# Clean Fuels Outlet Workshop III

**July 13, 2011**

**1:00 to 4:00 PM**

**CalEPA Building**

# Agenda

- Program objectives
- Activities to date
- Proposed regulatory changes
- Example – market share allocation
- Compliance and performance criteria
- Regulation sunset
- Issues needing resolution and feedback
- Next steps

# Objectives

- Ensure that enough fuel is available to support ZEVs when and where it is needed
- Encourage best possible chance for success for both fuel providers and automakers
- Achieve 2050 GHG goals in the LDV subsector including fuel cycle emissions

# 2050 GHG Reduction Targets and ZEV Regulation

- 80% reduction from 1990 levels in 2050
  - 79% of LDVs on road in 2050 are ZEVs
- Requires critical mass of ZEVs by 2025

*This means that, by 2025,*

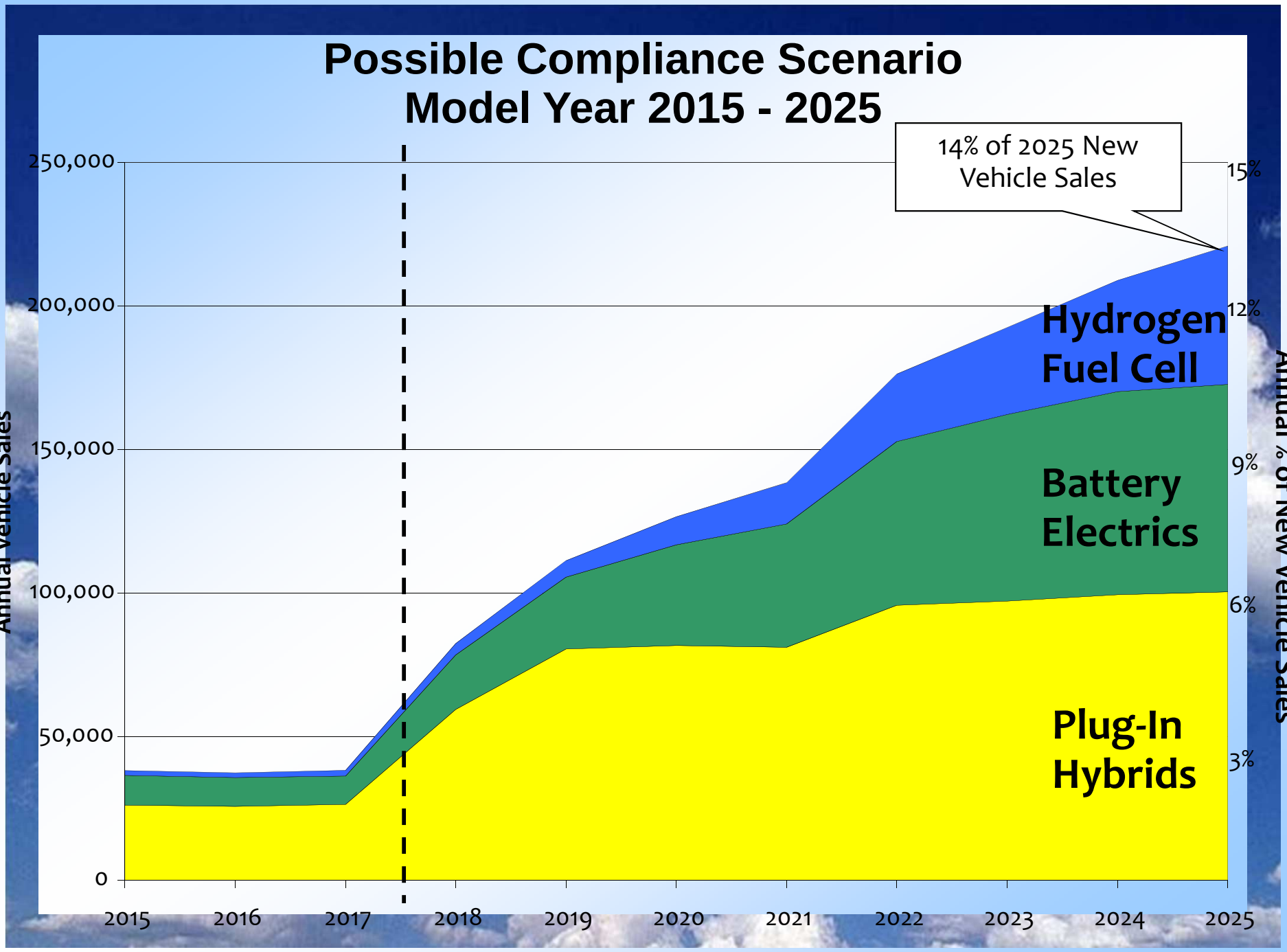
- ZEV technology is commonplace with multiple light duty platforms
- Fueling infrastructure is in-place to meet increasing vehicle demands

# Proposed Changes to ZEV Regulation

- PZEVs and AT-PZEVs will remain as compliance options in the regulation through MY 2017

- Only TZEVs* and ZEVs will remain in the ZEV program 2018 and beyond

*Transitional ZEVs (i.e., plug-in hybrids)


Possible Compliance Scenario
Model Year 2015 - 2025
14% of 2025 New Vehicle Sales
Hydrogen Fuel Cell
Battery Electrics
Plug-In Hybrids
Annual Vehicle Sales
Annual % of New Vehicle Sales
250,000
200,000
150,000
100,000
50,000
0
15%
12%
9%
6%
3%
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

# Minimum ZEV Requirement
# Possible Compliance Scenario

| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|
| **BEVs** | 18,000 | 24,000 | 35,000 | 45,000 | 54,000 | 63,000 | 72,000 | 76,000 |
| **FCVs** | 4,000 | 5,500 | 10,000 | 15,000 | 22,000 | 29,000 | 39,000 | 51,000 |
| **Total ZEVs** | 22,000 | 29,500 | 45,000 | 60,000 | 76,000 | 92,000 | 111,000 | 127,000 |

# Summary – California FCEV Rollout from Survey data

| Region/year | 2011 | 2012 | 2013 | 2014 | 2015-17 |
|---|---|---|---|---|---|
| **All California** | 253 | 312 | 430 | 1,389 | 53,000 |
| **SCAQMD** | 197 | 240 | 347 | 1,161 | 34,230 |
| **LA County** | 104 | 125 | 149 | 484 | |
| **Orange County** | 93 | 115 | 198 | 677 | |

# Why CFO?

Resolution 09-66 adopted at Dec. 2009 board hearing – three tiered approach:

- Financial incentives
- Regulatory incentives
- Regulatory mandate: "Mandate hydrogen through modifications to existing regulations or through a new regulation."

*The CFO is our backstop if other approaches fail to result in sufficient infrastructure.*

# CFO Activities to-date

- First workshop – April 1, 2010
- Second workshop – May 26, 2010
- Stakeholder outreach
  - Oil companies and distributors
  - Automakers
  - ZEV advocates
  - Environmental organizations
  - Industrial gas suppliers

# Alternatives Being Discussed

- MOU – voluntary agreement between oil industry and automakers
- Public-Private partnerships
- Geographic exclusivity for early compliance

*We welcome any alternatives that will result in hydrogen infrastructure.*

Examples of what could be done:

- Pooled funding to build and/or support pre-commercial network
  - Germany: Daimler, Linde and government
  - 20 H2 stations integrated into gas stations
  - Built in 2012 to 2014

# Proposed Amendments

# Proposed Changes - Applicability

Current

- All alt fuels and AFVs certified to LEV standards (CNG, LNG, ethanol and methanol)
- Conversions included
- Electricity fuel specifically excluded from definition of designated clean fuel

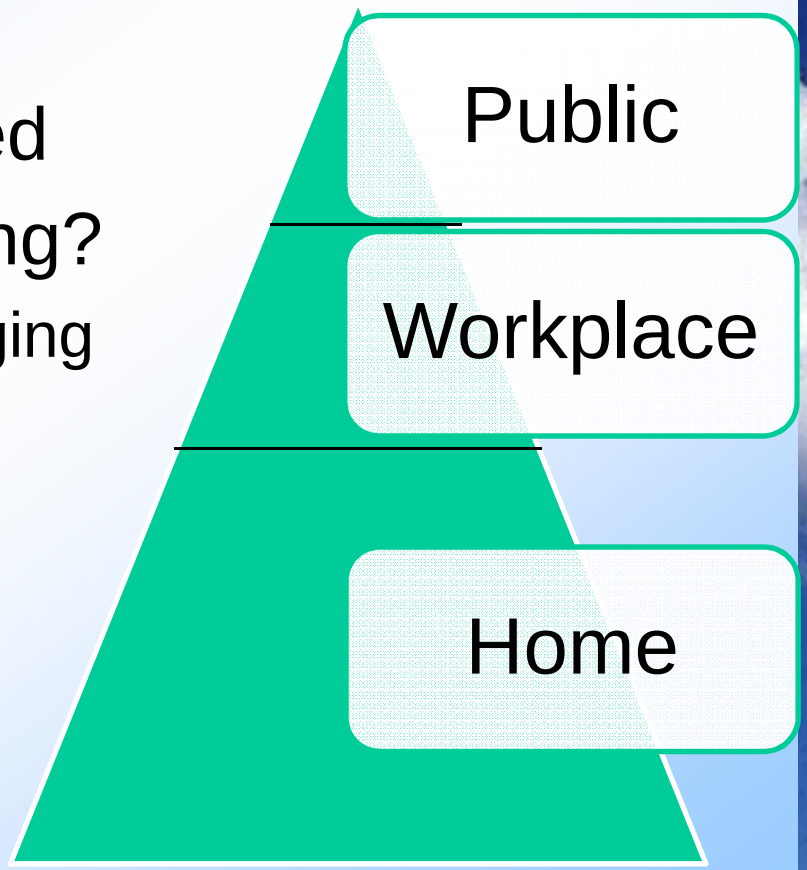
Proposed Changes

- ZEV fuels only
- Focus on criteria and GHG reductions
- Exclude conversions
- Placeholder for BEVs, PHEVs and charging
  - Set metrics and timeline for evaluating need
  - Avoid interfering with current development of private market charging infrastructure

# EV Charging Needs Assessment

Report to board two years after regulation is chaptered

1. How are people charging?
   - Are utility rates encouraging residential off-peak?
   - Are workplace chargers maximized?
   - Is current public infrastructure sufficient?



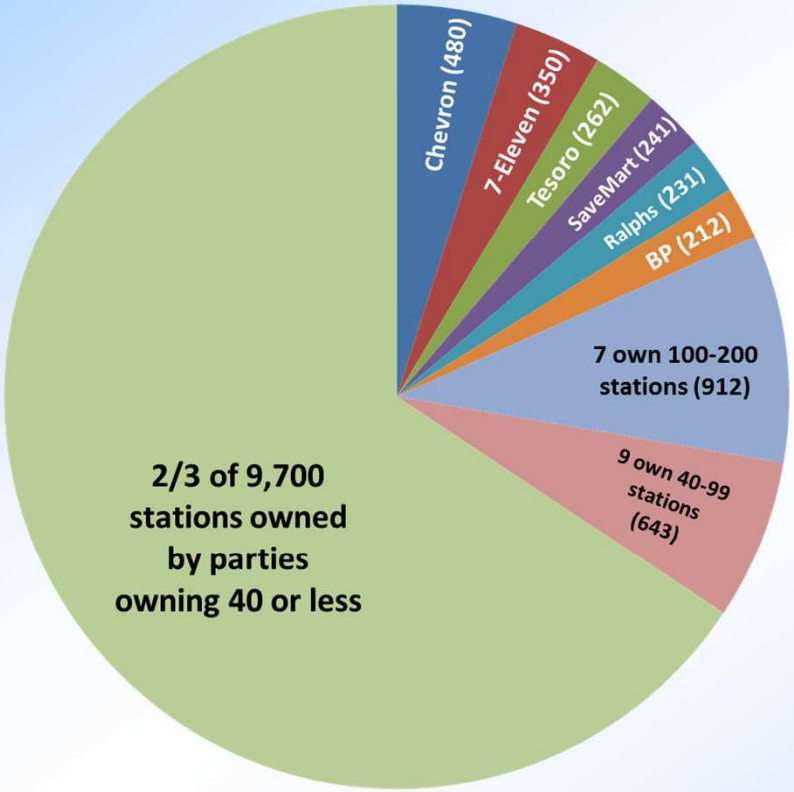
# Charging Needs Assessment-cont'd

2) If more public charging is needed, how much?
   - What types of infrastructure settings will attract EV drivers?
   - Increase overall electric miles driven?
3) What will it public charging look like?
   – Level 2, DC fast charging, or both?
   – Will the fuel be low carbon?
   – Is there a path to profitability for the charging provider?
4) Who will be most able to provide public infrastructure?
   - If there is no path to profitability, who should pay for it?

# Regulated Party for H2

## Current

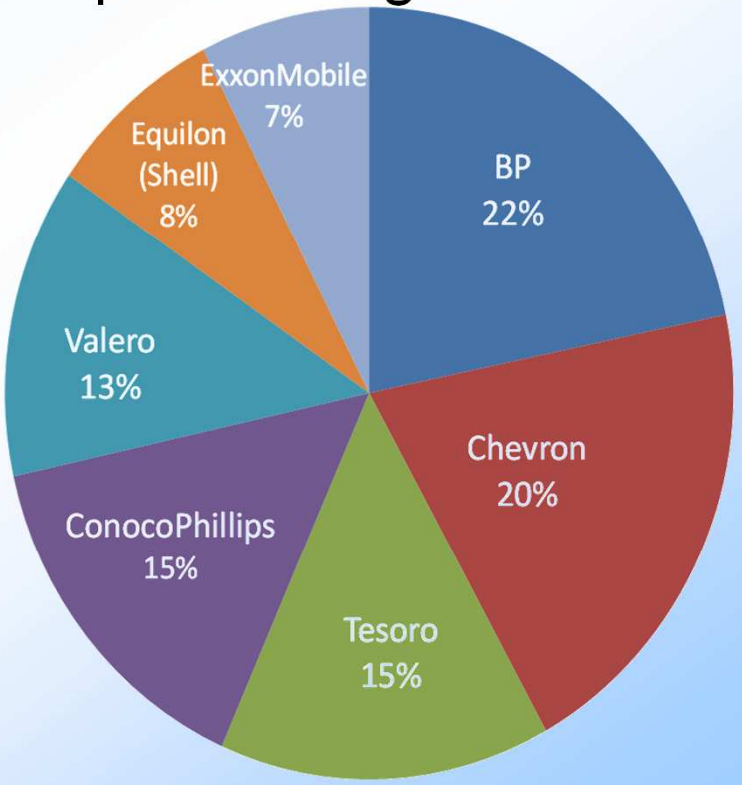
- Owner/lessors of gasoline retail outlets




**Data source: State Board of Equalization, NAICS Code 4471, Jan. 2011**

## Proposed

- Major producers and importers of gasoline




**Data source: Board of Equalization, www.boe.ca.gov/sptaxprog/spftrpts.htm**

# Projections & Activation Trigger

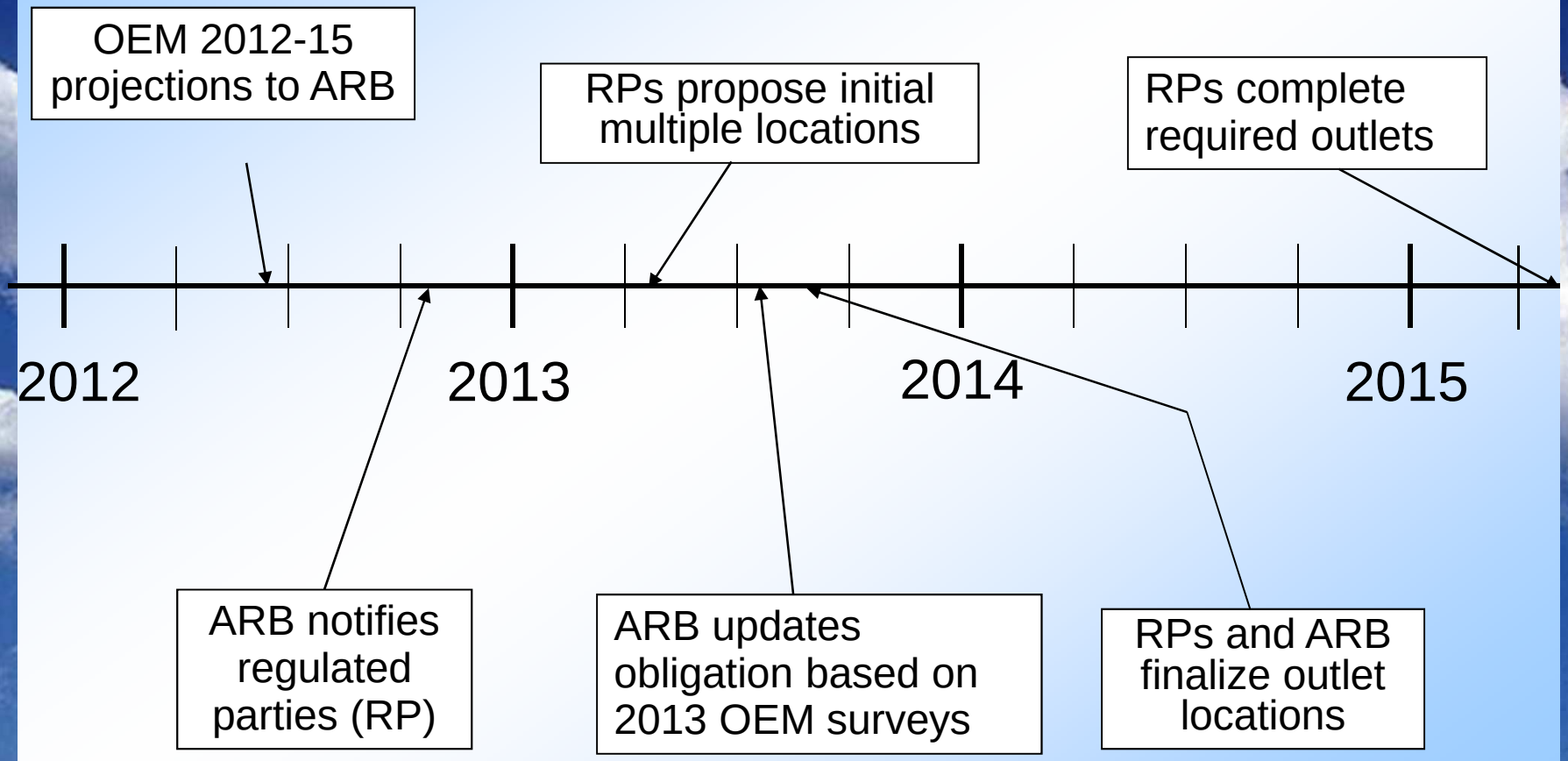
Current

- Annual projections made two years out
  - Next year: 2012-2014
- Number of eligible vehicles based on projections and actual sales and leases
- Triggered at 20,000 of one type of eligible vehicles
- 75% of fleet vehicles subtracted from total

Proposed changes

- Projections three years out
  - Next year: 2012-2015
- Use OEM data only
- 10,000 regional trigger (FCVs)
- 20,000 statewide trigger (FCVs)
- Keep fleet discount
- BEV trigger TBD

# Example-Regional Trigger Most Aggressive Scenario



# Example H2 Need Calculation for Regional Trigger

- Assume 10,000 FCVs driving 13,500 mi/y and getting 50 mi/kg
- Assume existing stations in region contribute 4400 kg/d (1.6 M kg/y) and 21 stations*

  *Estimate based primarily on what current and future funding could support through 2014

- Supply shortfall used to determine number of new stations via 400 kg/d (146,000 kg/y) throughput volume
- Total increase in demand and new stations divided among RPs based on market share

# Example - Obligation by Market Share in SCAQMD Region

| No. FCVs in Region | | 10,000 | | 34,230 | |
|---|---|---|---|---|---|
| Yearly H2 demand | | 2,700,000 | | 9,242,100 | |
| Existing supply anticipated in 2014 | | 1,600,000 | | 2,941,000 | |
| Supply deficit | | 1,100,000 | | 6,238,100 | |
| Kg/d demand & No. new stations | | 3,014 | 8 | 17,337 | 43 |
| BP | 22% | 663 | 2 | 3,814 | 10 |
| Chevron | 20% | 603 | 2 | 3,467 | 9 |
| Tesoro | 15% | 452 | 1 | 2,601 | 7 |
| ConocoPhillips | 15% | 452 | 1 | 2,601 | 7 |
| Valero | 13% | 392 | 1 | 2,254 | 6 |
| Equilon (Shell) | 8% | 241 | 1 | 1,387 | 3 |
| ExxonMobil | 7% | 211 | 1 | 1,214 | 3 |

# Compliance

- Non prescriptive – “Make it happen”
- Locations: ensure focus on target vehicle deployment areas
  - UCI’s STREET model or similar tool
- Will consider flexible compliance options
  - Increase capacity of existing station to help meet requirement
  - Propose larger station in lieu of two 400 kg/d
  - Support on-going O&M of existing funded station for partial compliance

# Station Cost Estimates

Estimates from 2010 CEC awards*

- Gaseous delivery supporting 400 kg/day, with production nearby:
  - $2.3M Capitol cost
- Liquid Delivery supporting 400 kg/day
  - $2.7M Capitol cost

*Source: Revised Notice of Proposed Award (CEC PON-09-608)

# Performance Criteria Post 2014 Stations

- Fueling specifications: meets J2601
- Access: open to public, retail setting
- Dispensing: two each H35 and H70
- Fueling: min. 50 kg/hour during peaks, 300 kg/day for peak periods
- Environmental standards met
  - SB1505 renewable requirements plus emission reductions

# Non-Compliance Penalty

Current regulation fines owner/lessors or station operators as follows:

- Failure of owner/lessor to equip required number of outlets per §2302 results in fine of $500/car for first 10 cars fueled with gasoline each day of violation
- Failure of owner/lessor to provide clean fuel at a specific outlet per §2309(b) results in fine of $500/car for first 5 cars fueled with gasoline at that outlet for each day of violation
- Failure of station operator to meet supply and amenity requirements of §2310 results in $500/car fine for first 5 cars fueled with each day of violation

- Proposed changes: new regulated party will be fined, method to be determined.

# Sunset

- Current: regulation sunsets for a fuel when 10% of all retail outlets in state dispense that clean fuel
- Proposal: sunset regulation when clean fuel outlets (for a fuel) amount to 10% of all the retail gasoline outlets in the state

# Resolution Needed

- OEM surveys:  Can we develop one survey that suits funding and regulatory needs?
- EV charging data collection: What type of public data will be collected by funded projects?

# Areas Needing Feedback

- EV public charging needs assessment
- Trigger: regional and statewide
- Timeline for compliance
- Compliance options
- Station performance criteria
- Future station costs

# Next Steps

- July-Aug. 2011: Continue stakeholder dialog, possible workshop
- Sept. 28, 2011: Regulatory proposal (ISOR, reg language, 399) posted on BARCU website
- Oct. 3, 2011: 45-day comment period begins
- Nov. 17-18, 2011: Board hearing – part of Advance Clean Cars proposal