<table>
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<tr>
<th><strong>Docket Number:</strong></th>
<th>19-IEPR-04</th>
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<tr>
<td><strong>Project Title:</strong></td>
<td>Transportation</td>
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<td><strong>TN #:</strong></td>
<td>229018</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>Clean Transportation Program</td>
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<tr>
<td><strong>Description:</strong></td>
<td>Introduction to the 2019 IEPR Staff Workshop on Clean Transportation Program Successes</td>
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<td><strong>Filer:</strong></td>
<td>Harrison Reynolds</td>
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<td><strong>Organization:</strong></td>
<td>California Energy Commission</td>
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<tr>
<td><strong>Submitter Role:</strong></td>
<td>Energy Commission</td>
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<td><strong>Submission Date:</strong></td>
<td>7/18/2019 8:59:45 AM</td>
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<td><strong>Docketed Date:</strong></td>
<td>7/18/2019</td>
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Clean Transportation Program

Staff Workshop on Clean Transportation Program
Successes for 2019 IEPR

Larry Rillera, Fuels and Transportation Division
July 18, 2019
California Energy Commission
Housekeeping

• Restroom Locations
• Emergency Exit
• Vending Machines
Agenda

- Housekeeping and Introduction (10:00 – 10:05)
- Clean Transportation Program Background, Highlights, and Success Stories (10:05 – 10:20)
- Zero-Emission Vehicle Infrastructure (10:20 – 12:00)

Break (12:00 – 1:00)

- Zero-Emission Vehicle Technology (1:00 – 2:00)
- Low Carbon / Clean Air Projects (2:00 – 2:45)
- Clean Transportation Program Funding Summary, Benefits Report Summary, and Benefits Report Methodology (2:45 – 3:45)
- Public Comments
- Closing Comments
- Adjourn
Clean Transportation Program
Origins in Statute

- Established by Assembly Bill 118 (Nunez, 2007)
- Provides up to $100 million per year in funds
- Extended through January 1, 2024 by Assembly Bill 8 (Perea, 2013)
Purpose of Clean Transportation Program

“…to develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.”

- California Health and Safety Code 44272(a)

Complementary goals:

• Improve air quality
• Increase alternative fuel use
• Reduce petroleum dependence
• Promote economic development
## Guiding Policies and Regulations

<table>
<thead>
<tr>
<th>Policy Origin</th>
<th>Goals and Milestones</th>
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<tbody>
<tr>
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<td>2030: …40% below 1990 levels</td>
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<tr>
<td>Executive Order B-55-18</td>
<td>Achieving a carbon-neutral economy by 2045</td>
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<tr>
<td>Senate Bill 1383 (2011)</td>
<td>Reduce emissions of short-lived climate pollutants</td>
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<td>40%-50% below 2013 levels by 2030</td>
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<tr>
<td>Low-Carbon Fuel Standard</td>
<td>Reduce carbon intensity of transportation fuels by</td>
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<td>10% by 2020 and 20% by 2030</td>
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<tr>
<td>Clean Air Act</td>
<td>Reduce NOx by 80% by 2023</td>
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<tr>
<td>Executive Order B-48-18; Zero-emission Regulations</td>
<td>2025: 1.5 million zero-emission vehicles; 250,000 chargers (including 10,000 fast chargers); and 200 hydrogen refueling stations</td>
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<td>2030: 5 million zero-emission vehicles</td>
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<tr>
<td>Executive Order B-32-15</td>
<td>Improve freight efficiency and transition freight movement to zero-emission technologies</td>
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Clean Transportation Program
Projects To-Date (In Millions)

- **Biofuels**: $211.2 million (25%)
- **Electric**: $275.6 million (33%)
- **Hydrogen**: $162.2 million (20%)
- **Fossil Fuels**: $131.1 million (16%)
- **Multiple/Other**: $49.2 million (6%)

Note: As of March 1, 2019

7
Clean Transportation Program Funding Toward Disadvantaged Communities (In Millions)

- Disadvantaged Communities and/or Low Income Communities: $330.3 million (40%)
- Neither Low Income nor Disadvantaged Communities: $332.9 million (40%)
- Statewide or Not Applicable: $166.1 million (20%)

Note: As of March 1, 2019
**Electric Vehicle Charging**

- **Total Investment:** $94.9 million for 9,436 private and public charging
- **ZEV Deployment Goals:**
  - 1.5 million ZEVs by 2025
  - 5 million ZEVs by 2030
- **Supporting Infrastructure Goals:**
  - Executive Order B-48-18: 250,000 EV chargers by 2025 (including 10,000 DC Fast Chargers)
- **California Electric Vehicle Infrastructure Project (CALeVIP)**
- Complement Other Funding Sources
- Innovative Mobility Strategies
Hydrogen Refueling Infrastructure

- **Assembly Bill 8 (2013)**
  - $20 million annual allocation
  - Target: 100 publicly available stations
- **Executive Order B-48-18**
  - Target: 200 publicly available stations by 2025
- **Funded to Date**
  - 39 hydrogen refueling stations are open today
  - 12 are located in disadvantaged communities
  - Capacity of up to 17,000 kg/day (equivalent to 24,000 FCEVs)
ZEV Infrastructure Projects

- Redwood Coast Energy Authority (ARV-14-055)
- ChargePoint, Inc. (ARV-10-012)
- Center for Sustainable Energy (ARV-16-017)
- American Honda Motor Company, Inc. (ARV-13-058)
- Silicon Valley Leadership Group Foundation (ARV-13-043)
- FirstElement Fuel, Inc. (ARV-14-008 and ARV-14-013)
ZEV Technology

- Demonstration and deployment of medium- and heavy-duty vehicles
- On- and off-road vehicle technologies
- Broad range of project, fuel, and technology types
- ZEV infrastructure manufacturing
- Workforce training and development
ZEV Technology Projects

- Proterra, Inc. (ARV-14-044 and ARV-18-026)
- Port of Long Beach (ARV-16-024)
- Cerritos Community College District (600-16-005)
- CALSTART (ARV-11-014)
• Low carbon fuel production, infrastructure, and vehicle deployment
• Focus on waste-based and renewable feedstocks for low carbon transportation fuels
Low Carbon / Clean Air Technology Projects

- South Coast Air Quality Management District (500-12-12 and 600-13-008)
- Pixley Biogas LLC dba Calgren Renewable Fuels (ARV-10-053 and ARV-16-018)
- World Energy (AltAir Fuels, LLC (ARV-14-022))
- CR&R Inc. (ARV-10-052 and ARV-12-005)
1) Describe your organization and the progress or success of the project(s) funded by the California Energy Commission.

2) Highlight the key significance of progress or success of your efforts to date in terms of technology advance, market uptake and growth, supply chain manufacturing, business model formation or other economic, regional, business and environmental benefits.

3) Can you replicate success in potential expansions or new projects? What is your plan for the future? Is your success replicable throughout other regions in California:
   – Various electric and hydrogen fuel cell vehicle submarkets, such as light duty vehicles, transit and school buses, and trucks?
   – EV charging submarkets, such as workplace, public access, destinations, residences, multi-unit dwellings, and fleets?
   – Disadvantaged communities?

4) What government actions do you recommend to address challenges that may impede maintaining current progress or achieving future success? What do you recommend as a specific funding objective for Clean Transportation Program fund?
5) What ideas are worth exploring to spur greater amounts of private investment in conjunction with government incentives in multiple submarkets?

6) What actions are necessary to fully implement electric and natural gas utility grid integration attributes from:
   – Electric vehicle use and electric vehicle charging system installations?
   – Hydrogen fuel cell vehicle use, development of renewable hydrogen and hydrogen refueling stations?

7) What circumstances and conditions are required to increase growth of:
   – Hydrogen refueling infrastructure beyond the first 100 refueling stations to support growth of several hundred thousand hydrogen fuel cell vehicles in California by 2030?
   – Electric charging system installations to support an expected 5 million electric vehicles in California by 2030?

8) Do you anticipate cost reductions in:
   – Electric vehicle charging infrastructure?
   – Hydrogen refueling infrastructure and renewable hydrogen fuel production?

9) What actions are necessary to accelerate cost reductions?
Break
Return at 1:00 pm
1) How have your Energy Commission projects moved the needle forward for ZEV markets?

2) Describe new partnerships, emerging opportunities, or lessons learned from your respective projects.

3) Describe planning and development issues associated with the charging/refueling infrastructure that support deployment of your ZEV technologies.

4) The Clean Transportation Program values ZEV technology demonstrations/deployments that accrue to all communities including disadvantaged communities. Describe how Program investments have resulted in environmental, economic, and equity benefits to these communities.
Panel 3: Low Carbon Questions

1) What role did Clean Transportation Program investment play in your project?

2) Describe the benefits that have accrued to local/regional communities from this investment.

3) What is needed to replicate (or otherwise enhance) the scale of your project within California?

4) What do you see as the next transformative technology? What is needed to bring the technology to market and increase market adoption?

5) As we start moving more towards ZEV technologies and infrastructure, what role do you see low carbon / clean air projects playing in California?

6) Describe best practices or lessons learned from your respective projects.
Clean Transportation Program Funding Summary, benefits Report Summary, and Benefits Report Methodology

- Susan Ejlalmaneshan, California Energy Commission
- Christopher Neuman, National Renewable Energy Laboratory
Public Comments

- 3 minute maximum
- Speak clearly
- State your name
- Identify your affiliation
Next Steps

Docket No. 19-IEPR-04
Project Title: Transportation


Written Comments Deadline: 5:00 pm on August 1, 2019

Thank you!