Regulatory and Infrastructure Landscape

Analisa Bevan
California Air Resources Board

SCAQMD Working Group Meeting – Zero Emission Infrastructure
Overview

- California’s goals and objectives
- Light-Duty ZEVs
- Medium- and Heavy-Duty ZEVs
- Infrastructure
Clean Air Goals

2023: South Coast & SJV Ozone

2030: GHG 40 percent below 1990

2037: South Coast & SJV Ozone

2045: Carbon Neutrality

2050: GHG 80 percent below 1990

2024/25: South Coast & SJV PM2.5

AB 617 Communities
Disadvantaged Community Objectives

- Assembly Bill (AB) 617 directs CARB to identify community level strategies
- Communities seek action on transportation and freight emissions
- Seek rapid transition to zero-emissions
California Leading the Way for a Sustainable Future

Governor Executive Order N-79-20

100% ZEV sales by 2035

Full transition to ZEV short-haul/drayage trucks by 2035

Full transition to ZEV buses & heavy-duty long-haul trucks by 2045*
California’s Clean Car Future

2025: 2 million ZEVs + 1 million PHEVs
2030: 5.7 million ZEVs + 2.3 million PHEVs
2045: 23 million ZEVs + 5 million PHEVs

100% ZEV & PHEV Sales
Advanced Clean Cars II: Proposed ZEV Regulation for MY26-35

- 20% cap on PHEVs
- 26% in 2026
- 34% in 2027
- 43% in 2028
- 51% in 2029
- 60% in 2030
- 76% in 2031
- 82% in 2032
- 88% in 2033
- 94% in 2034
- 100% in 2035

CARB
Advanced Clean Cars II: Proposed Charging-Related Requirements

- **BEVs**
  - Minimum ~150-mile all-electric range (label)
  - Increase on-board charger from 3.3 kW to 5.76 kW
  - Require convenience cord capable of L1 and L2 charging
  - Require DCFC capability and inlet (CCS or adapter)

- **PHEVs**
  - Minimum 50-mile all-electric range (label)
  - Exploring increasing on-board charger size from 3.3 kW and L2 convenience cord
Future of California’s Heavy Duty Trucks

- **Zero Emissions Trucks**
  - Battery-Electric & Hydrogen Fuel Cell Electric

- **Clean Combustion & Low NOx Certified Trucks**

- **Internal Combustion Engines 2010 Technology**

**Statewide Heavy Duty Vehicle Population (Thousands)**

- **2030:** 172,000 ZEVs, 149,000 Clean Combustion
- **2035:** 361,000 ZEVs, 243,000 Clean Combustion
- **2045:** 828,000 ZEVs, 243,000 Clean Combustion
Advanced Clean Trucks Rule

- The first-in-the-world zero emission truck rule
- Adopted by CARB in June 2020
- Will achieve
  - ~100,000 ZEVs by 2030
  - ~300,000 ZEVs by 2035
Proposed Advanced Clean Fleets rule

- Public Fleets
  - 50% of purchases 2024 – 2026
  - 100% of purchases starting 2027
- Drayage Trucks
  - All Class 7 and 8 drayage trucks operating at intermodal seaports or railyards to be full ZE by 2035
- High Priority Fleets

<table>
<thead>
<tr>
<th>Zero-Emission Fleet Percentage</th>
<th>10%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box trucks, vans, two-axle buses, yard trucks</td>
<td>2025</td>
<td>2028</td>
<td>2031</td>
<td>2033</td>
<td>2035</td>
</tr>
<tr>
<td>Work trucks, day cab tractors, three-axle buses</td>
<td>2027</td>
<td>2030</td>
<td>2033</td>
<td>2036</td>
<td>2039</td>
</tr>
<tr>
<td>Sleeper cab tractors and specialty vehicles</td>
<td>2030</td>
<td>2033</td>
<td>2036</td>
<td>2039</td>
<td>2042</td>
</tr>
</tbody>
</table>
Infrastructure

- Access
  - Multi-family homes
  - Truck parking
- Reliability
- Grid considerations
  - Grid capacity, need for upgrades, peak demand
  - Resiliency
- Timing
  - Time to install
  - Phased installation
- Cost
  - Variations in fuel costs
  - Availability of funding
- Hydrogen supply
CARB’s Role

- Vehicle target setting
  - State SIP Strategy, Mobile Source Strategy, Scoping Plan
  - Regulations
- Planning
  - State SIP Strategy infrastructure summary
  - ZEV Market Development Strategy
- Facilitating
  - Coordination with agencies
  - Feedback loop
Thank you
California Energy Commission &
Zero-Emission Infrastructure

September 24, 2021

Elizabeth John, Manager
Medium- and Heavy-Duty Zero Emission Technologies Office
California Energy Commission
EV Charging Infrastructure
Benefits to Californians - EVs

Cleaner transportation

Grid-friendly infrastructure

Convenience

Source: CEC, FreeWire Technologies, Beam Global
# Scope of AB 2127 Assessment

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

- Road and Highway Electrification
- Other EVs

- 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
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
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

Statewide Load Profile (2030)

Total Load = 22-23 GW
Figure 5: Population Density, PEV Density, and Public Chargers by County

At the county level, existing chargers are generally found in areas with high concentrations of people and PEVs, particularly those in the Bay Area and South Coast.

Source: CEC
Off-Road Electrification

- Preliminary update to off-road electricity demand forecast projects significant growth
  - ~7x increase by 2050 in high case, which reflects N-79-20 targets
- Upcoming analysis will discuss off-road charging challenges

![Annual off-road electricity demand](chart)

Source: CEC
Beyond Charger Numbers

- Focus on Equity
- Local “best-fit” solutions
- Financing innovations and continued public support

- Vehicle-grid integration
  - Bidirectional charging

- Standard connectors and communications
  - Convenience
  - Grid-friendly charging

Source: Ford Motor Company
Hydrogen Refueling Infrastructure
AB 8 Reporting Requirements

The “Annual Evaluation” prepared by the California Air Resources Board (CARB) each summer

The “Joint Report” prepared by the Energy Commission and CARB each winter


Key California ZEV Policy Goals

Progress Report
200 Hydrogen Fueling Stations by 2025

172 Public Stations
200 Station Goal

44 Open Retail Hydrogen Fueling Stations
128 With Funding Allocated Hydrogen Fueling Stations (Including CTP)
28 Gap from 2025 Goal

Hydrogen Funding Allocated to Date
$155.6 million

Future Hydrogen Station Funding through 2023
$70 million
Greater Los Angeles Area Station Map

Source: California Energy Commission staff
Percentage of Hydrogen Dispensing in Each Region

- Greater Los Angeles Area: 64%
- San Francisco Bay Area: 28%
- San Diego Area: 4%
- Sacramento Area: 3%
- Connector/Destination: 1%

Source: 2020 AB 8 Joint Agency Staff Report
### Regional Projection for Fuel Demand by 2026

<table>
<thead>
<tr>
<th>Region</th>
<th>Projected # of FCEVs in 2026</th>
<th>H2 Needed for Projected FCEVs in 2026 (kg/day)</th>
<th>H2 Capacity of Stations in 2026 (kg/day)</th>
<th>Additional # of FCEVs That Stations Could Support in 2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Los Angeles Area</td>
<td>22,700</td>
<td>15,900</td>
<td>40,800</td>
<td>35,600</td>
</tr>
<tr>
<td>San Francisco Bay Area</td>
<td>15,700</td>
<td>11,000</td>
<td>21,900</td>
<td>15,600</td>
</tr>
<tr>
<td>Sacramento Area</td>
<td>1,900</td>
<td>1,300</td>
<td>2,300</td>
<td>1,400</td>
</tr>
<tr>
<td>San Diego Area</td>
<td>2,600</td>
<td>1,800</td>
<td>5,700</td>
<td>5,600</td>
</tr>
<tr>
<td>Remainder of the State</td>
<td>6,000</td>
<td>4,200</td>
<td>600</td>
<td>(5,100)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48,900</strong></td>
<td><strong>34,200</strong></td>
<td><strong>71,300</strong></td>
<td><strong>53,100</strong></td>
</tr>
</tbody>
</table>
Network Capacity

• Network capacity of the 46 stations is nearly 15,000 kilograms per day
• Enough to support nearly 21,500 light-duty FCEVs
• 45 planned stations will add nearly 53,500 kilograms per day of capacity
• When all these stations are open, the network will have enough capacity to support nearly 98,000 FCEVs, more forecasted fueling capacity than the forecasted need in 2026
## Clean Transportation Program
### MD/HD Hydrogen Funding

<table>
<thead>
<tr>
<th>Recipient Name</th>
<th>Purpose</th>
<th>Dollar Amount</th>
<th>Nameplate Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equilon Enterprises LLC</td>
<td>Renewable hydrogen fueling station for freight at the Port of Long Beach</td>
<td>$8,000,000</td>
<td>1,000 kg/day station</td>
</tr>
<tr>
<td>North County Transit District</td>
<td>North County Transit District Next Generation Hydrogen Fueling Infrastructure Project</td>
<td>$4,013,750</td>
<td>Unknown, still designing</td>
</tr>
<tr>
<td>Sunline Transit Agency</td>
<td>Liquid hydrogen refueling infrastructure for transit buses</td>
<td>$4,986,250</td>
<td>~1680kg/day station</td>
</tr>
<tr>
<td>Alameda Contra-Costa Transit District</td>
<td>Division 4 Hydrogen Fueling Infrastructure Upgrade</td>
<td>$4,565,975</td>
<td>Unknown at this time</td>
</tr>
<tr>
<td>Center for Transportation and the Environment</td>
<td>NorCAL Drayage Truck Project</td>
<td>$9,185,045</td>
<td>3,000 kg storage 1,600 kg/day station</td>
</tr>
<tr>
<td>Equilon Enterprises LLC</td>
<td>Shell Multi-Modal Hydrogen Refueling Station (at the Port of West Sacramento for Sierra Northern Hydrogen Locomotive Project)</td>
<td>$4,000,000</td>
<td>1,450 kg/day station</td>
</tr>
</tbody>
</table>
Funding
# 2020 Solicitations and Awarded Projects

<table>
<thead>
<tr>
<th>GFO #</th>
<th>Title</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFO-20-601</td>
<td>Blueprints for MD/HD Zero-Emission Vehicle Infrastructure</td>
<td>~$8 million ($7,954,105)</td>
</tr>
<tr>
<td>GFO-20-602</td>
<td>Zero-Emission Transit Fleet Infrastructure Deployment</td>
<td>~$36.2 million</td>
</tr>
<tr>
<td>GFO-20-603</td>
<td>Block Grant for MD/HD Zero-Emission Refueling Infrastructure Incentive Projects</td>
<td>$17 million ($50 million total*)</td>
</tr>
<tr>
<td>GFO-20-604</td>
<td>Hydrogen Fuel Cell Demonstrations in Rail and Marine Applications at Ports (H2RAM) (Joint project with ERDD)</td>
<td>$4 million</td>
</tr>
<tr>
<td>GFO-20-605</td>
<td>BESTFIT Innovative Charging Solutions</td>
<td>~$8 million</td>
</tr>
<tr>
<td>GFO-20-606</td>
<td>Zero-Emission Drayage Truck and Infrastructure Pilot Project (Joint solicitation with the CA Air Resources Board)</td>
<td>$44.3 million CEC (~$108.2 M total)</td>
</tr>
<tr>
<td>GFO-20-610</td>
<td>Vehicle-Grid Innovation Lab (ViGIL)</td>
<td>$2 million</td>
</tr>
</tbody>
</table>
## Future Funding

### CEC ZEV Infrastructure Package - dollars in millions

<table>
<thead>
<tr>
<th>Description</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drayage Trucks</td>
<td>$85.0</td>
<td>$85.0</td>
<td>$80.0</td>
<td>$250.0</td>
</tr>
<tr>
<td>Drayage Truck &amp; Infrastructure Pilot Project</td>
<td>$25.0</td>
<td>-</td>
<td>-</td>
<td>$25.0</td>
</tr>
<tr>
<td>Transit Buses</td>
<td>$30.0</td>
<td>$30.0</td>
<td>$30.0</td>
<td>$90.0</td>
</tr>
<tr>
<td>School Buses</td>
<td>$20.0</td>
<td>$15.0</td>
<td>$15.0</td>
<td>$50.0</td>
</tr>
<tr>
<td>ZEV Manufacturing Grants</td>
<td>$125.0</td>
<td>$125.0</td>
<td>-</td>
<td>$250.0</td>
</tr>
<tr>
<td>ZEV Infrastructure</td>
<td>$500.0</td>
<td>-</td>
<td>-</td>
<td>$500.0</td>
</tr>
<tr>
<td><strong>Total CEC ZEV Infrastructure Package</strong></td>
<td>$785.0</td>
<td>$255.0</td>
<td>$125.0</td>
<td>$1,165.0</td>
</tr>
</tbody>
</table>
Thank you

Contact Information:
Elizabeth John
elizabeth.john@energy.ca.gov
Role of Electric Utilities in Medium/Heavy-Duty Transportation Electrification

Yuliya Shmidt, Advisor to Commissioner Rechtschaffen
California Public Utilities Commission
09-24-21
Outline

Utility Transportation Electrification Programs

Electric Vehicle Rates

Interconnection and Planning for New Load

Additional Policy Considerations
Utility Transportation Electrification Programs
Role of California Public Utilities Commission and Utilities

CPUC regulates investor-owned electric utilities (IOUs)
  • Provide 78% of Californians with transmission and distribution infrastructure
  • Provide half of Californians with electricity
  • Regulated utilities are:
    • Large IOUs: PG&E, SCE, SDG&E
    • Small IOUs: Liberty, PacifiCorp, Bear Valley

Utilities have an “obligation to serve”

CPUC must ensure utilities charge “just and reasonable rates” and provide safe and reliable service
CPUC has authorized over $1.5B in utility investment across dozens of programs of which ~18% have been spent.
Medium and Heavy-Duty (MD/HD) Infrastructure Programs

PG&E and SCE MD/HD Programs (Decision 18-05-050, May 2018)

• $600 million for programs targeting school buses, forklifts, transit agencies and other market segments
• Between 25% and 40% of funds invested in disadvantaged communities

SDG&E MD/HD Programs (Decision 19-08-026, Aug 2019)

• $107 million to electrify approximately 3,000 medium and heavy-duty vehicles
• At least 30% of funds invested in disadvantaged communities

Near Term Priority Investments (Decision 21-07-028, July 2021)

• Creates expedited approval process for new utility programs of up to $20 million each
• Designates medium and heavy-duty TE as a priority category for investment
• At least 50% of funds must be spend in underserved communities
Transportation Electrification Rates
Rate Design: a Crucial Component of TE

- EV rates should accomplish two goals: accelerate TE adoption and incentivize beneficial charging behavior
- Fuel cost savings motivate EV adoption
  - SB350 mandates that EV rates reduce consumer costs compared to conventional fuels
  - Time-of-use (TOU) rates provide fuel cost savings for customers that charge off-peak
- Rates can be time-differentiated, include fixed charges, and be based not just on volumetric use (kWh) but also highest monthly demand (kW)
  - Electric rates can be designed in a variety of ways to uphold policy principles
    - Avoid cross-subsidies
    - Be based on actual grid costs
    - Provide financial incentive for when to charge, and when not to charge, based on grid reliability and GHG conditions
Electricity is Often Cheaper than Gasoline

<table>
<thead>
<tr>
<th>IOU Territory</th>
<th>PG&amp;E/SCE</th>
<th>SDG&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-peak residential EV charging rate ($/kWh)</td>
<td>$0.13</td>
<td>$0.24</td>
</tr>
<tr>
<td>EV fueling is roughly equivalent to ($/gal)</td>
<td>$1.12</td>
<td>$2.07</td>
</tr>
<tr>
<td>% difference to charge EV than to fuel with gas</td>
<td>-72%</td>
<td>-48%</td>
</tr>
<tr>
<td>Total monthly EV fueling cost</td>
<td>$45.50</td>
<td>$84.00</td>
</tr>
<tr>
<td>Total monthly gasoline fueling cost</td>
<td>$162.34</td>
<td>$162.34</td>
</tr>
</tbody>
</table>
Rate Designs Vary by Type of Customer

- Residential charging may be best served with a simple rate such as time-of-use.
- Commercial medium/heavy-duty customers and fleet operators may need a more refined rate design such as a dynamic rate that both deters grid impacts and allows for fuel cost savings.
- SB1000 (Lara, 2018) requires reconsideration of demand charges.
  - Demand charges are assessed to commercial and industrial electric customers based on their highest demand of the month. The charge is intended to compensate the utility for distribution grid costs caused by the customer.
    - For some types of customers, demand charges are a large proportion of their monthly bill.
    - CPUC has approved restructured EV demand charges for each large utility.
Utility MD/HD EV Rates

• PG&E commercial EV Rate (CPUC Decision 19-10-055, November 2019)
  • Subscription-based EV rate design for commercial and industrial customers, similar to cell phone bills
  • Includes transit fleet operators, owners of electric delivery trucks and providers of public charging stations
  • Include time-of-use volumetric energy charges that encourage customers to charge off-peak

• SCE’s commercial EV rate (Decision 18-05-040, May 2018) offers a five-year demand charge “holiday” to promote EV investment for public transit and other fleets

• SDG&E’s commercial EV rate (Decision 20-12-023, December 2020) is a subscription-based rate similar to PG&E
Interconnection and Planning for New Load
Transmission and Distribution for New Load

- **New interconnection requests**
  - New EV customers may request service under a new account or request expanded service under their current account
  - Utilities may need to study the proposed new load to determine if circuit upgrades or other work is necessary
  - CPUC has issued draft resolutions implementing AB841 (Ting, 2020) which ensure that in most cases EV customers will not pay for distribution upgrades for TE load

- **Distribution planning**
  - CPUC has launched a new Rulemaking to study and plan for future new load with a focus on TE

- **Transmission planning**
  - The California Independent System Operator studies the electric grid biannually -- using a demand forecast that incorporates TE -- to determine if new transmission is necessary
Ensuring Sufficient Generation Capacity for New Load

CPUC plans for new generation using a complex ten-year process, Integrated Resource Planning (IRP)

1. GHG Planning Targets
   - Use CARB Scoping Plan to derive range of GHG emissions levels for electric sector

2. CPUC Creates Reference System Plan
   - Reference System Portfolio that meets SB 350 and the adopted GHG target, is reliable, and is least-cost
   - Action Plan
   - LSE Filing Requirements & IRP Planning Standards

3. Procurement and Policy Implementation
   - CPUC provides procurement and policy guidance to ensure SB 350 goals achieved
   - Portfolio(s) transmitted to CAISO for Transmission Planning Process

4. LSE Plans Development and Review
   - LSE portfolio(s) reflects SB 350 goals and Filing Requirements
   - Stakeholders review LSE procurement and implementation plans
   - CPUC checks aggregated LSE portfolios for SB 350 GHG, reliability, and cost goals

5. CPUC Creates Preferred System Plan
   - CPUC validates GHG, cost, and reliability
   - CPUC provides procurement and policy guidance

6. Procurement and Policy Implementation
   - LSEs conduct procurement
   - CPUC monitors progress and decides if additional action needed

Portfolio(s) transmitted to CAISO for Transmission Planning Process Following IRP cycles

1st half of IRP cycle

2nd half of IRP cycle
Additional Policy Considerations
Who Pays for Utility TE Costs?

- Utility costs generally receive one of two ratemaking treatments
- Costs can be treated as expenses
  - Ratepayers pay the costs as they are incurred, without interest
  - Typically used for non-capital investments such as operations and maintenance of facilities, programmatic and administrative costs
- Costs can be placed into ratebase
  - Costs are treated as long-term assets for which ratepayers repay the utility over time, with interest
  - Typically used for “steel in the ground” investments such as transmission and distribution infrastructure, generation facilities
- However, TE investments lead to higher electric sales which can drive down rates
Equity

• Governor Newsom’s Executive Order N-79-20 prioritizes TE accessibility for disadvantaged and low-income communities

• CPUC’s Environmental and Social Justice Action Plan, adopted February 2019, established agency goals including improving outreach and public participation, promoting economic and workforce opportunities, and improving access to services and programs

• CPUC-approved programs direct investment to disadvantaged communities as defined by CalEnviroScreen, which considers pollution levels, income and other socio-economic factors
Vehicle Grid Integration: crucial to TE development

VGI is an umbrella term for a host of measures and behaviors that better integrate EV charging with the electric grid

- **VGI**: smart charging (i.e. charging that is responsive to TOU or dynamic price signals)
- **Vehicle-to-Grid (V2G)**: vehicle batteries feeding power back to the grid
- **Vehicle-to-Home (V2H) or Vehicle-to-Load (V2L)**: vehicle batteries providing power to home or other customer electric load for example during power outages
Benefits of VGI

- Reduce grid impact or even create grid benefit from additional electric load.
- Deliver grid services by providing power back to the grid during needed times.
- Reduce customer cost of charging by allowing drivers to employ managed charging.
- Reduce customer cost of ownership by allowing drivers to earn revenue from their cars.
California Public Utilities Commission

yuliya.shmidt@cpuc.ca.gov
www.twitter.com/CliffCPUC
ZEV Market Development
(a team sport)

September 24th, 2021

Tyson Eckerle
Governor’s Office of Business & Economic Development (GO-Biz)
Executive Order N-79-20

Sets three crucial goals for the ZEV Market:

1. 100% of in-state sales of new passenger cars and trucks will be zero-emission by 2035.

2. 100% zero-emission medium and heavy-duty vehicles in the State by 2045 where feasible and by 2035 for drayage trucks.

3. 100% zero-emission off-road vehicles and equipment by 2035, where feasible.
ZEV Strategy Overview

Goal
Large scale equitable market development

Outcomes
- GHG
  - Reduced Greenhouse Gases
- Air Quality
- Access
- Economic Development & Jobs

Core Principles
- Equity in every decision
- Embrace all ZEV pathways
- Collective problem solving
- Public complements private
- Design for resilience & adaptation

Vehicles
Infrastructure
End Users
Workforce
ZEV Strategy Website

1. Public ZEV Strategy Website
   • Latest information; document repository
   • Progress and metrics tracking

2. ZEV Strategy Document
   • Guiding document: principles, objectives, direction
   • Updated at least every 3 years

3. Annual State Agency Action Plans

4. Annual Pillar Priority
   • Pillar Priorities Implementation Framework
   • Equity Engagement & Implementation

https://business.ca.gov/industries/zero-emission-vehicles/zev-strategy/
State Agency Action Plans

1. Public ZEV Strategy Website
   - Latest information; document repository
   - Progress and metrics tracking

2. ZEV Strategy Document
   - Guiding document: principles, objectives, direction
   - Updated at least every 3 years

3. Annual State Agency Action Plans

4. Annual Pillar Priority Action Plans
   - Equity Engagement & Implementation
   - Multi-Pillar Action Plan
A little summary

• SCAQMD → Implementation/Investment
• CARB → Create Market Certainty
• CEC → Infrastructure Planning and Investment
• CPUC → Infrastructure System Interconnection
• GO-Biz → Coordination

• All (including you) → Problem Solving
What’s Needed Going Forward?

Relentless focus on End Users

Scale, with a focus on Equity.

Getting there takes all of us.
Thank You!

Tyson Eckerle

tyson.eckerle@gobiz.ca.gov
916-322-0563

www.business.ca.gov