DOCKETED	
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Docketed Date:	11/15/2021

California Energy Commission
Business Meeting
November 15, 2021
10:00 a.m.

Pledge of Allegiance

I pledge allegiance to the Flag
of the United States of America,
and to the Republic for which it stands,
one Nation under God, indivisible,
with liberty and justice for all.

#CleanEnergyHOF

YOU'RE INVITED TO

CLEAN ENERGY HALL OF FAME

December 10, 2021

2:00 p.m. - 3:30 p.m. PST

Join via Zoom

http://bit.ly/CleanEnergyHOF

#CleanEnergyHOF

CONGRATULATIONS

2021 CLEAN ENERGY HALL OF FAME AWARDEES!

Dr. Peter A. Lehman

Lifetime Achievement Award
Founding Director,
Schatz Energy Research Center

Abigail Solis

Clean Energy Champion
Manager of Sustainable Energy Solutions,
Self-Help Enterprises

Eddie Ahn

Clean Energy Champion
Executive Director,
Brightline Defense

Youth for Environmental Justice

Youth Game-Changer Award
Communities for a Better Environment's Youth for Environmental Justice

Nicole Capretz

Clean Energy Champion
Founder and Executive Director,
Climate Action Campaign

Mutual Housing California

Clean Energy Champion
Mutual Housing California

Item 1: Consent Calendar

a. North County Transit District Contact: Esther Odufuwa
b. Ocean Protection Council. Contact: Gabriel Roark
c. American Institute of Chemical Engineers Center for Hydrogen Safety. Contact: Spencer Kelley
d. California Clean Energy Fund dba CalCEF Ventures. Contact: Joshua Croft

Item 2: Water Conservation and Efficiency Update

November 15, 2021 Business Meeting

David Johnson, Mechanical Engineer
Efficiency Division, Appliances Office

Benefits to California

Photo: Whiskeytown Lake, dreamstime / Braley Jr.

Photo: Studio 1515 Landscape Architecture

Photo: California Artichoke Advisory Board

- Conserves water
- Conserves energy
- Reduces cost for consumers

Current Drought Situation

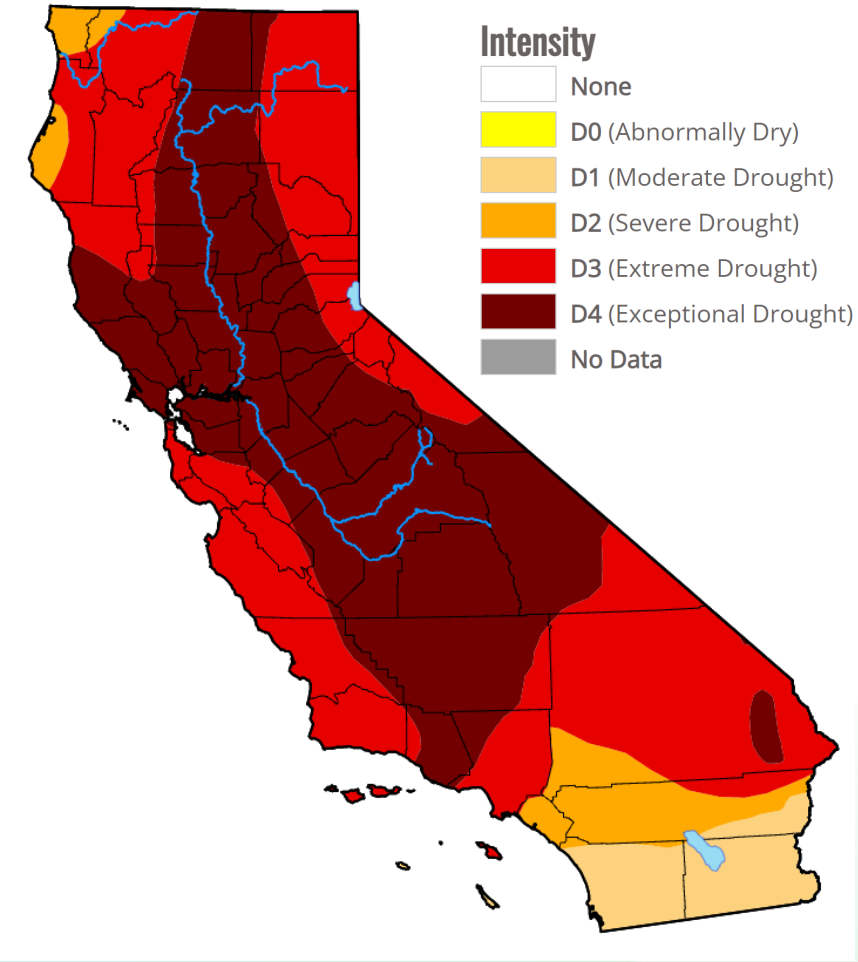
Lake Oroville, August 5

Photo: Getty Images / Justin Sullivan

Lake Mead, August 16

Photo: Reuters / Bridget Bennet

October 19. 2021:

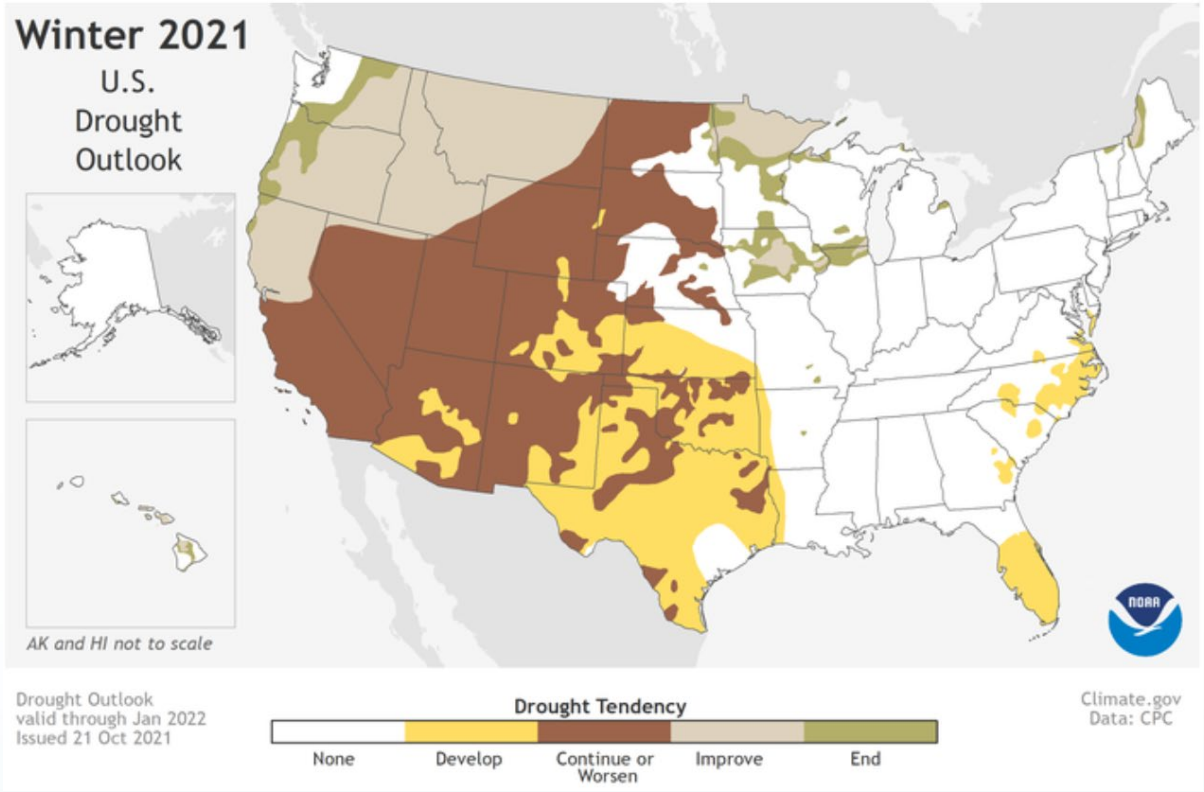


U.S. Drought Monitor

- October 19: Statewide drought emergency
- Water year 2021 driest since 1924[1]

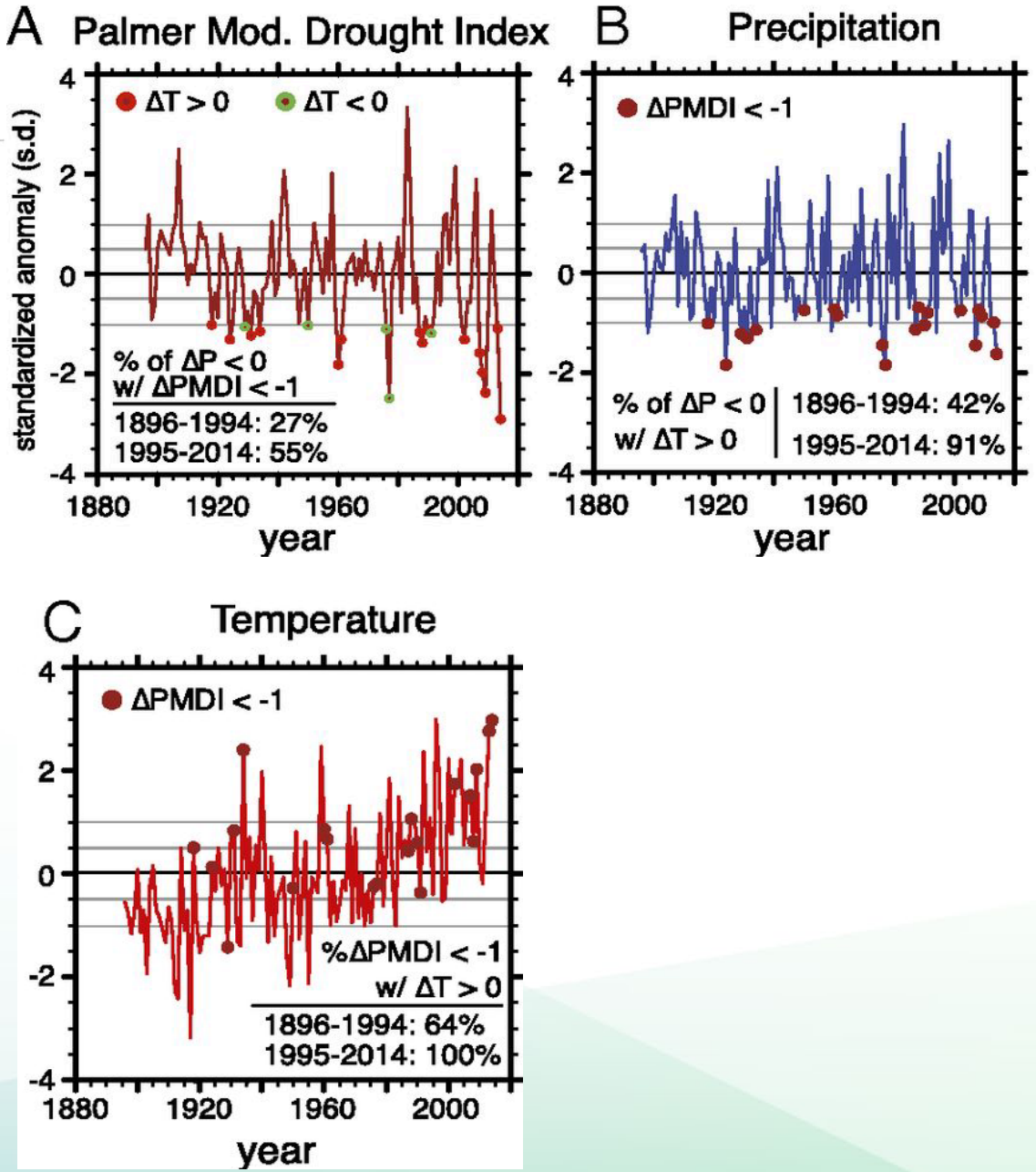
[1]DWR, Water Year 2021: An Extreme Year

Drought Outlook



Winter 2021 U.S. Drought Outlook, NOAA

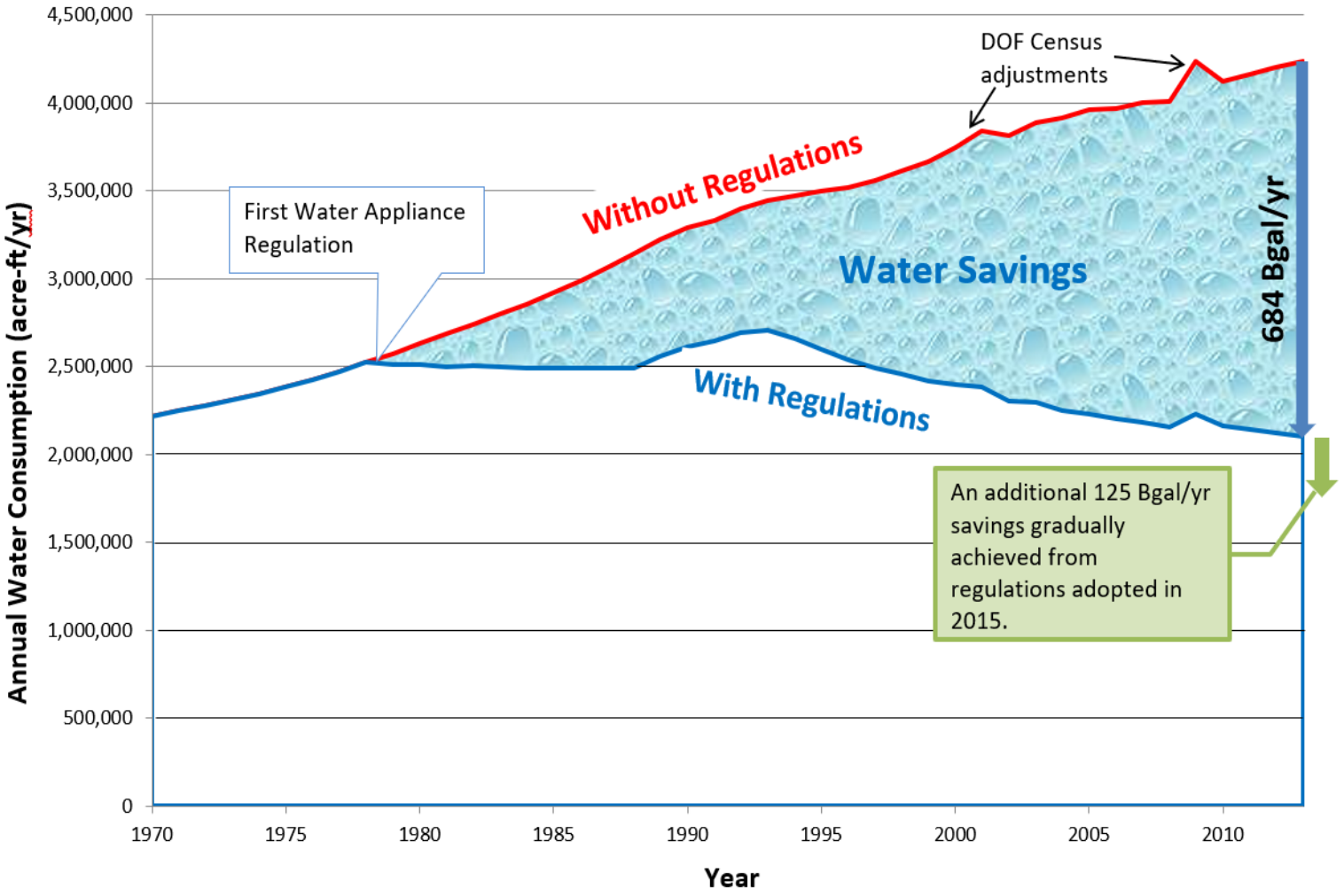
- Dry conditions predicted for Winter 2021
- Probability of drought increases



Diffenbauch et al., PNAS, 2015

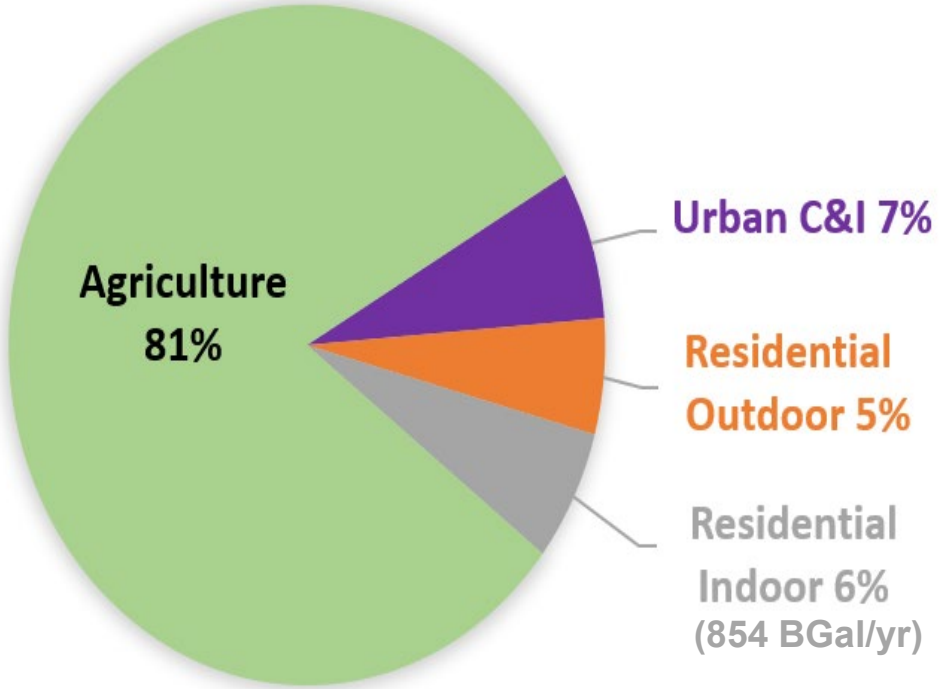
Water Efficiency Impact

Showerheads, Faucets, Toilets, Urinals



CA Water Use 2011-2015

(Total: 13,600 BGal/yr)

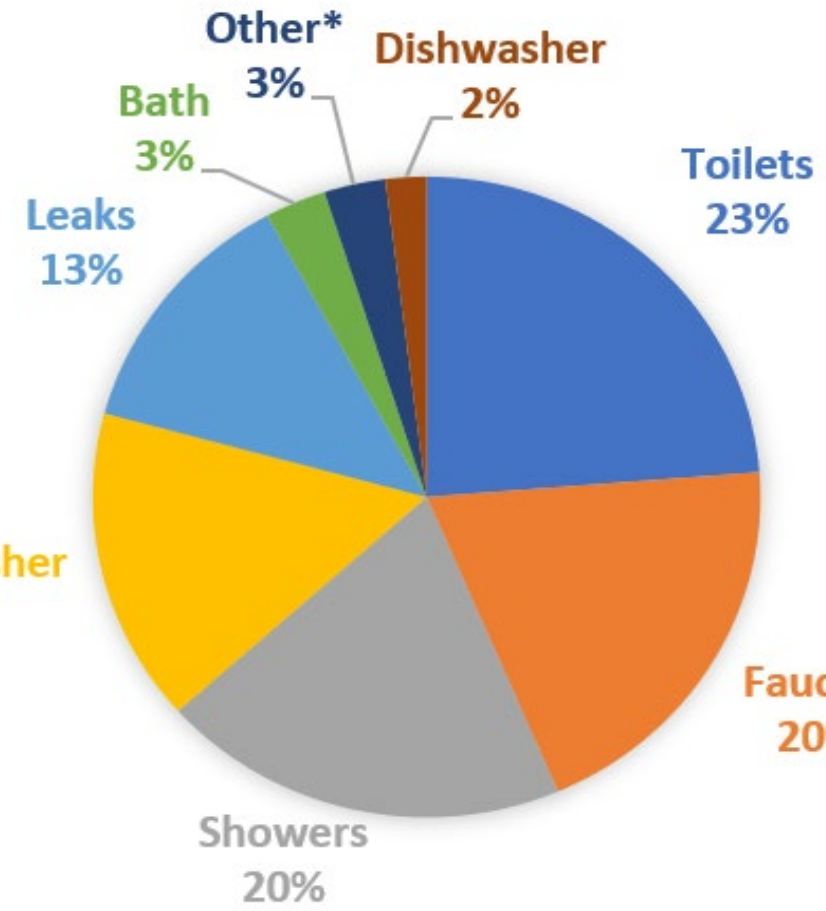


Data: California Water Plan Update 2018, DWR

CEC Staff Analysis

Plumbing Standards

Indoor Water Use



Residential End Uses of Water (2016), Water Research Foundation

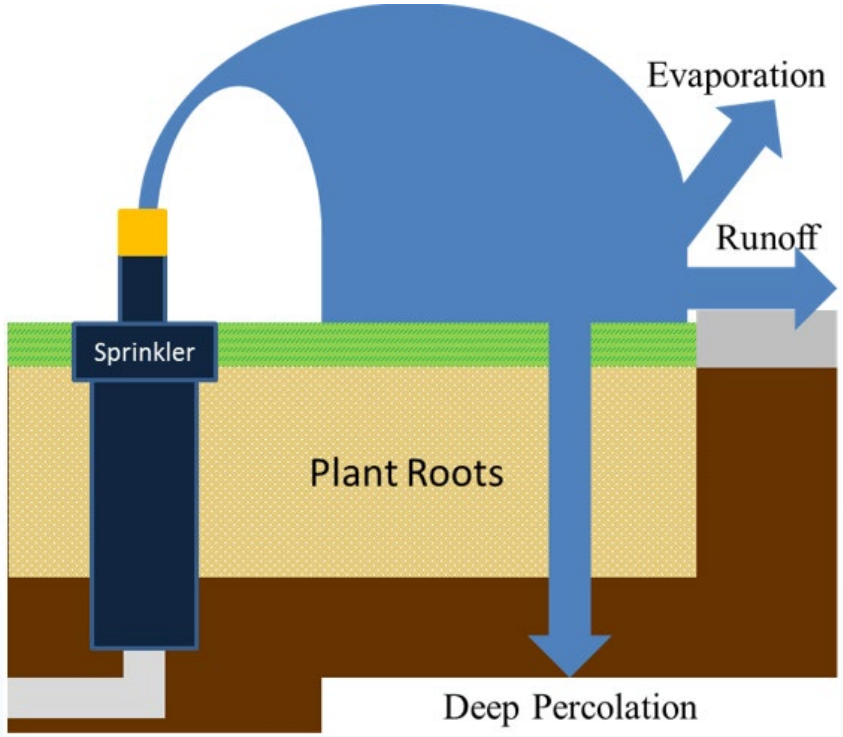
- Toilets: 1.6 to 1.28 GPF
- Lavatory Faucets: 2.2 to 1.2 GPM
- Urinals: 0.5 to 0.125 GPF (wall-mounted)

~87 Bgal/yr

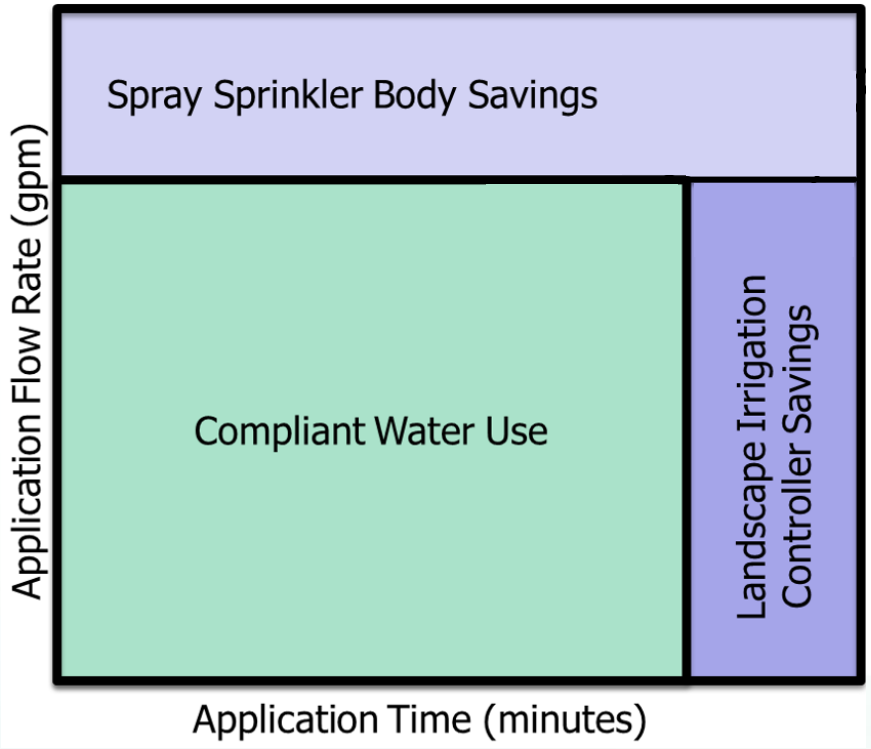
- Showerheads: Tiered standard from 2.5 to 2.0 to 1.8 GPM

~38 Bgal/yr

Outdoor Water Use Standards



California Energy Commission



California Energy Commission

Spray Sprinkler Bodies

~152 Bgal/yr

Landscape Irrigation Controllers

~92 Bgal/yr

Recent Water Efficiency Standards

Appliance	Year Adopted	Stock Turnover Savings (Bgal/yr)
Toilets, Faucets, and Urinals	2015	87
Showerheads	2015	38
Spray Sprinkler Bodies	2019	152
Landscape Irrigation Controllers	2022*	92
Total Savings		369

CEC Staff Analysis

Folsom Lake

Photo: The Sacramento Bee

Equivalent to conserving a full Folsom Lake each year!

Ongoing and Future Rulemakings

Landscape Irrigation Controllers

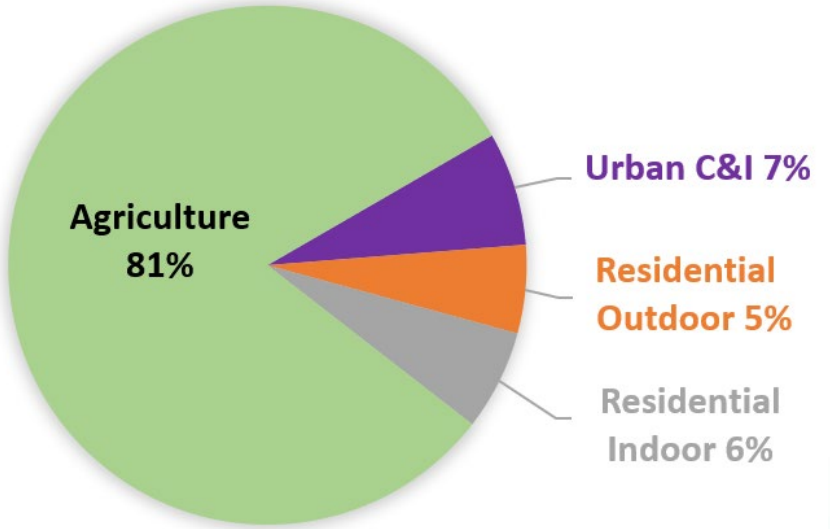
~92 Bgal/yr

Dipper Wells

~5.5 Bgal/yr

CA Water Use 2011-2015

(Total: 13,600 BGal/yr)



Data: California Water Plan Update 2018, DWR

	Appliance	Stock Turnover Savings (Bgal/yr)
Potential Future Water Efficiency Standards	Residential Toilets	10-20
	Other Plumbing Standard Updates	20-35
	Building-Level Leak Detection Devices	30-130
	Commercial Food Service Equipment	2-5
	Agriculture Technologies	30+

CEC Staff Analysis

- Target any opportunity which provide significant water savings and are cost-effective and technically feasible

Item 3: Expansion, Reorganization and Renaming of Public Advisor's Office and Revision to the CEC Tribal Consultation Policy

November 15 Business Meeting

Noemí O. O. Gallardo
Public Advisor

Expand Office Role & Responsibility

Implement IDEA Initiative

Carousel Gore,
Equal Employment
Opportunity Officer

Include Tribal Affairs

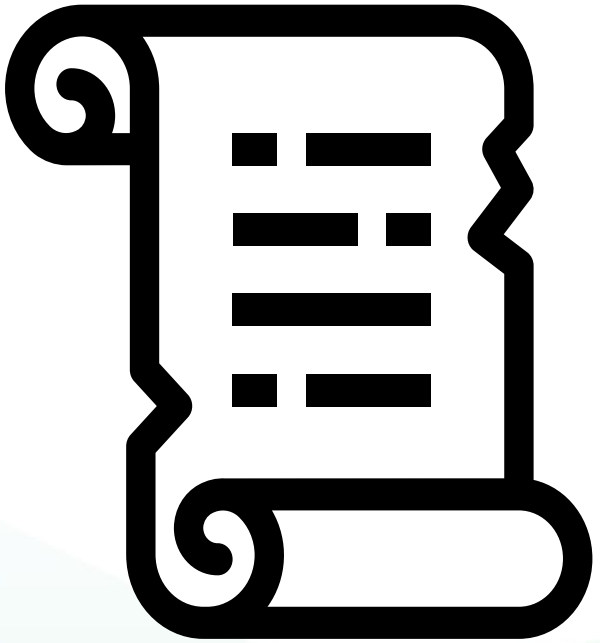
Katrina Leni-Konig,
Deputy Public Advisor
And Tribal Liaison

Tom Gates,
Tribal Advisor

Revise Tribal Consultation Policy

Ministerial Changes

- Clarify Tribal program in new office
- Identify Deputy Public Advisor is Tribal Liaison
- Update contact information
- Edit typos



Change Office Name

Office of the Public Advisor

Office of the Public Advisor, Energy Equity and Tribal Affairs (PAO+)

Staff Recommendation

- Approve resolution to:
  - expand role and responsibility
  - revise Tribal Consultation Policy
  - change office name

Item 4: Disadvantaged Communities Advisory Group Annual Report

November 15, 2021 Business Meeting

Noemí O. O. Gallardo, Public Advisor
Angela Islas, DACAG Chair
Roman Partida-Lopez, DACAG Vice Chair

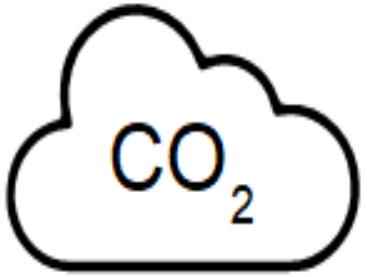
Item 5: 2021-2023 Investment Plan Update for the Clean Transportation Program

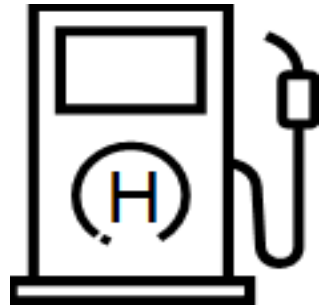
November 15, 2021 Business Meeting

Patrick Brecht, Investment Plan Update Project Manager
Fuels and Transportation Division, Transportation Integration and Production Office

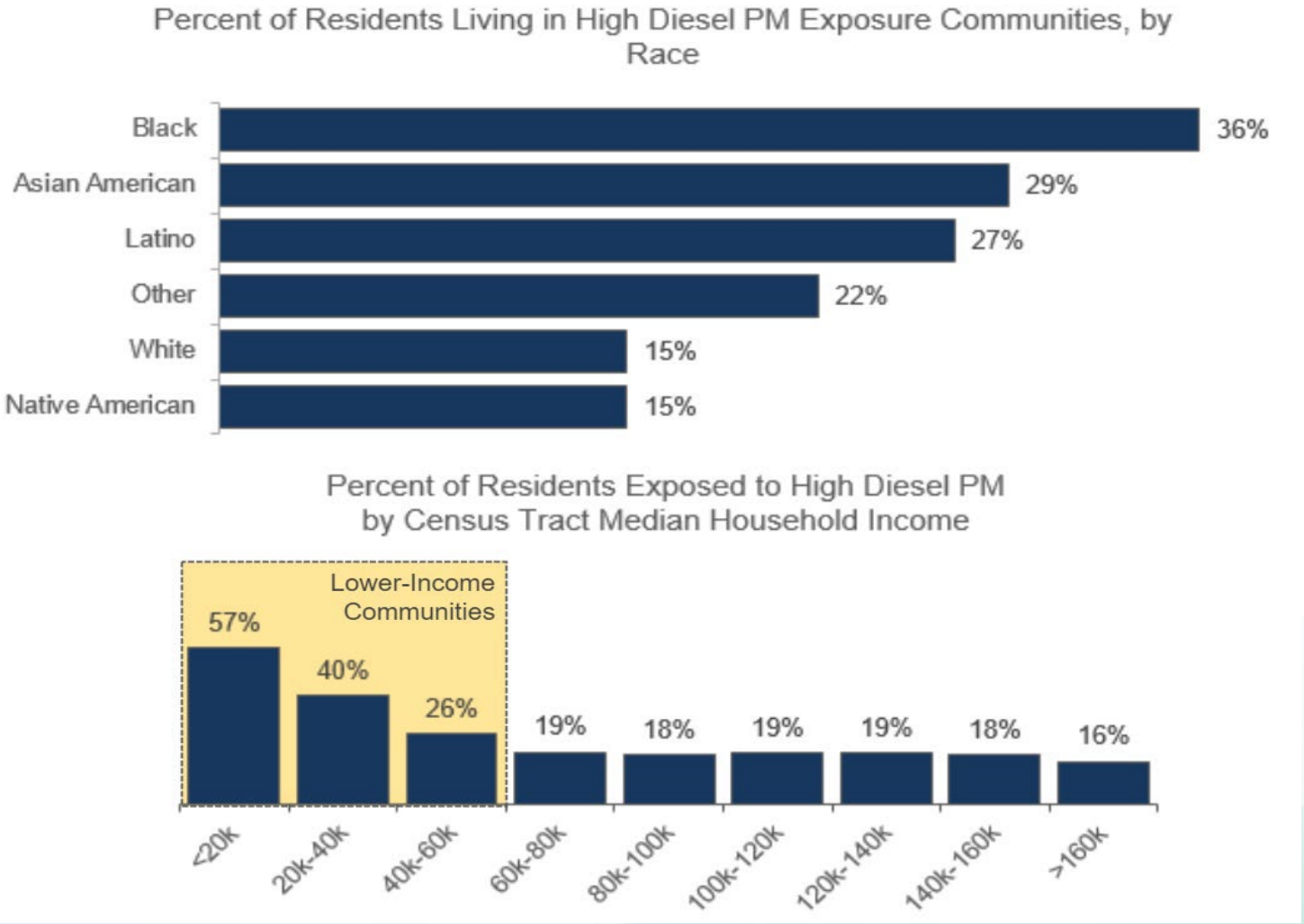
Benefits to California

- Advances climate change goals
- Reduces petroleum dependence
- Increased ZEV adoption
- Improves air quality
- Furthers economic development
- Supports low-income and disadvantaged communities
- Boosts job growth and workforce development

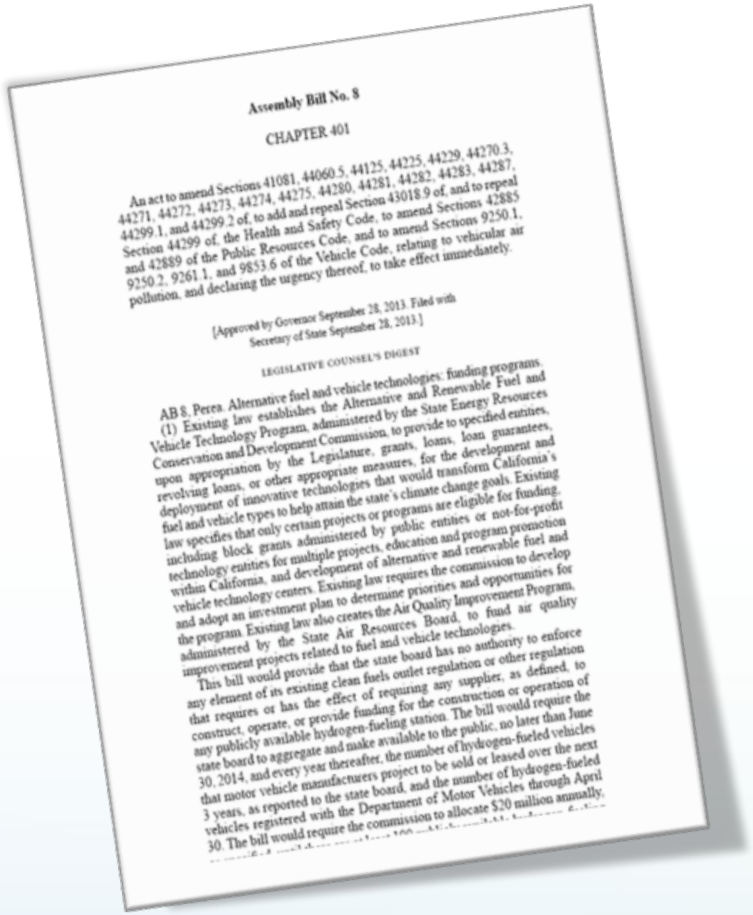




Disparities in Transportation-Related Pollution Exposure by Race and Income



Clean Transportation Program Origins in Statute



Assembly Bill No. 8

CHAPTER 401

An act to amend Sections 41081, 44060.5, 44125, 44225, 44229, 44270.3, 44271, 44272, 44273, 44274, 44275, 44280, 44281, 44282, 44283, 44287, 44299.1, and 44299.2 of, to add and repeal Section 43018.9 of, and to repeal Section 44299 of, the Health and Safety Code, to amend Sections 42885 and 42889 of the Public Resources Code, and to amend Sections 9250.1, 9250.2, 9261.1, and 9853.6 of the Vehicle Code, relating to vehicular air pollution, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor September 28, 2013. Filed with Secretary of State September 28, 2013.]

LEGISLATIVE COUNSEL'S DIGEST

AB 8, Perea. Alternative fuel and vehicle technologies: funding programs.

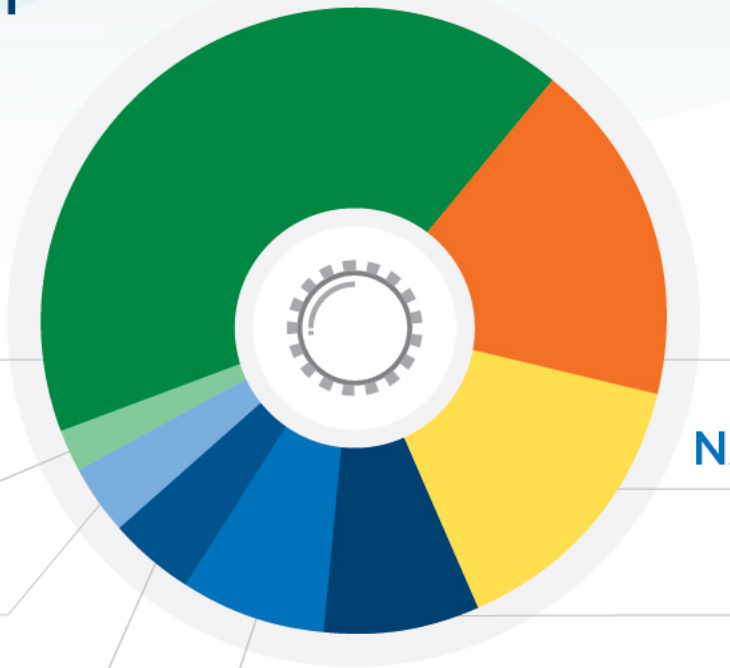
(1) Existing law establishes the Alternative and Renewable Fuel and Vehicle Technology Program, administered by the State Energy Resources Conservation and Development Commission, to provide to specified entities, upon appropriation by the Legislature, grants, loans, loan guarantees, revolving loans, or other appropriate measures, for the development and deployment of innovative technologies that would transform California's fuel and vehicle types to help attain the state's climate change goals. Existing law specifies that only certain projects or programs are eligible for funding, including block grants administered by public entities or not-for-profit technology entities for multiple projects, education and program promotion within California, and development of alternative and renewable fuel and vehicle technology centers. Existing law requires the commission to develop and adopt an investment plan to determine priorities and opportunities for the program. Existing law also creates the Air Quality Improvement Program, administered by the State Air Resources Board, to fund air quality improvement projects related to fuel and vehicle technologies.

This bill would provide that the state board has no authority to enforce any element of its existing clean fuels outlet regulation or other regulation that requires or has the effect of requiring any supplier, as defined, to construct, operate, or provide funding for the construction or operation of any publicly available hydrogen-fueling station. The bill would require the state board to aggregate and make available to the public, no later than June 30, 2014, and every year thereafter, the number of hydrogen-fueled vehicles that motor vehicle manufacturers project to be sold or leased over the next 3 years, as reported to the state board, and the number of hydrogen-fueled vehicles registered with the Department of Motor Vehicles through April 30. The bill would require the commission to allocate $20 million annually,

- Established by Assembly Bill 118 (Nunez, 2007)
- Provides up to $100 million per year
- Extended to January 1, 2024 by Assembly Bill 8 (Perea, 2013)

Clean Transportation Program Funding

By Category 2009–2021



- ELECTRIC **$451M**
- OTHER TYPES **$46.3M**
- WORKFORCE **$33.3M**
- ETHANOL **$33.5M**
- HYDROGEN **$218M**
- NATURAL GAS/PROPANE **$131M**
- BIOMETHANE **$67.9M**
- BIODIESEL/RENEWABLE DIESEL **$67.9M**

$1 Billion invested in 600+ projects & programs

2009-2021

Investments Highlights

51%
Funding located in disadvantaged or low-income communities

$734M
Matched Funding

20,000
Trainees

15,154
EV Chargers

3,152
Natural Gas Trucks

70
Natural Gas Fueling Stations

83
Hydrogen Fueling Stations

27
Manufacturing Facilities

Purpose of Investment Plan

- Guides Clean Transportation Program's investments toward meeting state's clean transportation goals
- Takes into consideration state regulations and other funding programs to promote coordination across agencies
- Allocates funding for multiple fuel and vehicle technologies, transportation sectors, and supporting activities (e.g., workforce development)
- Since 2020, sets multi-year funding allocations to improve consistency and transparency for potential funding partners

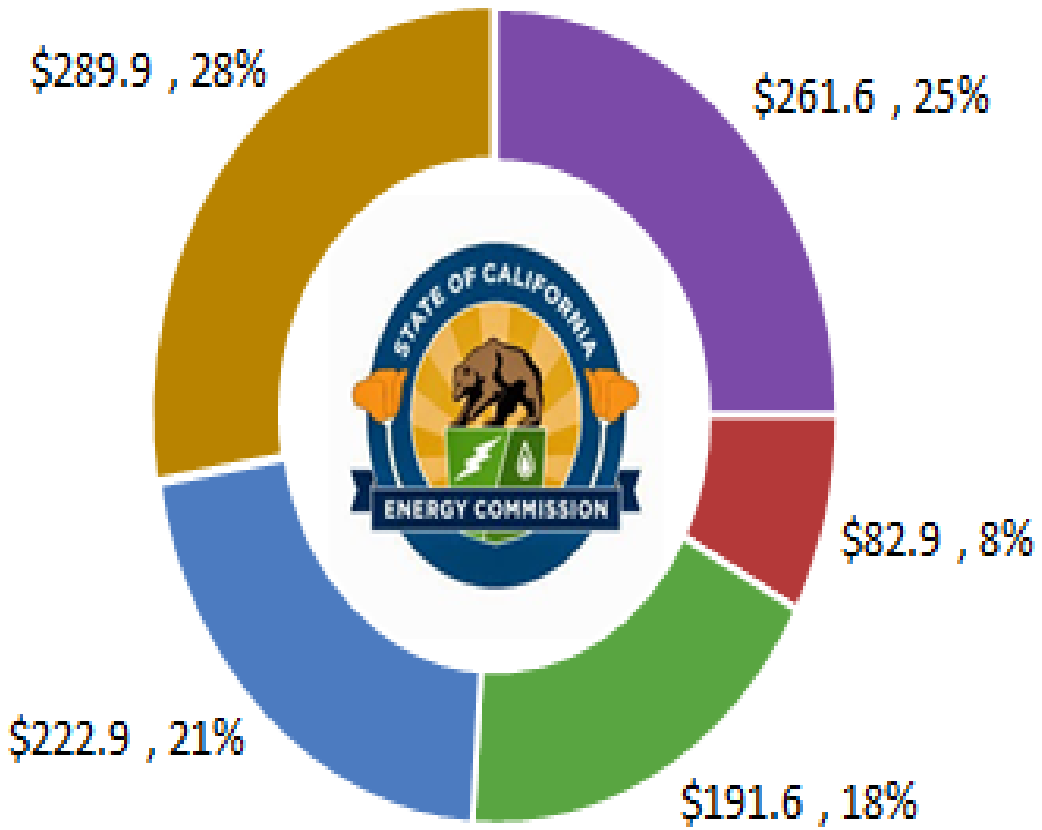
Advisory Committee for the Clean Transportation Program Investment Plan

- **Leslie Aguayo-**The Greenlining Institute
- **Ruben Aronin-**Better World Group
- **Will Barrett-**American Lung Association in California
- **Jerome Carman-**Schatz Energy Research Center Humboldt State University
- **Morgan Caswell-**Port of Long Beach
- **Vacant-**California Air Resources Board
- **Tyson Eckerle-**Governor's Office of Business and Economic Development
- **Bill Elrick-**California Fuel Cell Partnership
- **Larry Engelbrecht-**Engelbrecht Consulting
- **Casey Gallagher-**Workforce Economic Development California Labor Federation
- **Katherine Garcia-**Sierra Club
- **Matt Gregori-**SoCalGas
- **Kevin Hamilton-**Central California Asthma Collaborative
- **Daryl Lambert-**Rising Sun Center
- **Rey León-**The Latino Equity Advocacy & Policy Institute
- **Jose Lopez-**Private Citizen
- **Bill Magavern-**Coalition for Clean Air
- **Robert Meyer-**Employment Training Panel
- **Micah Mitrosky-**IBEW 9th District
- **Neena Mohan-**California Environmental Justice Alliance
- **David Modisette-**Modisette & Associates
- **Miles Muller-**Natural Resources Defense Council
- **Samantha Houston-**Union of Concerned Scientists
- **Lori Pepper-**California State Transportation Agency
- **Michael Pimentel-**California Transit Association
- **Mary Solecki-**AJW
- **Tracy Stanhoff-**Indigenous Post
- **Russel Teall-**Private Citizen
- **JB Tengco-**BlueGreen Alliance
- **Zac Thompson-**East Bay Community Energy
- **Eileen Tutt-**California Electric Transportation Coalition
- **Lucas Zucker-**Central Coast Alliance United for a Sustainable Economy

Commitment to Inclusion, Diversity, Equity and Access

- Collaboration with the Disadvantaged Communities Advisory Group
- Prioritize and invest in proper community outreach and engagement
- Partner with local community-based organizations
- Develop metrics that go beyond funding locations
- **Seeking to provide >50% of Investment Plan funds to benefit low-income and disadvantaged communities**

Clean Transportation Program Funding Toward Disadvantaged and/or Low-Income Communities



51%
Funding in Low-Income Communities/ Disadvantaged Communities

Note: As of August 1, 2021

Context Setting: Climate & Air Quality

Legislation & Executive Orders are steering the state toward zero-emission transportation

Target	Description
Climate	2030: 40% GHG reduction in economy 2030: 20% GHG reduction in transportation fuels 2045: Net zero carbon economy
Air Quality	2031: 80% reduction in smog-forming NOx

Zero Emission Vehicles (ZEVs) are essential to achieving goals!

Context Setting: ZEV Goals

Category	Description
Light Duty Vehicles	- 2025: 1.5M ZEVs - 2030: 5M ZEVs - 2035: 100% of New Sales are ZEVs (E.O. N-79-20)
Charging and Refueling Infrastructure	- 2025: 250,000 Chargers (inc. 10,000 DC Fast Chargers) - 2025: 200 Hydrogen Refueling Stations
Medium- and Heavy-Duty Vehicles	- 2029: 100% of New Transit Bus Purchases are ZEVs - 2035: 100% of All Off-Road Vehicles and Equipment are ZEVs (E.O. N-79-20) - 2035: 100% of All Drayage Trucks are ZEVs (E.O. N-79-20) - 2045: 100% of All Trucks and Buses are ZEVs (E.O. N-79-20)

Progress in Charging Infrastructure Report

250,000 Chargers by 2025

185,720
TOTAL LEVEL 2 CHARGERS

240,000
LEVEL 2 CHARGER GOAL

9,615
TOTAL DC FAST CHARGERS

10,000
DC FAST CHARGER GOAL

July 2021 — 2025

66,770
EXISTING
LEVEL 2 CHARGERS (ESTIMATED)

118,950
WITH FUNDING ALLOCATED
LEVEL 2 CHARGERS (INCLUDING CTP, UTILITIES, AND OTHER SOURCES)

54,280
GAP FROM 2025 GOAL

6,008
EXISTING
DC FAST CHARGERS (ESTIMATED)

3,607
WITH FUNDING ALLOCATED
DC FAST CHARGERS (INCLUDING CTP, UTILITIES, AND OTHER SOURCES)

385
GAP FROM 2025 GOAL

Analysis as of July 2021. Not included in this table are an estimated 665 statewide public or shared-private Level 1 chargers.

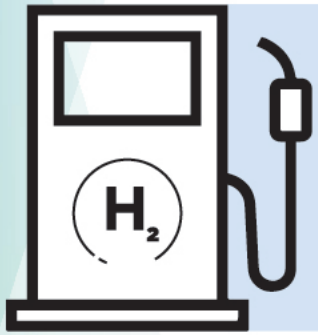
Progress in Hydrogen Refueling Infrastructure Report

200 Hydrogen Fueling Stations by 2025

179
PUBLIC STATIONS OPENED AND PLANNED

200
STATION GOAL

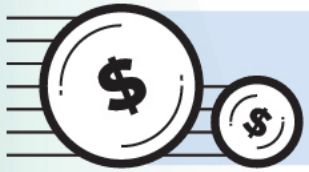
2021 2025



52
OPEN
RETAIL HYDROGEN FUELING STATIONS

127
PLANNED
HYDROGEN FUELING STATIONS

21
GAP FROM 2025 GOAL



HYDROGEN FUNDING ALLOCATED TO DATE

$166 million

Analysis as of July 2021.

Informing the Investment Plan

- *AB 2127 Electric Vehicle Charging Infrastructure Assessment-Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030*
  - Commission Report published on July 14, 2021

- *SB 1000 Electric Vehicle Charging Infrastructure Deployment Assessment*
  - First report published in December 2020
  - Second report expected in January 2022

- Consulting with the Disadvantaged Communities Advisory Group

- **Adjusting for General Fund augmentations from Budget Act of 2021**
  - $3.9 billion for ZEV-related investments across agencies
    - $1.165 billion to be administered by CEC
    - Some allocations are targeted, others allow more discretion

General Funds from ZEV Package

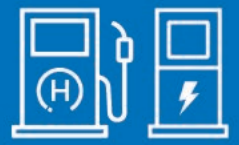
to be Administered by the CEC

$250 million - for zero-emission drayage trucks

$25 million - for drayage truck and infrastructure pilot

$90 million - for transit buses

$50 million - for school buses



$250 million - for ZEV manufacturing grants

$500 million - for ZEV infrastructure

$785 million appropriated in Budget Act of 2021;

$380 million anticipated in FY 2022-23 and 2023-24

The budget prioritizes diesel emission reduction by earmarking funding to replace

- **1,125 Drayage Trucks**
- **1,000 School Buses**
- **1,000 Transit Buses**

with zero-emission alternatives and refueling infrastructure

And to accelerate **charging** and **hydrogen refueling** stations and promote ZEV-related **manufacturing**

2021-2023 **Zero-Emission Investments Funding Prioritizes**

$314M

Light-Duty Electric Vehicle Charging Infrastructure and eMobility

$690M

Medium and Heavy-Duty Zero-Emission Vehicles and Infrastructure

(battery-electric and hydrogen fuel cell)

$77M

Hydrogen Refueling Infrastructure

$25M

Zero and Near Zero Carbon Fuel Production and Supply

$243.8M

ZEV Manufacturing

$15M

Workforce Development

Total Clean Transportation Program (CTP) funding:

$238M

Total General Funding (administered through CTP):

$1.127B

Total Funding

$1.365B

Combined Clean Transportation Program and General Fund Allocations in the Lead Commissioner Report

Clean Transportation Program + General Fund

Category	Funded Activity	2021-2022	2022-2023*	2023-2024*
Zero-Emission Vehicles and Infrastructure	Light-Duty Electric Vehicle Charging Infrastructure and eMobility	$270.1	$30.1	$13.8
Zero-Emission Vehicles and Infrastructure	Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure (battery-electric and hydrogen fuel cells)	$391.35	$160.1	$138.8
Zero-Emission Vehicles and Infrastructure	Hydrogen Fueling Infrastructure	$47	$20	$10
Alternative Fuel Production and Supply	Zero- and Near Zero-Carbon Fuel Production and Supply	$10	$10	$5
Related Needs and Opportunities	Manufacturing	$118.75	$125	-
Related Needs and Opportunities	Workforce Training and Development	$5	$5	$5
	Total	**$842.2**	**$350.2**	**$172.6**

*Subject to appropriation by the Legislature

Staff Recommendation

- Approve report that includes:
  - proposed allocations for this fiscal year
  - planned allocations for future fiscal years

- Approve staff recommendation that investment plan is exempt from CEQA

Thank you to Staff

- Matt Alexander
- Jennifer Allen
- Jean Baronas
- Jane Berner
- Jonathan Bobadilla
- Patrick Brecht
- John P. Butler II
- Michael Comiter
- Noel Crisostomo
- Miki Crowell
- Susan Ejlalmaneshan
- Brian Fauble
- Tami Haas
- Tiffany Hoang
- Elizabeth John
- Thanh Lopez
- Jeffrey Lu
- Pilar Magaña
- Esther Odufuwa
- Tim Olson
- Raja Ramesh
- Hannon Rasool
- Larry Rillera
- Charles Smith
- Michelle Vater
- Mark Wenzel
- Taiying Zhang

Item 6: 2021-2025 Electric Program Investment Charge Proposed Investment Plan (EPIC 4 Investment Plan), Draft Commission Report

November 15, 2021 Business Meeting

Virginia Lew, Mike Petouhoff, Erik Stokes, Jonah Steinbuck
Energy Research and Development Division

EPIC 4 Overview

- **5-year** investment in **R&D** through 2025
- Nearly **$150M** annually and **$750M** total
- 6 strategic objectives spanning the grid, buildings, industry, transportation

Benefits to Californians

EPIC investments support

- Entrepreneurship
- Environmental sustainability
- Energy equity
- Affordability
- Grid Reliability
- Safety

EPIC Innovation from Past Decade

Managed Charging

Solar

Microgrids

Wildfire Mitigation

Industrial Efficiency

Batteries

Storage

Electrification

EPIC Impacts from Past Decade

Investment

$846 MILLION	invested
$3.5 BILLION	private investment post EPIC award
385	projects funded
68% OF TECH DEMONSTRATION AND DEPLOYMENT FUNDS	invested in under resourced communities
730 ORGANIZATIONS	received EPIC grants

Impacts

3,500 JOBS	linked to EPIC
$18.6 BILLION	projected energy savings through 2045
$86–$191 BILLION	anticipated health savings through 2045
MORE THAN 2,900 CITATIONS	of EPIC research
850,000 USERS	of EPIC's online tools

EPIC 4 Plan Engagement and Collaboration

12 workshops and events

1,900+ participants

Coordination with CPUC, other agencies, and across CEC

Coordination with Disadvantaged Communities Advisory Group

EPIC 4 Strategic Objectives

Accelerate Advancements in **Renewable Generation** Technologies

Create a More Nimble Grid to Maintain **Reliability** as California Transitions to 100% Clean Energy

Increase the Value Proposition of **Distributed Energy Resources** to Customers and the Grid

Improve the Customer Value Proposition of End-use **Efficiency** and **Electrification** Technologies

Enable Successful Clean Energy **Entrepreneurship** Across California

Inform California's Transition to an **Equitable**, Zero-Carbon Energy System that is Climate **Resilient** and Meets **Environmental Goals**

Strategic Objective: Accelerate Advancements in Renewable Generation Technologies

Offshore Wind | Geothermal and Mineral Recovery | Emerging Solar

Floating Offshore Wind Energy

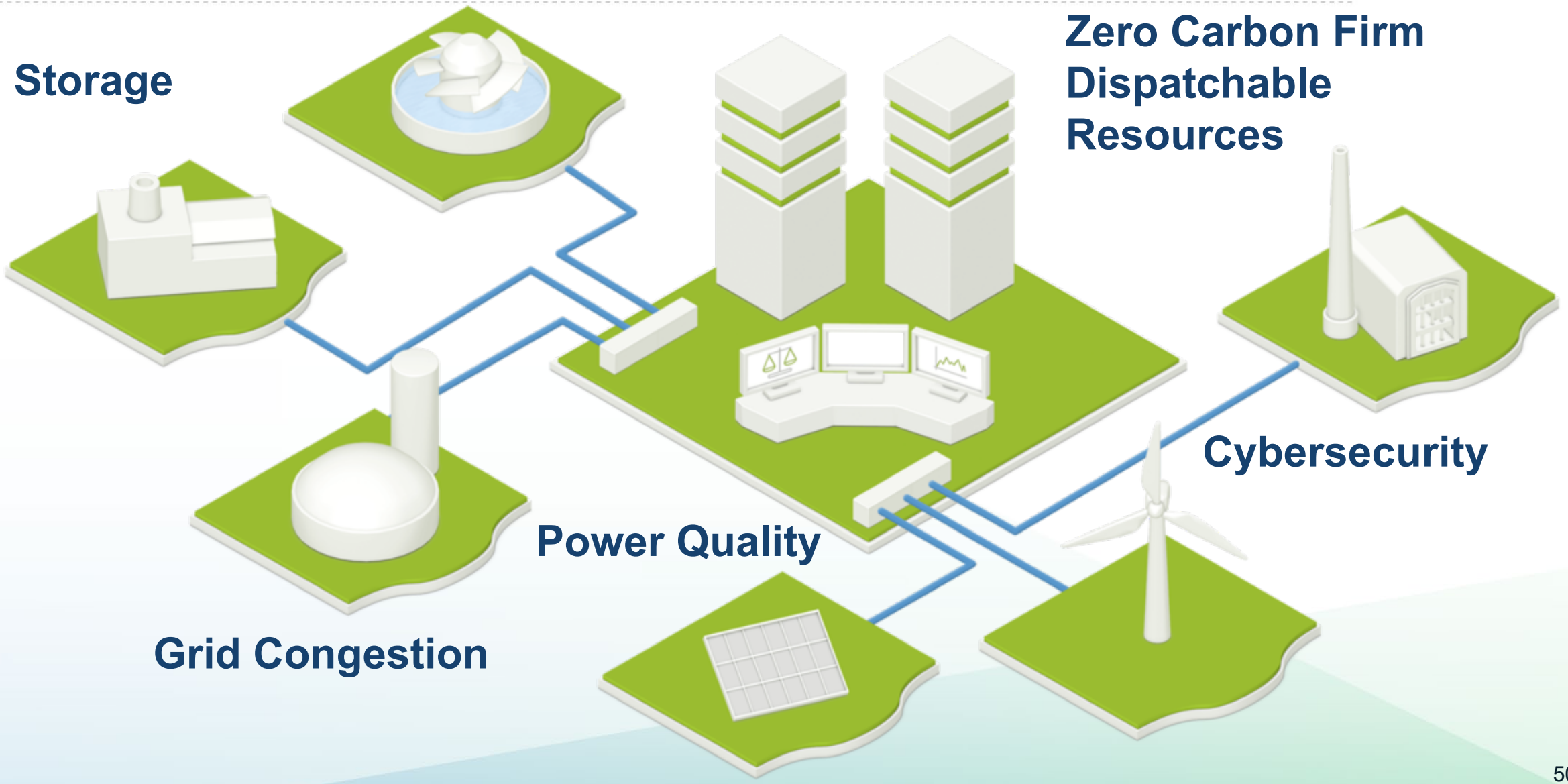
Innovations

- Component development
- Installation, O&M
- Grid integration, port readiness
- Environmental impacts and mitigation

Goals

- Lower cost
- Reduce technical and financial risk
- Minimize environmental impact
- Support grid reliability

Strategic Objective: Create a Nimbler Grid to Maintain Reliability as CA Transitions to 100% Clean Energy



Energy Storage Demonstrations to Support Grid Reliability: Short & Long Duration Tech, Use Cases

Innovations

- Short and long duration storage (LDS)
- Energy storage use cases
- Comparison framework between LDS ZCFD resources

Goals

- Meet SB 100 projections
- Optimize cost and performance, minimize environmental impact
- Improve depth of discharge, degradation, thermal runaway, supply-chain diversity

Strategic Objective: Increase the Value Proposition of Distributed Energy Resources to Customers and the Grid

DER Forecasting | Backup Power | EV Charging | Virtual Power Plants | Load Flexibility

Design-Build Competition

Innovations

- Reimagine mixed-use development
- Engage stakeholders to realize shared vision
- Demonstrate emerging technologies

Goals

- New building designs
- Grid-interactive, zero-emission buildings
- Facilitate adoption of advanced technologies and practices

Electric Vehicles as Distributed Energy Resources

Innovations

- Grid-interactive inverters in bi-directional chargers
- Integrate charging with building management systems
- High-accuracy, low-cost submeters

Goals

- Lower site costs
- Enable EV operator benefits
- Ratepayer savings

Strategic Objective: Improve the Customer Value Proposition of End-use Efficiency and Electrification Technologies

Industrial Decarbonization

Process Heating | Concrete | Separation Processes

Building Decarbonization

Heat Pumps | Building Envelopes | Controls | Tech Prize Competition

High Efficiency, Low Global Warming Potential (GWP) Heat Pump Water Heaters and HVAC Heat Pumps

Innovation

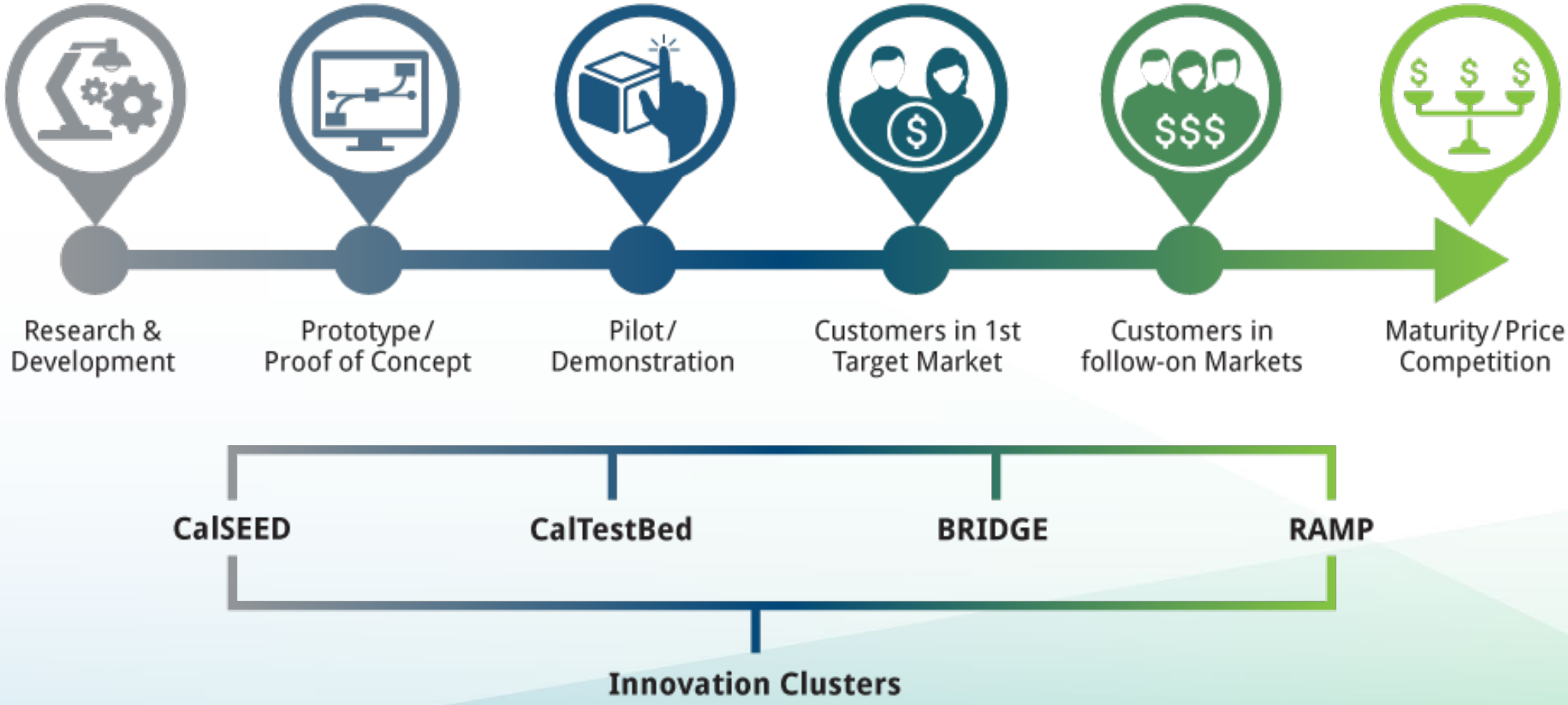
- Advance use of low-GWP refrigerants
- Have similar or greater efficiencies, life & maintenance, and cost as existing HPs
- Include 120V and 240V applications

Goals

- Reduce GHG emissions
- Lower cost

Strategic Objective: Enable Successful Clean Energy Entrepreneurship Across California

Entrepreneurial Ecosystem



Activating Innovation and Expanding California's Clean Energy Entrepreneurial Talent Pool

Innovation

- Attract diverse talent
- Match talent with intellectual property
- Support initial business setup

Goals

- Broaden entrepreneurship
- Lower entry barriers
- Increase commercialization

Strategic Objective: Inform California's Transition to an Equitable, Zero-Carbon Energy System that is Climate Resilient and Meets Environmental Goals

Air Quality | Health | Equity | Climate Resilience | Environmental Sustainability

Integrating Climate Resilience in Electricity System Planning

Research Innovations

- Evaluate climate impacts on grid
- Quantify societal benefits of resilience technologies and strategies

Goals

- Integrate resilience into electricity system planning, investment, operations

Staff Recommendation

- Adopt *EPIC 4 Investment Plan* with any non-substantive corrections (or other changes adopted today)

- Adopt staff's determination that plan adoption is exempt from CEQA

- Direct Executive Director or designee to:
  - Finalize adopted plan
  - File plan to CPUC by December 1, 2021

Item 7: Blueprints for MD/HD ZEV Infrastructure (GFO-20-601)

November 15, 2021 Business Meeting

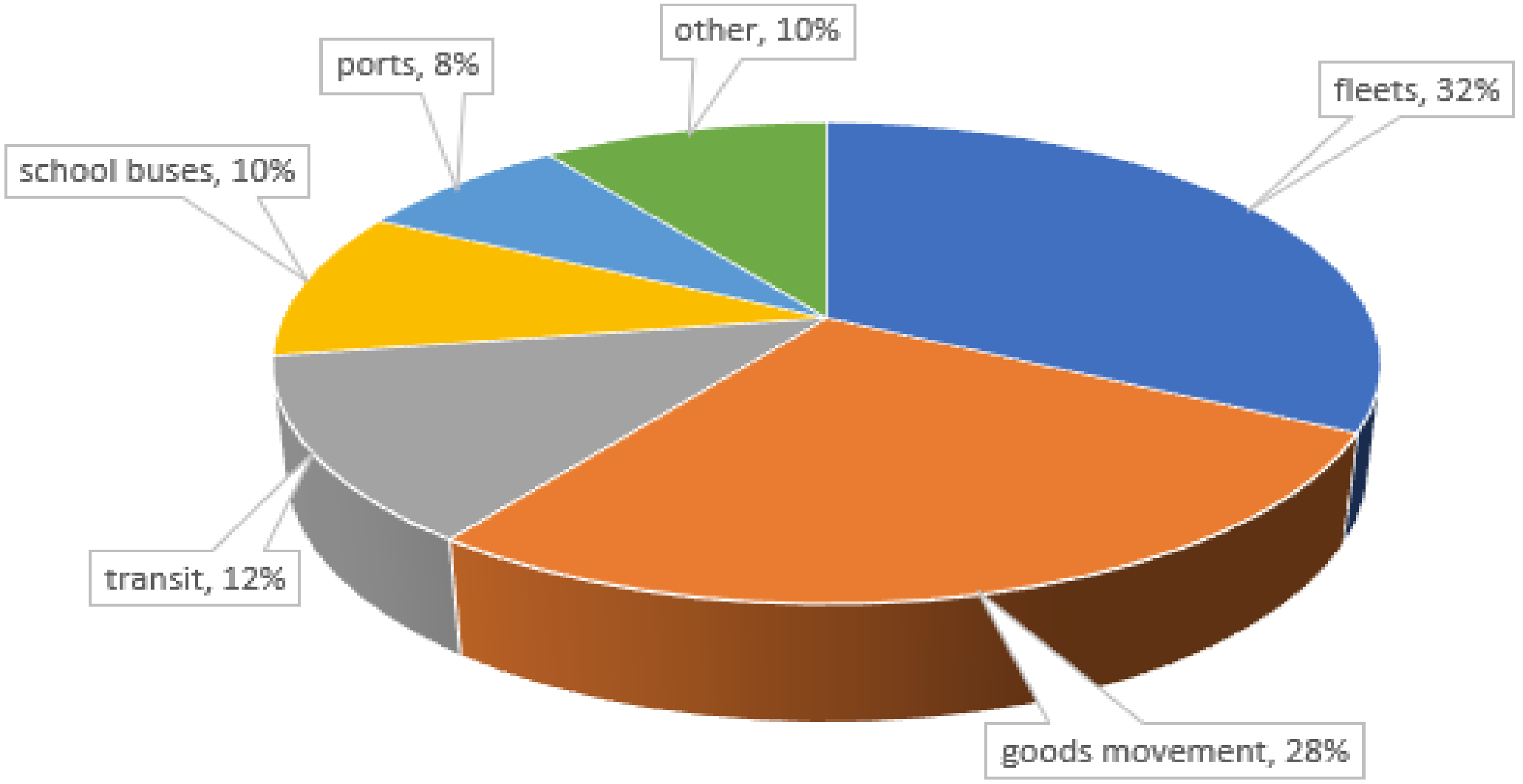
Kate Reid, Air Resources Engineer
Fuels and Transportation Division
Medium- and Heavy Duty Zero-Emission Technologies Office
Freight & Transit Unit

Benefits to California

Will Enable:

- Roadmaps
- Resiliency
- Replicability
- Compliance

Vehicle Sectors Addressed



Project Overview

Central Coast Community Energy (3CE) (ARV-21-031)

- Accelerate and scale MD/HD ZEV adoption
- Accelerate deployment of MD/HD infrastructure

Central Coast Community Energy

Source: 3cenergy.org

Project Overview

MHX, LLC (ZVI-21-001)

- Enable full fleet conversion to ZEVs and infrastructure
- Articulate a futuristic view of freight planning

MHX
SAFE TIMELY ACCURATE

Source: MHX, LLC

Staff Recommendation

Approve

- 2 grant agreements

Adopt

- Staff's determination that projects are exempt from CEQA

Item 8: BESTFIT Innovative Charging Solutions – GFO-20-605

November 15, 2021 Business Meeting

Kyle Corrigan, Associate Energy Specialist
Fuels and Transportation Division, LDEV Infrastructure and Analysis Office

Benefits to Californians

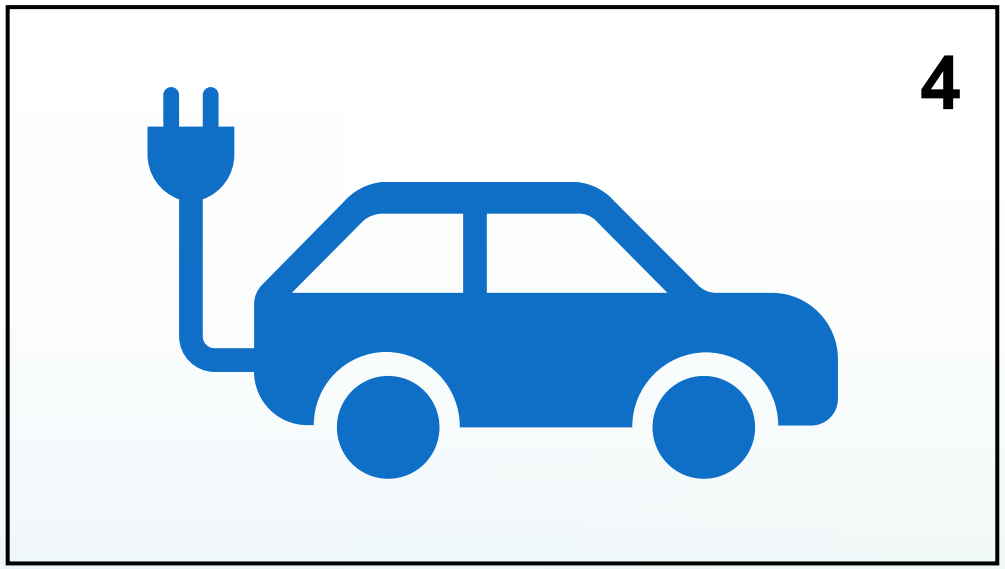
- Innovation
- Tailored charging solutions
- Accelerate commercialization

Source: EVmatch

Source: Electrek

Overview

- Sought charging solutions for light-, medium-, and heavy-duty vehicles



Eneridge, Inc. (ZVI-21-002)

Ultrafast chargers with integrated battery packs

- Installing, maintaining, and collecting data from six 120kW DCFC

Key Project Benefits:

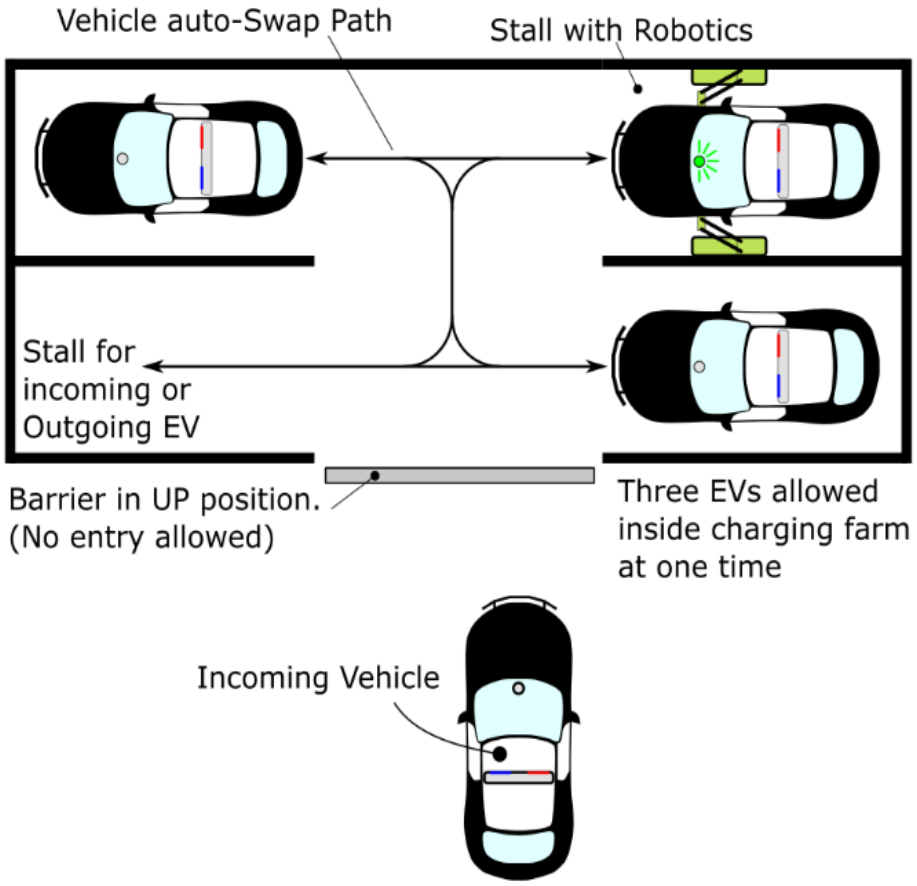
- Minimizing grid impacts
- Utilizing existing grid infrastructure

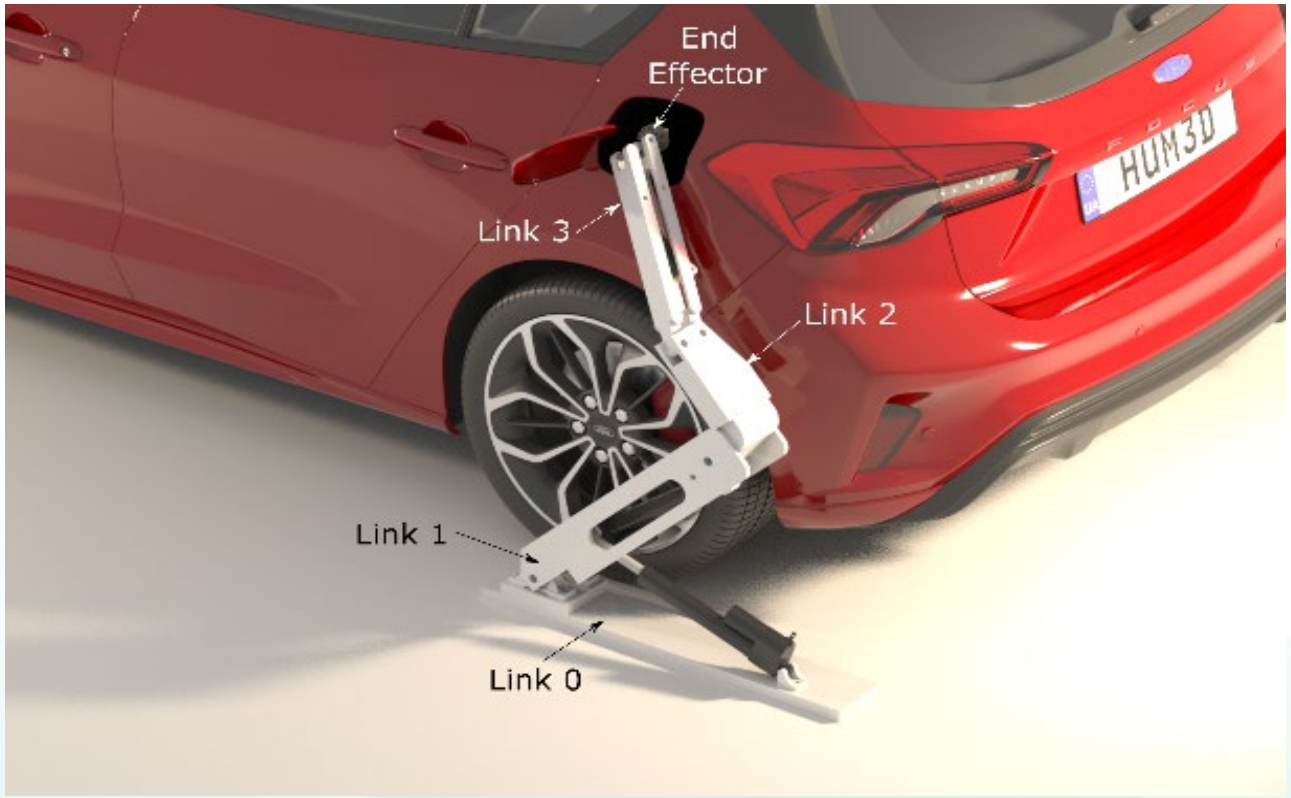
ENERIDGE
For a sustainable and smart world

ConnectMyEV (ZVI-21-003)

Robotic, automated parking and charging solution

- Demonstrating in parking structure for City of San Jose

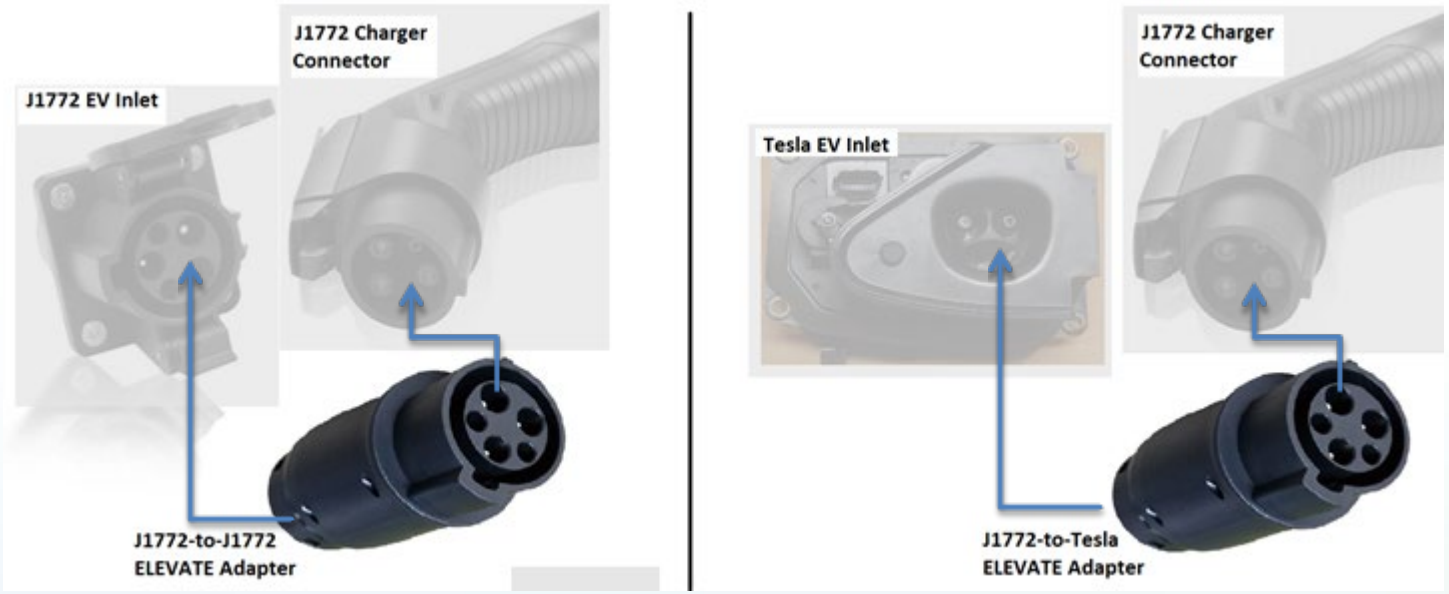




Andromeda Power (ZVI-21-004)

ELEVATE – ELEctric Vehicle AdapTEr

- Develop and manufacture a charging adapter to provide networked demand response “smart charging” capabilities in non-networked chargers

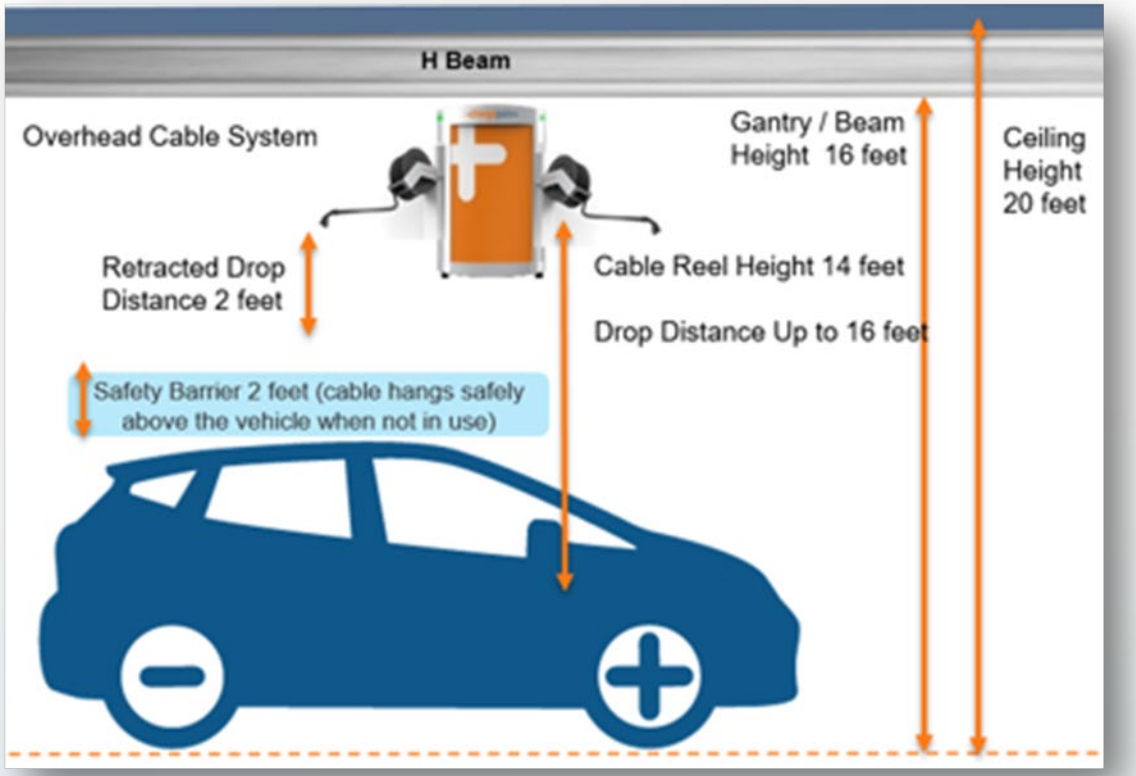


Key Project Benefits:

- Minimizing grid impacts
- Greater accessibility to “smart charging” technology
- Compatible with any low-cost, non-networked charger

ChargePoint (ZVI-21-005)

Overhead Charging Cable System



Key Project Benefits:

- Designed for light-duty EV fleet operators
- Can be installed in a variety of parking configurations
- Ideal for space constrained installations

Electriphi, Inc. (ARV-21-043)

Smart Charging Management

- Allow for charging 3 times more fleet vehicles than unmanaged scenario without incurring infrastructure upgrades
- Provide energy cost reduction of 40%+ relative to unmanaged charging solutions

Key Project Benefits:

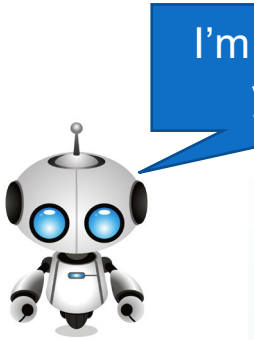
- Demonstrate innovative charge management technology
- Reduction of up-front infrastructure and operating cost to accelerate EV adoption

Market Potential

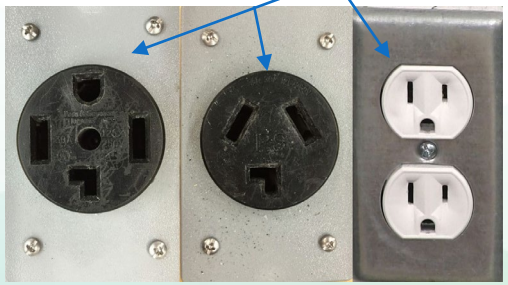
Innovative technologies in a modern marketplace:

- Augmenting existing infrastructure with newer efficient technology
- Helping solve congestion through automation
- Cheaper, simpler devices to modernize older “dumb” chargers
- New ways of implementing demand responsive charging systems that are more cost-effective

DCFC



The new smart charger



Staff Recommendation

- Approve following agreements:
  1) Eneridge, Inc.
  2) ConnectMyEV.
  3) Andromeda Power.
  4) ChargePoint.
  5) Electriphi,Inc.

- Adopt staff's determination that action is exempt from CEQA