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<tr>
<td><strong>Docket Number:</strong></td>
<td>21-ALT-01</td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
<td>2021-2022 Investment Plan Update for the Clean Transportation Program</td>
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<tr>
<td><strong>TN #:</strong></td>
<td>239743</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>2021-2023 IPU 2nd AC Mtg Sept 16, Combined PPT Final_ADAeditsJB</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
<td>Chester Hong</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>CEC/Patrick Brecht</td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
<td>Commission Staff</td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
<td>9/16/2021 9:01:11 AM</td>
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<tr>
<td><strong>Docketed Date:</strong></td>
<td>9/16/2021</td>
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Housekeeping

• This workshop is being recorded.

• Virtual participation will be possible Zoom or telephone during the public comment period.

• Workshop event webpage
  https://www.energy.ca.gov/event/meeting/2021-09/clean-transportation-program-investment-plan-advisory-committee-meeting

• Written comments should be submitted to Docket 21-ALT-01

  Deadline for comments is Thursday, September 30, 2021, by 5:00 P.M.
Meeting Agenda

• Opening remarks and introductions.
• Presentations by CEC staff on the Clean Transportation Program funding activities, related work, and key changes in the Revised Staff Draft Report version of the 2021-2023 Investment Plan Update.
• Advisory Committee discussion on the 2021-2023 Investment Plan Update.
• Public comment.
• Closing remarks.
Clean Transportation Program
Origins in Statute

- Established by Assembly Bill 118 (Nunez, 2007)
- Provides approximately $95.2 million per year
- Extended to January 1, 2024 by Assembly Bill 8 (Perea, 2013)
Purpose of the Investment Plan

• Guides the Clean Transportation Program’s investments toward meeting the 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
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
Legislation & Executive Orders are steering the state towards near- and zero-emission transportation.

<table>
<thead>
<tr>
<th>Target</th>
<th>Description</th>
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<tbody>
<tr>
<td>Climate</td>
<td>2030: 40% GHG reduction in economy</td>
</tr>
<tr>
<td></td>
<td>2030: 20% GHG reduction in transportation fuels</td>
</tr>
<tr>
<td></td>
<td>2045: Net zero carbon economy</td>
</tr>
<tr>
<td>Air Quality</td>
<td>2031: 80% reduction in smog-forming NOx</td>
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</table>

Zero Emission Vehicles (ZEVs) are an essential part of achieving these goals!
## Context Setting: ZEV Goals

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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</thead>
</table>
| **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)                                                                                                                                 |
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 December 2021

• 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
Assembly Bill 2127 Charging Infrastructure Assessment

Raja Ramesh, Air Pollution Specialist
Fuels and Transportation Division
Overview of AB 2127 and Executive Order N-79-20

• Every 2 years, create reports assessing:
  • Charging infrastructure needs for all vehicle types by 2030
  • Utility grid connection
  • Charger hardware and software
  • Programs accelerating EV adoption

• Update AB 2127 assessment to capture EO N-79-20's expanded targets
Zero-Emission Vehicle Targets

AB 2127: 5M ZEVs by 2030

EO N-79-20 / MSS: 8M ZEVs by 2030

Source: FreeWire

Source: Volta Charging
## Scope of AB 2127 Assessment

<table>
<thead>
<tr>
<th>Road and Highway Electrification</th>
<th>Other EVs</th>
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<tbody>
<tr>
<td><strong>Existing Chargers</strong></td>
<td></td>
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<tr>
<td>Counting Chargers</td>
<td></td>
</tr>
<tr>
<td>Including in Low-income Communities <em>(SB 1000)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Future Chargers</strong></td>
<td></td>
</tr>
<tr>
<td>Electric Vehicle Infrastructure Projections <em>(EVI-Pro 2)</em></td>
<td></td>
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<tr>
<td>Electric Vehicle Infrastructure for Road Trips <em>(EVI-RoadTrip)</em></td>
<td></td>
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<tr>
<td>Widespread Infrastructure for Ride-hailing EV Deployment <em>(WIRED)</em></td>
<td></td>
</tr>
<tr>
<td>Medium- and Heavy-Duty EV Infrastructure Load, Operation, and Deployment <em>(HEVI-LOAD)</em></td>
<td></td>
</tr>
<tr>
<td>Off-Road, Port and Airport Electrification</td>
<td></td>
</tr>
</tbody>
</table>

- Charging Hardware and Software *(Equipment Components, Standards, and Interoperability)*
- Make-Ready Electrical Equipment *(Community-Centric Plans, Building Codes, and Grid Evaluation)*
- Other Programs to Accelerate the Adoption of Electric Vehicles *(Incentives, Investments, and Others)*
Modeling Approach

**Inputs**
- ZEV population (Hydrogen, pure battery electric, plug-in hybrid)
- Residential charging access
- Travel data
- Vehicle attributes by class
- Charger utilization

**Outputs**
- Number of chargers needed at statewide and countywide level
- Broken down by charger type and location type
- Statewide load profiles

Source: CEC, National Renewable Energy Laboratory, and Alternative Fuels Data Center
Light-Duty Results

- **Installed (2020)**: 70k chargers installed as of late 2020
- **Projected (2025)**: 123k additional installations by 2025, totalling 193k chargers statewide
- **Gap (2025)**: Net gap of 57k chargers to 250k goal for 2025
- **Gap (2030)**: Net gap of 972k to projected 2030 need of 1,164k chargers
Projected Load: Light Duty

Projected 2030 statewide power for light-duty charging for 8 million ZEVs on a typical weekday
Medium- and Heavy-Duty Results

- **180,000** medium- and heavy-duty ZEVs in 2030 to achieve EO N-79-20 goals
- Modeling suggests **157,000** DC fast chargers needed
- Ongoing analysis will investigate higher charging power
- Critical for equity!
Projected Load on the Grid: Medium- and Heavy Duty (HEVI-LOAD)

Projected 2030 load curve for medium- and heavy-duty on-road vehicles across major segments
Beyond Charger Numbers

- Focus on Equity
- Vehicle-grid integration
  - Bidirectional charging
- Standard connectors and communications
  - Convenience
  - Grid-friendly charging
- Local “best-fit” solutions
- Financing innovations and continued public support

Source: Ford Motor Company
California Electric Vehicle Infrastructure Deployment Assessment (SB 1000)
Increasing Access to Electric Vehicle Charging Infrastructure for All

Larry Rillera, Air Pollution Specialist
Fuels and Transportation Division
### Comparing 2020 and 2021 Analyses

<table>
<thead>
<tr>
<th>2020 Analysis</th>
<th>2021 Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(published December 2020)</td>
<td>(expected December 2021)</td>
</tr>
<tr>
<td>Public Level 2 and DC fast chargers tend to be collocated with EVs but are unevenly distributed across income groups and population.</td>
<td>Disadvantaged communities have drive times of under an hour to a public DC fast charging station.</td>
</tr>
<tr>
<td>On average, low-income communities have fewer per capita public Level 2 and DC fast chargers.</td>
<td>Low-income communities have a wide range of drive times of up to 3 hours to a public DC fast charging station.</td>
</tr>
<tr>
<td>High-population-density census tracts have fewer public DC fast chargers than low-population-density census tracts.</td>
<td>High-population density census tracts are closer to a DC fast charging station than low-population density census tracts.</td>
</tr>
<tr>
<td></td>
<td>Rural communities have long drive times of up to 4 hours to a DC fast charging station.</td>
</tr>
</tbody>
</table>
2021 Focus: Drive times to DC fast chargers
Summary of 2021 Findings

• About 80% of all census tracts, regardless of income level or CalEnviroScreen score, have population centers that are under 10 minutes from a DC fast charging station.

• **Rural communities** have long drive times of up to 4 hours to a DC fast charging station.

• **Low-income communities** have a wide range of drive time of up to 3 hours to a DC fast charging station.

• **Disadvantaged communities** have drive times of under an hour to a DC fast charging station.

• **High-population-density areas** are closer to a DC fast charging station than low-population density areas.
Takeaways from 2021 Analysis

- Clean Transportation Program funding decisions for DC fast charging incentives should consider prioritizing shorter drive times to faster and newer technology chargers to enhance charging access for underserved populations.

- Drive time maps could be used as a starting point to identify where additional DC fast charging may be needed to close fast-charging gaps. (More analysis is needed to better understand congestion in areas as a result of increased demand.)

- The CEC is committed to enhancing equity across the Clean Transportation Program and is identifying ways to incorporate this analysis into upcoming grant funding opportunities, starting with a solicitation to increase charging access for rural Californians.
Clean Transportation Program
Community Benefits

Larry Rillera
Fuels and Transportation Division
Actions Taken to Elevate Equity

• Reconstituted and diversified the Clean Transportation Program Advisory Committee

• Consulting with the Disadvantaged Communities Advisory Group

• Consulting with the CEC’s Tribal Program and the Tribal Lead Commissioner

• Conducting and tailoring grants to address findings of CA Electric Vehicle Infrastructure Deployment Assessment (SB 1000)

• Established the IDEAL Communities Partnership

• Issuing the IDEAL ZEV Workforce Pilot (pending release)
Actions Planned to Better Define and Track Community Benefits

• Focus on underserved communities
• Capture full spectrum of environmental and socioeconomic benefits
• Listen to communities
• Public engagement process
• Qualitative and quantitative metrics
• Incorporate lessons learned
• Institutionalize continuous/ongoing feedback
Update on Clean Transportation Program

Patrick Brecht
Investment Plan Project Manager
Transportation Policy and Analysis Office
**Update on Light-Duty Charging Infrastructure Investments**

<table>
<thead>
<tr>
<th>Title</th>
<th>Funding</th>
<th>Description</th>
</tr>
</thead>
</table>
| Second Block Grant for Light-Duty Electric Vehicle Charger Incentive Projects (GFO-20-607) | Up to $500 million available. NOPA released September 3, 2021 | - Provide streamlined incentives to install chargers  
- Successor to CALeVIP  
- Two proposed awards, each up to $250 million |
| Vehicle-Grid Innovation Lab (“ViGIL”) (GFO-20-610)                  | Up to $2 million available. NOPA expected September 2021       | - Increase the capacity and throughput of electric vehicle supply equipment’s standards testing  
- Supports charger innovation, development, and commercialization |
| Charging Access for Reliable On-Demand Transportation Services (“CARTS”) (GFO-21-601) | Up to $6 million available. Proposals due October 29, 2021 | - Must demonstrate participation or support from on-demand services (e.g. ride-hailing services, taxi fleets, food delivery services)  
- Three regions of the state, up to $2 million each |

More information available at [https://www.energy.ca.gov/funding-opportunities/solicitations](https://www.energy.ca.gov/funding-opportunities/solicitations). Details are accurate as of September 9, 2021, and subject to change.
## Update on Medium- and Heavy-Duty ZEV Infrastructure Investments

<table>
<thead>
<tr>
<th>Title</th>
<th>Funding</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Block Grant for MD/HD ZEV Infrastructure Incentive Projects</td>
<td>Up to $50 million approved</td>
<td>- Concierge-like model, working directly with eligible applicants to plan and fund infrastructure</td>
</tr>
<tr>
<td></td>
<td>$17 million available to start</td>
<td>- Will include charging equipment and hydrogen refueling station equipment</td>
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</table>
### Update on Recovery and Reinvestment (FY 2020-2021)

**Guiding principles:**
- Speed of Implementation
- Impacted Communities
- Job Creation
- Economic Development

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<tr>
<th>Title</th>
<th>Funding</th>
<th>Description</th>
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</table>
| EV Ready Communities Blueprints – Phase II (GFO-19-603)              | Additional $9.2 million will be allocated to NOPA                       | - Additional awards will be determined based on proposals’ competitively evaluated score  
                                                                             | Revised NOPA expected September 2021                                       | - Expect to fully fund one partial award, plus three new awards |
| Upcoming solicitation – IDEAL Workforce                               | Additional $0.8 million will be included in the solicitation             | - Will supplement original CEC commitment ($5 million) as well as CARB commitment ($1 million) to upcoming solicitation                                                                                         |
| Inclusive                                                             | Solicitation expected September 2021                                    |                                                                                                                                                                                                             |
| Diverse                                                               |                                                                         |                                                                                                                                                                                                             |
| Equitable                                                             |                                                                         |                                                                                                                                                                                                             |
| Accessible                                                            |                                                                         |                                                                                                                                                                                                             |
| Local ZEV Workforce Pilot                                             |                                                                         |                                                                                                                                                                                                             |

More information available at [https://www.energy.ca.gov/funding-opportunities/solicitations](https://www.energy.ca.gov/funding-opportunities/solicitations).
Details are accurate as of September 9, 2021, and subject to change.
# Update on Fuel Production Investments

<table>
<thead>
<tr>
<th>Title</th>
<th>Funding</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Ultra-Low-Carbon Fuel: Commercial-Scale Production Facilities & Blending Infrastructure (GFO-20-608)** | Up to $8 million available | - Pre-applications already received and approved  
- Up to $6 million for new or expanded ultra-low-carbon fuel production facilities  
- Up to $2 million for blending infrastructure projects  
- Diesel substitutes, gasoline substitutes, biomethane, electricity for transportation use |
| **Renewable Hydrogen Transportation Fuel Production (GFO-20-609)** | Up to $7 million available | - Pre-applications already received and approved  
- Expected to provide fuel for stations that serve on-road light-, medium-, and fuel cell vehicles  
- Must be 100% derived from in-state renewable resources |

More information available at [https://www.energy.ca.gov/funding-opportunities/solicitations](https://www.energy.ca.gov/funding-opportunities/solicitations).  
Details are accurate as of September 9, 2021, and subject to change.
More Information

Please visit our [CEC Solicitations page](https://www.energy.ca.gov/funding-opportunities/solicitations) for more information and updates on any solicitation.
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

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

$785 million appropriated in Budget Act of 2021;
$380 million anticipated in FY 2022-23 and 2023-24
Plan for Spending ZEV General Funds by Augmenting Recent Solicitations

Goal – Meet state ZEV goals by administering General Funds quickly and efficiently

Staff reviewed and re-evaluated all oversubscribed Clean Transportation Program Notices of Proposed Awards.

Augmented awards:

- **Hydrogen Refueling Infrastructure**: $27.0 million *(Sufficient to reach 200 stations)*
- **Blueprints for MD/HD ZEV Infrastructure**: $2.4 million
- **Zero-Emission Transit Fleet Infrastructure Deployment**: $16.3 million
- **BESTFIT Innovative Charging Solutions**: $8.2 million
Key Changes in the Revised Staff Draft Version of the 2021-2023 Investment Plan

• Incorporated $1.165 billion General Fund ZEV package to be administered by the CEC over three fiscal years

• Adjusted Clean Transportation Program funding to reflect the addition of ZEV package funds

• Conducting update to Charging Infrastructure Assessment (AB 2127) and leveraging findings to inform CTP investments

• Conducting update to CA Electric Vehicle Deployment Assessment (SB 1000) and leveraging findings to inform CTP investments

• Incorporated feedback from first Advisory Committee meeting and docket submissions
<table>
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<th>Category</th>
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<th>REVISED STAFF DRAFT</th>
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<td>Zero-Emission Vehicles and</td>
<td>Light-Duty Electric Vehicle Charging Infrastructure and eMobility</td>
<td>$30.2</td>
<td>$10.0</td>
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<tr>
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<tr>
<td>Zero-Emission Vehicles and</td>
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<td>Related Needs and Opportunities</td>
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<td>Related Needs and Opportunities</td>
<td>Workforce Training and Development</td>
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<td>Total</td>
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### Combined CTP and General Fund Allocations in Revised Staff Draft

#### Clean Transportation Program + General Fund

<table>
<thead>
<tr>
<th>Category</th>
<th>Funded Activity</th>
<th>2021-2022</th>
<th>2022-2023*</th>
<th>2023-2024*</th>
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</thead>
<tbody>
<tr>
<td>Zero-Emission Vehicles and Infrastructure</td>
<td>Light-Duty Electric Vehicle Charging Infrastructure and eMobility</td>
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<td>$30.1</td>
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<td>Zero-Emission Vehicles and Infrastructure</td>
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<td>$160.1</td>
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<td>Zero-Emission Vehicles and Infrastructure</td>
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<td>Alternative Fuel Production and Supply</td>
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<td>$172.6</td>
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*Subject to appropriation by the Legislature
## 2021-2023 Investment Plan Schedule and Next Steps

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Scheduled Date</th>
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<tbody>
<tr>
<td>Release Draft Staff Report</td>
<td>April 26, 2021</td>
</tr>
<tr>
<td>1\textsuperscript{st} Advisory Committee Meeting</td>
<td>April 29, 2021</td>
</tr>
<tr>
<td>Release Revised Staff Draft</td>
<td>September 8, 2021</td>
</tr>
<tr>
<td>2\textsuperscript{nd} Advisory Committee Meeting</td>
<td>September 16, 2021</td>
</tr>
<tr>
<td>Release of Lead Commissioner Report</td>
<td>Late October 2021</td>
</tr>
<tr>
<td>Seeking Business Meeting Approval</td>
<td>November 2021</td>
</tr>
</tbody>
</table>
Questions for Consideration

1. Do the revised funding allocations in the latest version of the Investment Plan appropriately account for the availability of new General Fund monies? If not, what changes to the investment plan should the CEC consider?

2. Is the CEC appropriately balancing the needs and opportunities for ZEV infrastructure across the light- and medium-/heavy-duty sectors? If not, what changes to the Investment Plan should the CEC consider?

3. Does the Investment Plan reflect the needs of low-income, disadvantaged, or underrepresented Californians and California communities? If not, what changes to the Investment Plan should the CEC consider?
More information:
https://www.energy.ca.gov/programs-and-topics/topics/transportation

Submit e-comments by September 30, 2021 at:

Contact:
Patrick.Brecht@energy.ca.gov