DOCKETED	
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Project Title:	Electric Vehicle Infrastructure Project Funding
TN #:	248491
Document Title:	Presentation - Funding Allocations for Light-Duty Passenger Electric Vehicle Charging Projects
Description:	Fuels and Transportation Division January 26, 2023 9:00 am
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	1/23/2023 11:18:22 AM
Docketed Date:	1/23/2023

Light-Duty Electric Vehicle Infrastructure Allocation Workshop

Funding Ideas for Light-Duty Passenger Electric Vehicle Charging Projects

Fuels and Transportation Division
January 26, 2023 | 9:00 am

Workshop Agenda

1. Welcome and Introductions
    - Housekeeping
    - Commitment to Diversity
    - Empower Innovation
2. Clean Transportation Program and Investment Plan
3. Program History and Current Solicitations
4. Project Concepts
5. Public Discussion and Comments/Q&A

Housekeeping

- Workshop is being recorded
- Workshop Event Webpage: https://www.energy.ca.gov/events
- Virtual Participation through Zoom
  - Q&A period after the main presentation
  - Raise Hand or Q&A feature
- Written Comments to Docket # 20-TRAN-04: https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-TRAN-04
  Deadline: Friday, February 17, 2023

Commitment to Diversity

The CEC adopted a resolution strengthening its commitment to diversity in our funding programs. The CEC continues to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, CEC staff conducts outreach efforts and activities to:

- Engage with disadvantaged and underrepresented groups throughout the state;
- Notify potential new applicants about the CEC's funding opportunities;
- Assist applicants to understand how to apply for funding from CEC's programs;
- Survey participants to measure progress in diversity outreach efforts

Diversity Survey

Scan the code on a phone or tablet with a QR reader to access the survey.

One Minute Survey

The information supplied will be used for public reporting purposes to display anonymous overall attendance of diverse groups.

Zoom Participants, please use the link in the chat to access the survey or scan the QR code on the left of the screen with a phone or table to access the survey.

Survey will be closed at the end of the day.

Survey Link:
https://forms.office.com/Pages/ResponsePage.aspx?id=RBI6rPQT9k6NG7qicUgZTkIYoNRX5zNFppxTtrWHz_dUNzFGR1VEVDdMOFYwV0tXMVFMU0pKTUs0Vi4u

Find a Partner on EmpowerInnovation.net

Empower Innovation strives to accelerate your clean tech journey with easy access to funding opportunities from the CEC and other funding providers, curated resources and events, and connections to people and organizations.

FIND A PARTNER	**RESOURCES & TOOLS**
Announce your interest in this funding opportunity and message other interested parties to find potential partners.	Browse the collection of resources for clean tech innovators including Resource Libraries, Funding Sources, Tools, and Databases.

To search for funding opportunities, please go to this link:
https://www.empowerinnovation.net/en/custom/funding/directory

Please direct questions for the Empower Innovation platform to:
https://www.empowerinnovation.net/en/contact_us

Clean Transportation Program & Investment Plan

Patrick Brecht, Energy Commission Specialist II (Program Integration Unit)

Origins of the Clean Transportation Program

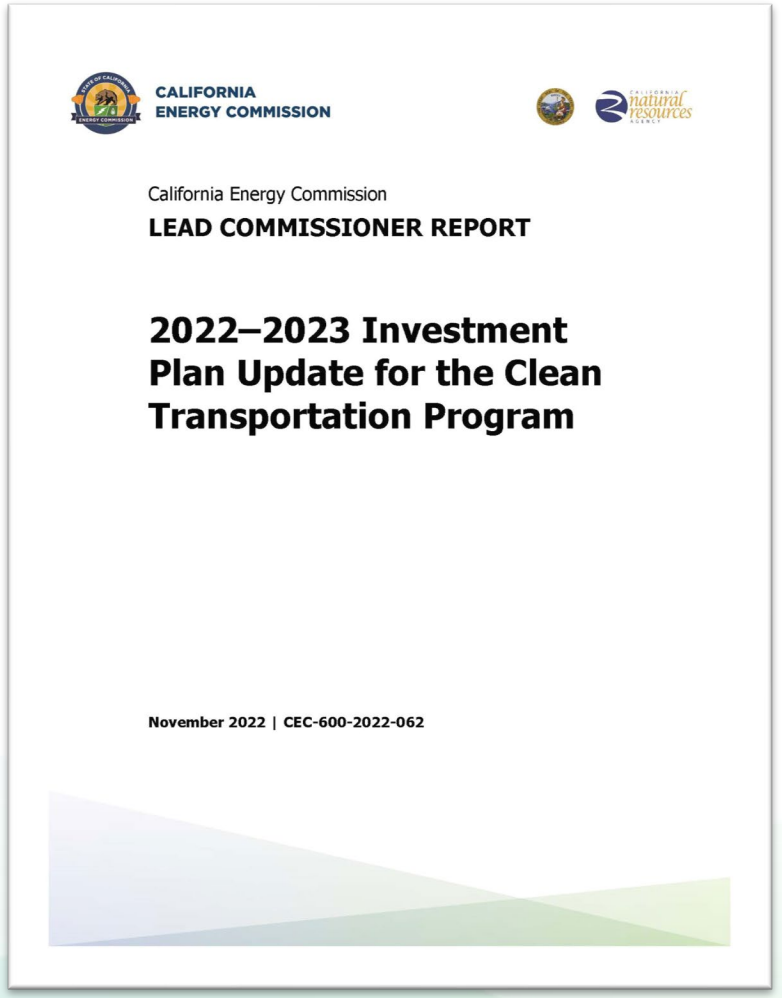
- Transportation sector responsible for significant greenhouse gas emissions and public health impacts
- Pollution burdens fall disproportionately on vulnerable and disadvantaged communities
- Clean Transportation Program created to invest in a cleaner, healthier transportation system
- Provides up to $100 million per year. Expires at end of 2023

Assembly Bill No. 8

CHAPTER 401

Investment Plan Update Sets Direction for Future

- Guides investments to meet state's clean transportation goals
- Allocates funding
- Provides multi-year funding allocations for improved planning and visibility
- Promotes agency coordination



How the Investment Plan Update Was Developed

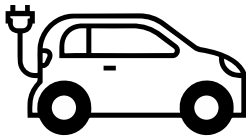
- Input from Advisory Committee, DACAG, and public
- Coordinated with state and federal agencies
- Findings and needs identified in CEC analyses, including:
  - *AB 2127 Electric Vehicle Charging Infrastructure Assessment*
  - *SB 1000 Electric Vehicle Charging Infrastructure Deployment Assessment*
  - *Zero-Emission Vehicle Infrastructure Plan (ZIP)*

Commitments to Inclusion, Diversity, Equity, and Access

- Seek to provide over 50% of Clean Transportation Program funds to projects that benefit low-income and disadvantaged communities
- Expand outreach to local community-based organizations
- Better define, measure, and track community benefits beyond project location (e.g., health, mobility options, workforce)
    - First workshop held 11/29/22 with more planned over 2023

2022 – 2026 Total Investments

Total: $2.9 Billion*



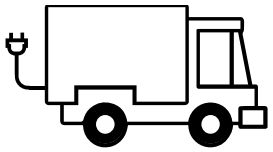
$900 M

Light-Duty EV Charging Infrastructure

+

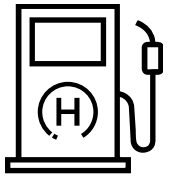
$384 M

NEVI



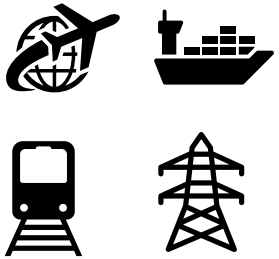
$1.7 B

Medium- and Heavy-Duty ZEV Infrastructure



$ 90 M

Hydrogen Refueling Infrastructure



$97 M

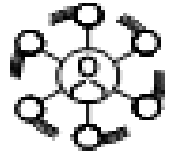
Emerging Opportunities

$15 M

Low Carbon Fuels

$118 M

ZEV-Related Manufacturing

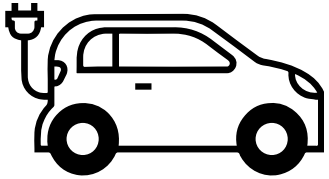


$10 M

ZEV Workforce Development

*Subject to future Budget Act appropriations. Does not reflect reductions for CEC administrative expenses.

2022 – 2026 Light-Duty EV Charging



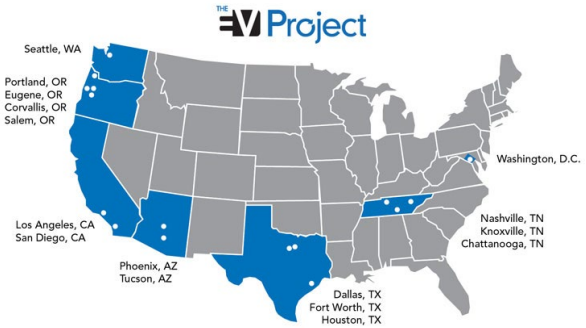
- Equitable at-home solutions for multi-family residences
- Targeted deployments in rural and priority communities
- Broad network of high-power fast chargers

→ This fiscal year: $30.1 million (Program) and $237.5 million (General Fund)

Program History & Current Solicitations

Kyle Corrigan, Associate Energy Specialist (EV Infrastructure Innovation Unit)

Light-duty Charging Infrastructure



2010

Partner with the US Department of Energy for American Recovery and Reinvestment Act Projects

2012

Regional Readiness Planning
Upgrade Legacy Chargers

2014

Public, workplace, and multifamily charging

Readiness Planning

2016

Fast charging corridors

Readiness Planning

WEST COAST ELECTRIC HIGHWAY

Light-duty Charging Infrastructure

CALeVIP

Readiness Blueprints

Second Block Grants (CALeVIP 2.0, Communities in Charge)

BESTFIT

VIGIL

CHiLL-2

FAST

REACH 2.0

NEVI

Municipal Fleets

Signage

Blueprints for Military Bases

2018 **2020** **2022** **2024**

Readiness Blueprints Implementation

VOLTS

Clean Mobility Options

CARTS

REACH

REV

Light-Duty Electric Vehicle Infrastructure Allocation Workshop

Funding Ideas for Light-Duty Passenger Electric Vehicle Charging Projects

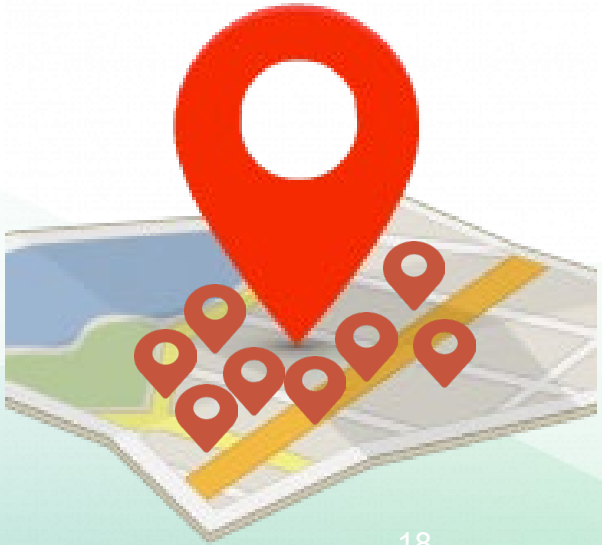
Fuels and Transportation Division
January 26, 2023 | 9:00 am

Upcoming Solicitations

Madison Jarvis, Air Pollution Specialist (EV Infrastructure Innovation Unit)
Bridey Scully, Energy Commission Specialist I (EV Infrastructure Innovation Unit)
Matthew Jumps, Energy Commission Specialist I (EV Infrastructure Innovation Unit)
Ben De Alba, Supervisor, Strategic Investments Unit

CHiLL-2

- Convenient, High-visibility, Low-cost Level 2 Charging Solicitation
- $24 million
- Goals:
  - Demonstrate replicable and scalable business and technology models to deploy Level 2 electric vehicle (EV) charging stations
  - Improve public awareness of and confidence in Level 2 charging access through **high-density**, high-visibility installations
- Tentative Timeline:
  - Solicitation Release: February 2023
  - Pre-Application Workshop: March 2023
  - NOPA: July 2023
  - Projects begin: Q3 2023



Reliable, Equitable, and Affordable Charging for Multi-family Housing 2.0 (REACH 2.0)

- $20 million for Level 1 & Level 2 charging solutions
- Scalable models
- Encourage applicants to work with a Community Based Organization (CBO)
- Project cap: $5 million per project
- Two project areas: Northern California, Southern California
- Benefit MFH residents within disadvantaged communities, low-income communities, or both

FAST

Fast and Available Charging for All

- $35 million for DC fast charging through the state
- Charging stations to be open to the public
- In participation with:
  - on-demand transportation service companies
  - car sharing enterprises
  - car rental agencies
- Renewed focus on grid integration and grid mitigation

Municipal Fleets Solicitation

- Grant solicitation to support city and county fleets with their transition to ZEVs
- $30 million available for an initial solicitation
- Eligible projects would include fueling infrastructure to support both battery-electric and fuel cell vehicles
- Initial solicitation would focus on light-duty fleets with medium- and heavy-duty vehicles eligible in future solicitations

National Electric Vehicle Infrastructure Program (NEVI)

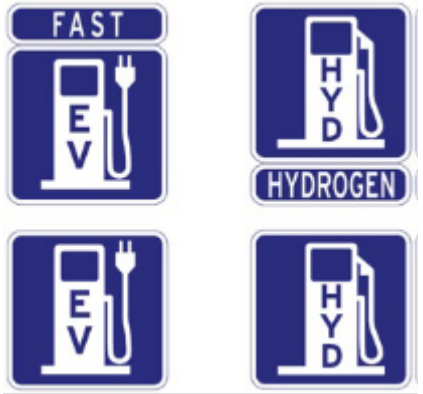
CA's NEVI Formula Program

- Formula funding: $384 million over 5 years
- Will support DC fast charging stations (BEV only) over 6,600 miles of interstates, US routes, and state routes in California
- At least four fast chargers (4 x 150kW) every 50 miles or less and no more than one mile from corridor
- Will result in at least 864 charging ports at 143 sites
- 4 solicitations expected between 2023-2024

Signage Solicitation

- $1 million grant solicitation to fund the installation of physical signs along freeways, expressways, and large boulevards to increase the visibility of existing EV Charging and Hydrogen Refueling Stations
- The signage projects will use a mix of:
  - "general service" and "specific service" signs along Caltrans' rights of way (as defined in the CA MUTCD)
  - a series of locator signs directing motorists along city streets from the offramp to the charging station
- Open to local / regional government, private sector charging and refueling equipment companies, vehicle OEMs, not-for-profits, and community-based organizations
- Expected release late Q1, 2023

Sample General Service Signs



Proposed Funding Concepts

Staff Presentations

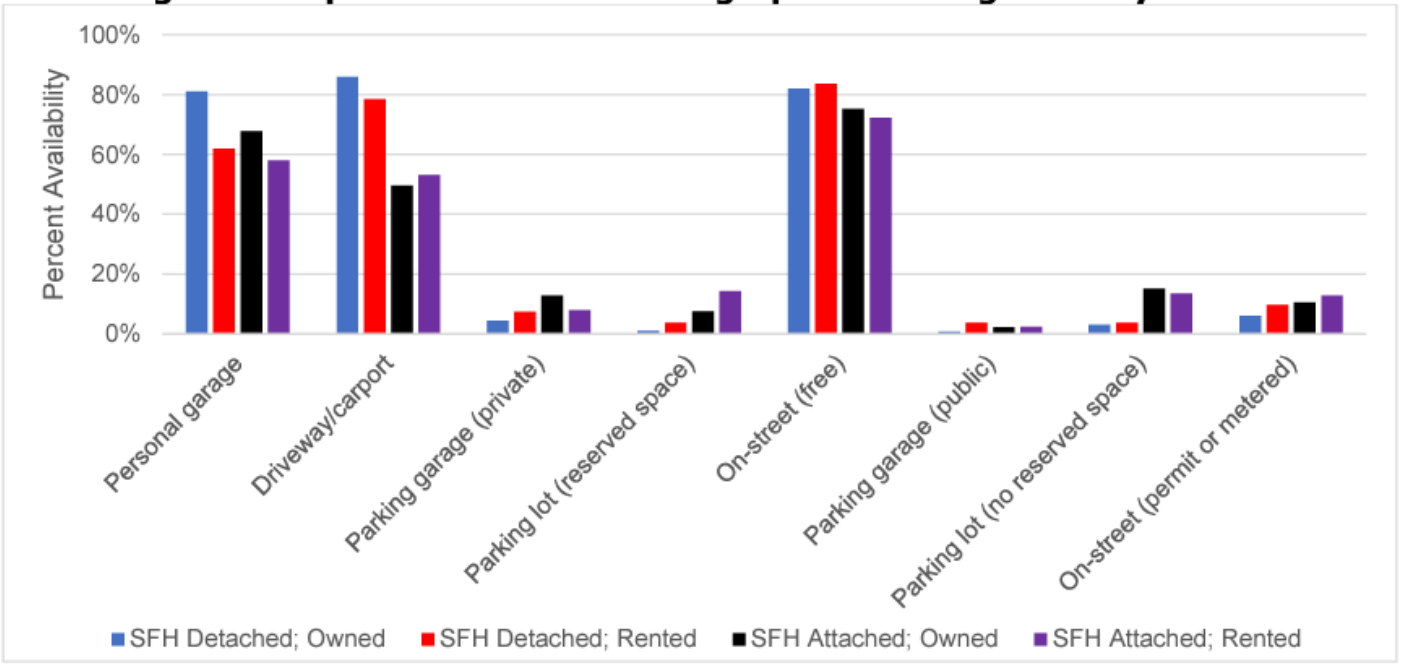
Finding Solutions to Local Charging Needs

Adam Davis, Air Pollution Specialist (Infrastructure Modeling and Assessment Unit)

Finding Solutions to Local Charging Needs

- City governments compete for block grants to expand charging access for homes and other activity locations
- Flexible solicitation allows cities to design solutions that meet local needs

Figure 5: Reported Available Parking Options in Single-Family Homes



Detached SFHs tend to have greater access to preferred parking options like personal garages and driveways compared to attached SFHs.

Source: CEC and NREL

Goals

Finding solutions to local charging needs

- Identify charging solutions based on local conditions:
  - Age of housing stock
  - Proportion of renters
  - Multi-family housing
  - On- vs off-street parking
- Meet needs of households that cannot easily install home charging
- Leverage local governments' ability to streamline access for curbside charging and city-owned sites

Questions

Finding solutions to local charging needs

- *Should the scope be narrowed to focus exclusively on a specific approach (like curbside or charging plazas)?*
- *How large should each grant be to make the project most useful?*
- *What are ways to support equity goals within this framework while maintaining the flexible approach?*

Grid-light and Resilient Charging

Jeffrey Lu, Air Pollution Specialist (Vehicle Grid Integration Unit)

Grid-Light and Resilient Charging

Goal: Maximize charging deployments on existing grid infrastructure and enable operation during outages

Charging deployment must demonstrate:

1. Ability to operate during outages, potentially with limited power or duration
2. Reduced need for grid upgrades (for example, grid connection only serves a portion of charging capacity)

Source: bp pulse

Source: Shell

“Grid-Light” – Guiding questions

1. How should “grid-light” be measured and should a maximum level of grid reliance be specified? (For example: The grid connection for charging cannot exceed 30 percent of total charging capacity.)
2. Should applicants propose their own outage operation capabilities, or should CEC set minimum requirements? If so, how can CEC specify minimum requirements while accommodating a wide range of possible project types and integration strategies?
3. How can grid-light projects ensure customer confidence and that the charging experience is not compromised? Should CEC set minimum requirements?
4. Should CEC allocate a minimum portion of funding to Level 2? Why or why not?

Cost Effective, Performance Based Charging

Jeffrey Lu, Air Pollution Specialist (Vehicle Grid Integration Unit)

Cost-Effective, Performance-Based Charging

(Working name: **Serving Electric Range for Vehicle Electrification** or "**SERVE**")

Goal: Let industry propose the most innovative and cost-effective deployments that meet minimum energy throughput targets (that is, range served to EVs)

Open to all project types and forms

Example target: Projects must be capable of serving 750 MWh/year to EVs by year 2 after commissioning, and 2.5 GWh/year by year 3

Source: PowerFlex

Possible evaluation metrics?

- Cost per unit energy serving capacity
- Validity of estimated throughput claims
- Likelihood that the project will serve electricity that would otherwise not be served by the market

SERVE – Guiding questions

1. The SERVE concept intends to help capture deployment types that may not fit into existing CEC solicitations. Is there a need to address this concern?
2. SERVE could evaluate project proposals based on their cost-effectiveness and the validity of their estimated energy serving capacity. Are these reasonable evaluation metrics? Should other metrics be considered to ensure projects meet their cost and performance targets?
3. How could CEC ensure that these projects would not already have been built by industry (that is, avoid free ridership of public funding)?
4. How could CEC ensure that projects provide benefits to priority communities?
5. Would it be reasonable to require projects to focus deployments within a local area or region? This would help ensure that energy throughput is concentrated in a local area as opposed to being spread out across the state.

Charging at Single-family Homes

Anita Carraher, Energy Analyst (Vehicle-Grid Integration Unit)

Charging at Single-family Homes

A block grant to provide **rebates** for home electrical upgrades to enable at-home charging. **Potential eligible costs would include:**

- Level 1 and Level 2 home chargers
- Panel upgrades (for homes with a main breaker under 200 A)
- Installation of “electric-ready” circuits
- Automatic transfer switches
- Equivalent equipment that enables load flexibility at the meter level

Tentative Solicitation Criteria

This proposed solicitation concept would be open to **third-party rebate implementers** with the following tentative criteria:

- Partnership with regional Community Based Organizations and local governments to engage specific communities and neighborhoods
- An outreach plan that leverages integration with existing decarbonization, electrification, equity or resilient community programs and ease of application for homeowners

Goals

Charging at Single-family Homes

- Provide equitable at-home charging to low-income residents and residents of disadvantaged communities
- Encourage resilient, grid-integrated vehicle electrification by ensuring that Californians have the building blocks to begin electrifying their homes

Questions

Charging Ready Homes

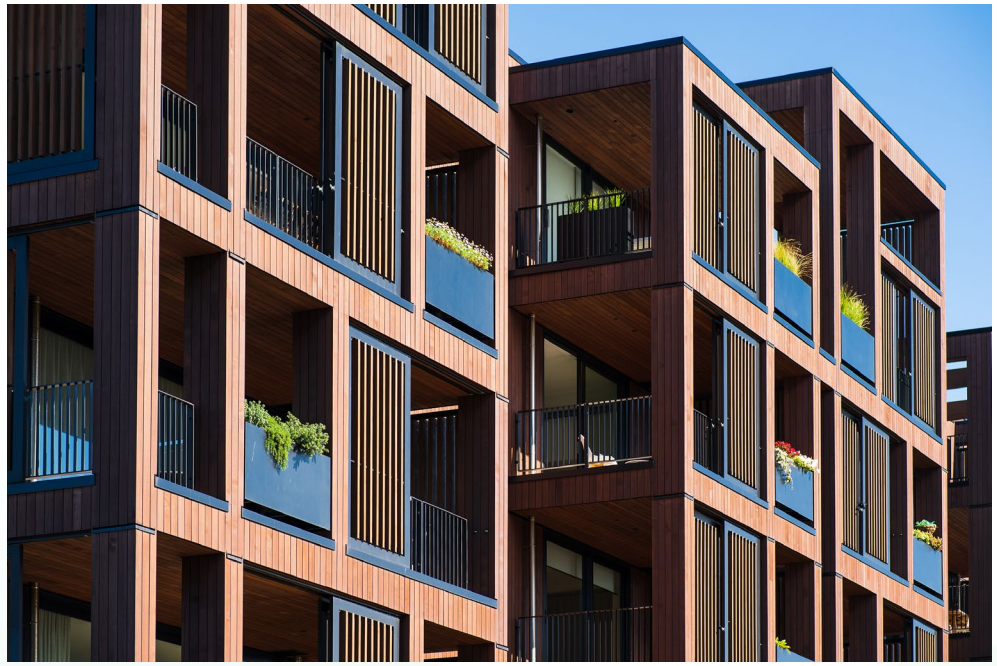
- How can this incentive be aligned with EV ownership or potential ownership?
- How can this concept better expand at-home charging opportunities to renters who own EVs?
- How should the CEC value tiered incentives for equipment that enable households to participate in V2H, V2G, and demand response programs?
- How can we best account for differences in regional housing electrification needs within a state-wide incentive project?

Charging at Multi-family, Affordable Housing Sites

Bridey Scully (she/her), Energy Commission Specialist I (EV Infrastructure Innovation Unit)

Charging at Multi-Family, Affordable Housing Sites

- Competitive grant solicitation
- Accessible and reliable charging at multi-family, affordable housing sites
- Community outreach and education required
- Project sites within ¼ mile of an affordable, multi-family housing site



Goals

Charging at Multi-Family, Affordable Housing Sites

- Accessible, reliable, and affordable charging solutions for multi-family, affordable housing residents
- Increase community benefits from EV charging infrastructure

Questions

Charging at Multi-Family, Affordable Housing Sites

- *Should the solicitation include DC fast chargers?*
- *Should projects only include sites that are classified as both multi-family housing and affordable housing?*
- *Recommended process for verifying affordable housing status?*
- *What are ways to make this concept more equitable?*

Charging at New Multi-family Sites

Bridey Scully (she/her), Energy Commission Specialist I (EV Infrastructure Innovation Unit)

Charging at New Multi-family Sites

- New construction and retrofitting existing sites
- Fund charging stations, panel upgrades, and infrastructure to create EV-readiness
- 50% of parking spaces with charging stations; 25% EV ready

Goals

Charging at New Multi-Family Sites

- Lower cost of overall EV charging and readiness
  - Encourage EV adoption and increase charging access

- Encourage developers and property owners to build EV ready sites

Questions

Charging at New Multi-Family Sites

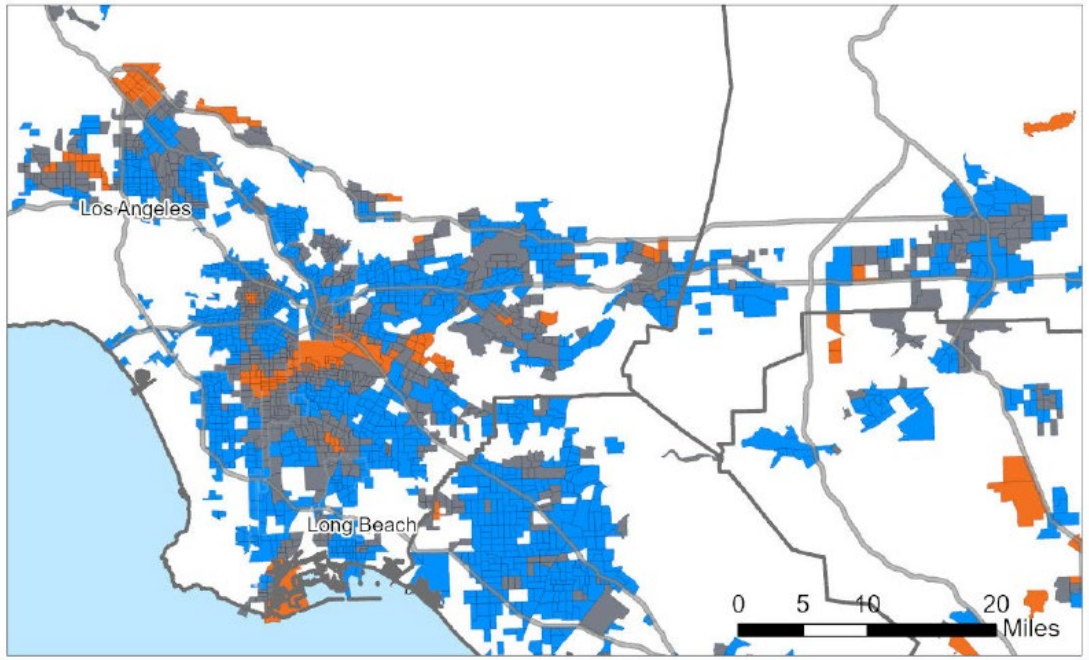
- *Should the solicitation include DC fast chargers?*

- *Should the EV ready percentage refer to each site within a project, or a project overall?*

Reducing Drive Times to DC Fast Charging

Matthew Jumps, Energy Commission Specialist I (EV Infrastructure Innovation Unit)

Reducing Drive Times



Source: CEC Report, 2022 Senate Bill 1000 California Electric Vehicle Infrastructure Deployment Assessment: Drive Times to Direct-Current Fast Chargers

- Target underserved areas within low-income and disadvantaged communities
- Shorten drive times to DC fast chargers
- Minimize negative impacts to the grid and cost to the drivers

Goals

Reducing Drive Times to DC Fast Charging

- Shorten drive times to DC fast charging stations to provide accessible and reliable charging for low-income and disadvantaged communities
- Consider other aspects of access, including minimizing cost to drivers

Questions

Reducing Drive Times to DC Fast Charging

- Are there metrics other than drive time and cost that CEC staff should consider to improve access?
- Disadvantaged communities would be better served by which of the following EV fast charging options?
  - Larger Charging Plazas
  - Smaller Charging Stations
  - A mixed approach
- What is an appropriate minimum for power output of DC fast chargers?

Curbside DC Fast Charging

Matthew Jumps, Energy Commission Specialist I (EV Infrastructure Innovation Unit)

Curbside DC Fast Charging

- Funding for projects that offer DCFC at curbside or metered parking
- Require partnership with local authorities (cities, counties, etc.) to ensure the continued operation of curbside chargers, which will mostly be installed on public premises

Source: CEC, http://calenergycommission.blogspot.com/2015/09/city-of-burbank-pioneers-curbside.html

Goals

Curbside DC Fast Charging

- Provide accessible and reliable DC fast charging for EV drivers on-the-go in densely populated areas
- Encourage widespread adoption of curbside charging for densely populated areas in California

Questions

Curbside DC Fast Charging

- *What hurdles do you expect for installing, operating, and maintaining successful curbside DC fast chargers in California?*
- *How can projects maximize utilization for EVs?*
  - *How can curbside charging be operated so that EV drivers have the adequate opportunities to park and charge?*

Public Comment/Discussion Period

Zoom Participants

- Use the "raise hand" feature to make verbal comments
- Use the Q&A feature to type in your question

Telephone Participants:

- Dial *9 to raise your hand
- Dial *6 to mute/unmute your phone line

Written Comments

https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-TRAN-04

Deadline for comment: Friday, February 17, 2023

Submit Comments to Docket 20-TRAN-04

Electronic Commenting System

Visit the comment page for this docket at:
https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-TRAN-04

Comment by E-mail

E-mail: docket@energy.ca.gov

Subject Line: "20-TRAN-04 LDEV Allocation"

All comments due by February 17th, 2023

Thank you for participating remotely.