February	93,003	1.64
March		
April		
May		
June		

Is It Working?

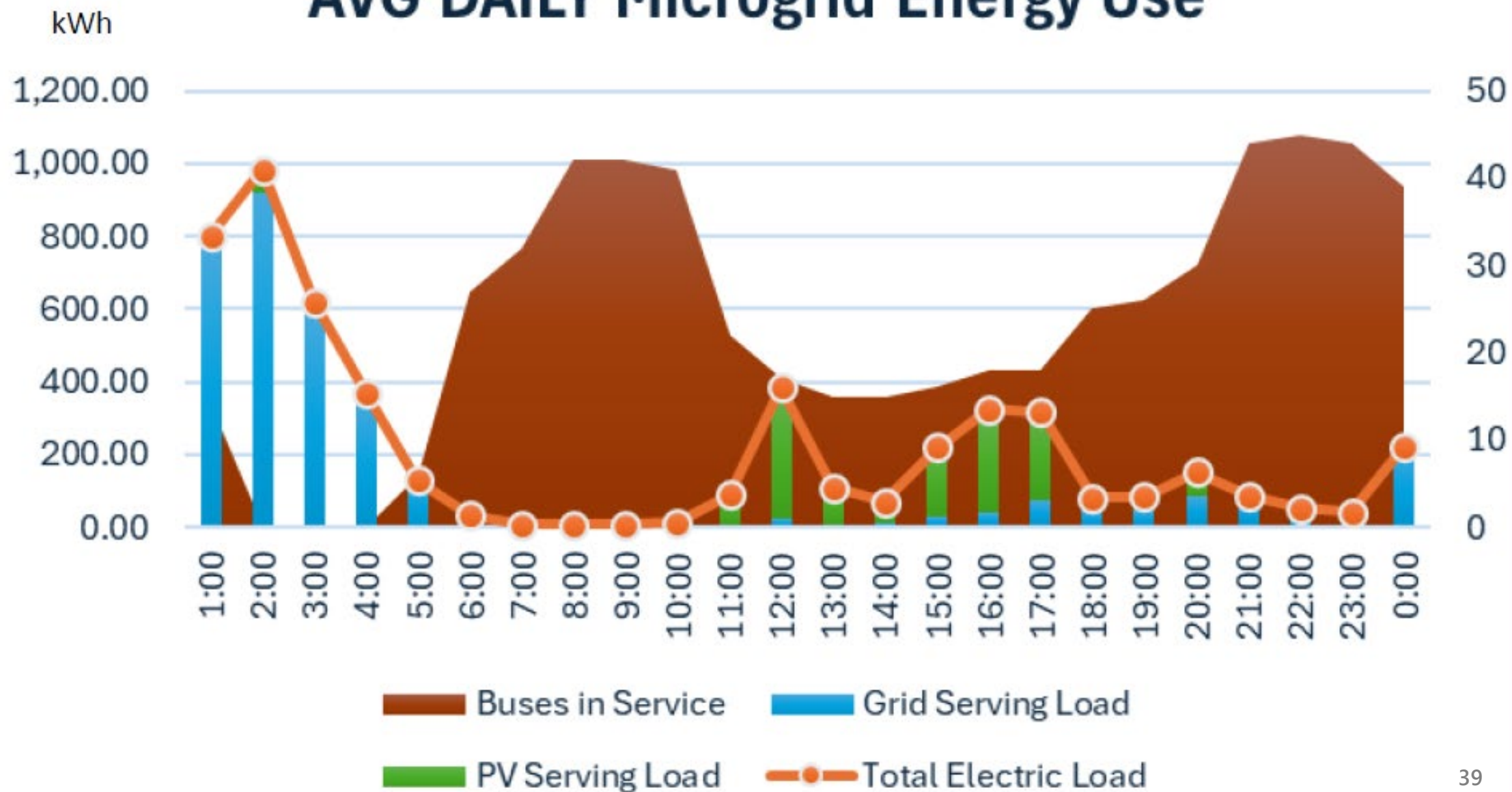
Avg. Daily Snapshot



AVG SOC for buses when plugged in	71%
AVG SOC when charging complete	94%
AVG charge time	74 Min
AVG amount of energy dispensed per bus charge	94.2 kWh

Is It Working?

AVG DAILY Microgrid Energy Use



Why Battery Electric?

- Created to allow for economic development
- Mitigation tool for traffic & air quality impacts
- Funded through local assessment(s)

Battery v Fuel Cell

- Short Routes (~110 miles/day)
- Conducive Terrain & Climate
- Municipal Utility Provider
- Urban Operating Environment (No Land)
- Cutting Not Bleeding Edge
- Access to California OEM





Contact Information:

Ken Jarocki

714.860.0872

KJarocki@atnetwork.org





THANK YOU

Katrina Bayer
kbayer@calstart.org

Clinton Quan
clinton.quan@lacity.org

Join us for our next meeting
Tuesday, September 9, 2025, from 10:00 AM to 11:00 AM