Overview

- September 2000 Board Meeting
- Staff proposed regulatory changes
- Issues
- Supporting Activities
Reaffirmed commitment to the ZEV requirements

Asked staff to address challenges
- Near-term vehicle availability
- Market stability
- Public education
- Cost

Result--sustainable market for ZEVs
Staff Activities

- Meetings with interested parties
- October workshop
- Staff proposal
- Ongoing discussions
- Additional proposed changes
- Investigation of incentives, infrastructure and outreach issues
Proposed Regulatory Changes

- Staff rationale
- Key elements of staff proposal
- Effect of staff proposal on vehicle numbers, cost, emissions
- Detail of proposed changes
Staff Rationale

- Key conclusions
- Policy implications
- Resulting recommendations
Conclusion--Volume Alone Not the Answer for ZEVs Today

- Policy implications
  - Force ongoing technology improvement
  - Avoid over-investment in near-term technologies

- Recommendation
  - Maintain mandate, but at reduced level
Conclusion--Gasoline SULEV
PZEVs Will Entirely Fill 6 Percent

- Policy implications
  - Additional incentive needed for advanced technology vehicles
  - Higher credit for AT PZEVs within 6 percent will reduce number of ICE gasoline PZEVs

- Recommendation
  - Allow offset against ZEV requirement
Conclusion--
Must Eliminate Uncertainty

- Policy implications
  - Reduce initial risk
  - Look for some degree of manufacturer support

- Recommendation
  - Provide sustainable ramp
Key Elements of Staff Proposal

- Maintain core technology-forcing mandate
- Phase in ZEV and PZEV requirements
- Allow further ZEV reduction if offset with advanced technology PZEVs
- Gradually increase future ZEV requirement
- No multiple credits unless vehicle placed in service
Overview of Vehicle Categories

- Battery EV
- H2 Fuel Cell
- Grid-Connect HEV
- HEV, CNG
- Reformer Fuel Cell
- DM Fuel Cell (?)
- Gasoline ICE PZEV

Current Regulation Staff Proposal
Effect of Proposed Changes

- Number of vehicles
- Cost
- Emissions
Number of PZEVs

- Current Regulation
- Staff Proposal

Bars represent the number of PZEVs from 2003 to 2020, with two categories: Current Regulation and Staff Proposal.
Number of ZEVs--Full Function

- Current Regulation
- Staff Proposal (without AT offset)
- Staff Proposal (with AT Offset)
Number of ZEVs--Mixed

- Current Regulation
- Staff Proposal (without AT Offset)
- Staff Proposal (with AT Offset)
Annual ZEV Placements

The chart above shows the annual placements of Zero Emission Vehicles (ZEVs) from 1996 to 2009. The number of placements has increased significantly over the years, with a particularly sharp rise after 2003. The highest annual placements were in 2009.
Cumulative ZEV Placements
Number of ZEVs plus AT PZEVs

- Current Regulation--ZEVs
- Staff Proposal--ZEVs plus AT PZEVs
Effect of Proposed Changes

- Reduced cost, per Board directive
  - 2003 savings of $130 M to $400 M (depending on compliance strategy)
  - Savings decline in future years as PZEV numbers increase

- Emissions neutrality
Detail of Proposed Changes
## Phase in PZEV Introduction

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Phase in ZEV Introduction

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Reduce Future NEV Credits

- Current Regulation
- Staff Proposal @ 2%
- NEV Credit
Increase ZEV Percentage

Model Year

Required ZEV Percentage


0 2 4 6 8 10 12 14 16 18
Modify Vehicle Categories

- Allow hybrid electric vehicles with an all electric range of 20 miles or more to be counted as ZEVs
- Allow other advanced technologies that are not ZEVs to satisfy part of the ZEV requirement (Vehicles with PZEV score of 0.4 or more)
Give manufacturers that achieve double the PZEV phase-in level in 2003 and 2004 extra time to take advantage of the advanced technology option
Modify the ZEV Range Credit

- Staff Proposal (2003)
No Fast Refuel Credit After 2008

- FCV in 2010, Revised Staff Proposal
- All FFEV
- FCV in 2010, Original Staff Proposal
Provide in-service credits for ZEVs and zero-emission VMT vehicles that have an extended battery or fuel cell stack warranty, and remain in service in California

(0.1 x original credit per year after 3 years)
Advanced ZEV Componentry

- Earned by vehicles equipped with advanced ZEV componentry
  - Current regulation: 0.1
  - Staff proposal: 0.25
  - PZEV HEV will earn 0.45 (not counting efficiency)
Efficiency Multiplier (Revised)

- Calculate “California Miles Per Equivalent Gallon”
- Assign vehicle to class (subcompact, compact, etc.)
- Baseline = Sales weighted average fuel economy for class
- Efficiency score = Vehicle efficiency / 1.5 x baseline

For ZEVs, multiplier phased up as range multiplier phases down, beginning in 2005
For PZEVs, multiplier fully in force beginning in 2005
Demonstration Programs and Transportation Systems

- Allow credits for vehicles placed in an approved demonstration program
  - (Need not be “offered for sale”)

- Allow additional credits for vehicles placed as part of a “transportation system” approach
  - (Station car, car sharing)
Vehicles Placed in Service

- Require that vehicles be placed in service to earn multiple credits
  - (Can’t sit on dealer lot)
Determining ZEV Obligation

- Provide certainty regarding the sales volume number used to determine the ZEV obligation
  - Current regulation: 2003 obligation based on 2003 sales
  - Staff proposal: 2003 obligation based on average sales for 1997-1999
Increase the volume threshold for large manufacturers
  – Current regulation: 35,000
  – Staff proposal: 60,000
Manufacturer Categories

- Phase in ZEV compliance for intermediate manufacturers that transition to large
- Exempt independent low volume manufacturers from the ZEV percentage requirements
Issues

- Number of vehicles, near and long term
- Treatment of various vehicle types
  - Grid connect hybrid electric vehicles
  - Neighborhood electric vehicles
- Fair Market Test
- Electricity demand
Fair Market Test

- Significant staff concerns
  - Premature decision on long term cost
  - Intrudes on Board authority
  - PZEV suspended even though feasible
  - Perpetuates uncertainty
Electricity Demand

- Most charging is off-peak
- Minimal impact
  - Today (2,300 vehicles)
    - Energy use: 0.005% of statewide total
    - Peak power demand: 0.004% of statewide total
  - 2010 (77,060 vehicles)
    - Energy use: 0.136% of statewide total
    - Peak power demand: 0.118% of statewide total
Supporting Activities

- Incentives
- Infrastructure
- Outreach
ZEV Incentives

- Few local $5,000 vehicle buy-downs remain
- New $18 million program (AB 2061)
  - about 2,000 grants now through 2002 (up to $9,000 per ZEV)
- Governor’s $50 million budget initiative
  - about 10,000 grants through 2004 (up to $5,000 per ZEV)
Staff’s proposes expanded stakeholder working group
- Coordinate state and local incentives
- Assess need for new incentives
- Identify feasible new programs, if needed
- Support Federal incentive programs
Infrastructure

- Key recommendation--standardize charging systems
- Staff proposes that ARB adopt regulations June 2001
Infrastructure--continued

- Create stakeholder group to solicit input on:
  - Standardization
  - Maintaining and expanding public charging
  - Developing incentives for infrastructure

- Particular focus needed on incentives to support workplace charging
Outreach

- Expand current public education and outreach efforts
- Create collaborative relationship with stakeholders to develop and implement an outreach plan
Outreach--continued

- Build upon current and past stakeholder efforts
  - Build on CalETC’s draft “EV consumer awareness campaign”
- Hold public workshop in late February
Conclusion

- Staff proposal addresses issues
  - Availability: Early introduction credits
  - Stability: Remove uncertainty
    Smooth ramp
  - Education: Expanded effort
  - Cost: Phase in ZEVs and PZEVs

- Result--sustainable market for ZEVs