

Proposed Amendments to the Zero Emission Vehicle Program

March 27, 2008

Overview

- Current ZEV program
- Regulatory process
- Summary of proposed amendments
- Issues
- Summary and staff recommendation

Program Goals

- Achieve significant air quality benefits
- Push research, development and deployment of zero emission vehicles
- Encourage ZEV commercialization through introduction of ZEV-enabling technology

ZEV Program (2012 – 2014)

Current ZEV Program

“10%” Mandate
42% by volume

~1%

30 %

PZEV



11%

AT PZEV



ZEV



Existing ZEV “Gold” Requirements¹

Years	Fuel Cell Vehicles
2005 – 2008	250
2009 – 2011	2,500
2012 – 2014	25,000
2015 – 2017	50,000

¹ Alternative Compliance Path

Program Achievements

- Introduced Bronze in 1998
- Promoted hybrid electric vehicles through Silver provision in 2001
- Focused research and development of battery electric and fuel cell vehicles

Program Achievements¹

Vehicle Type		Quantity
Gold - ZEV	Fuel cell	160
	Battery electric	4,400
	Neighborhood electric	26,000
Silver – AT ZEV	Hybrid/Compressed Natural Gas	109,000
Bronze - PZEV	Conventional	672,000

¹ Estimated placements through 2006

Timeline

- Expert Panel review 2006 – 2007
- ZEV Status Report, May 2007
- Public workshop, July 2007
- ZEV concept paper, November 2007
- Initial Statement of Reasons,
February 8, 2008

Rationale for Proposed Amendments

- Respond to Board's direction at May 2007 hearing
 - Align program requirements to reflect Expert Panel's findings and market status
 - Create opportunities for emerging technologies
 - Simplify program requirements

ZEV Challenges

- More development needed before gold vehicles ready for commercialization
- Existing requirements
 - force premature, large scale fuel cell production
 - limit flexibility and technology options
- Pace of future development difficult to predict, requiring regular course corrections



Summary of Significant Amendments

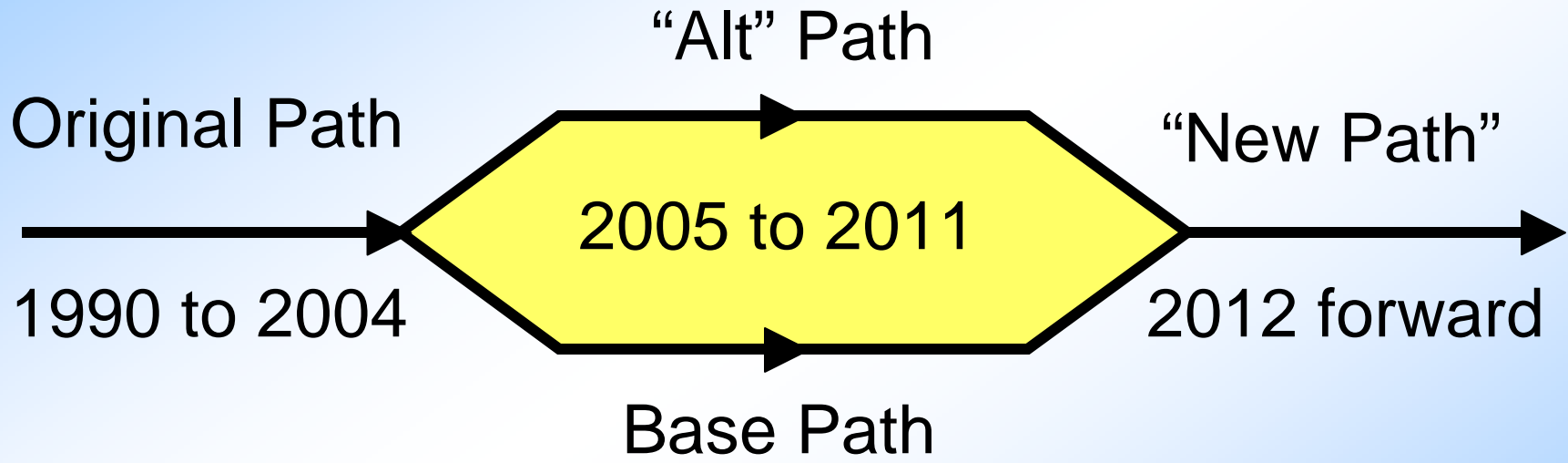
Summary of Proposed Amendments: Significant Changes

- Creation of New Path (2012 and onward)
- Revise credit system
- New categories for emerging gold technologies

Summary of Proposed Amendments: Other Changes

- Revise Silver credits
- Increase credits for NEVs
- Extend Travel Provision
- Extend transition for intermediate volume manufacturers
- Increased transparency of manufacturer credit

Creation of "New Path"



Result:

**Battery EVs /
NEVs**

fuel cell/banked credit

**battery, fuel
cell, plug-in
hybrid**

Gold Requirements

Summary of
Proposed
Amendments

	2012 – 2014	2015 – 2017
Allowable Option	minimum 2,500 gold with 75,000 Silver +	minimum 25,000 gold with 83,333 Silver +
Current Requirements	25,000	50,000

Silver Plus Category

- Silver earning one or more credits
- Use of ZEV fuel
- Examples:
 - Plug-in hybrid electric vehicles
 - Hydrogen internal combustion engine vehicles

Gold and Silver+ Option

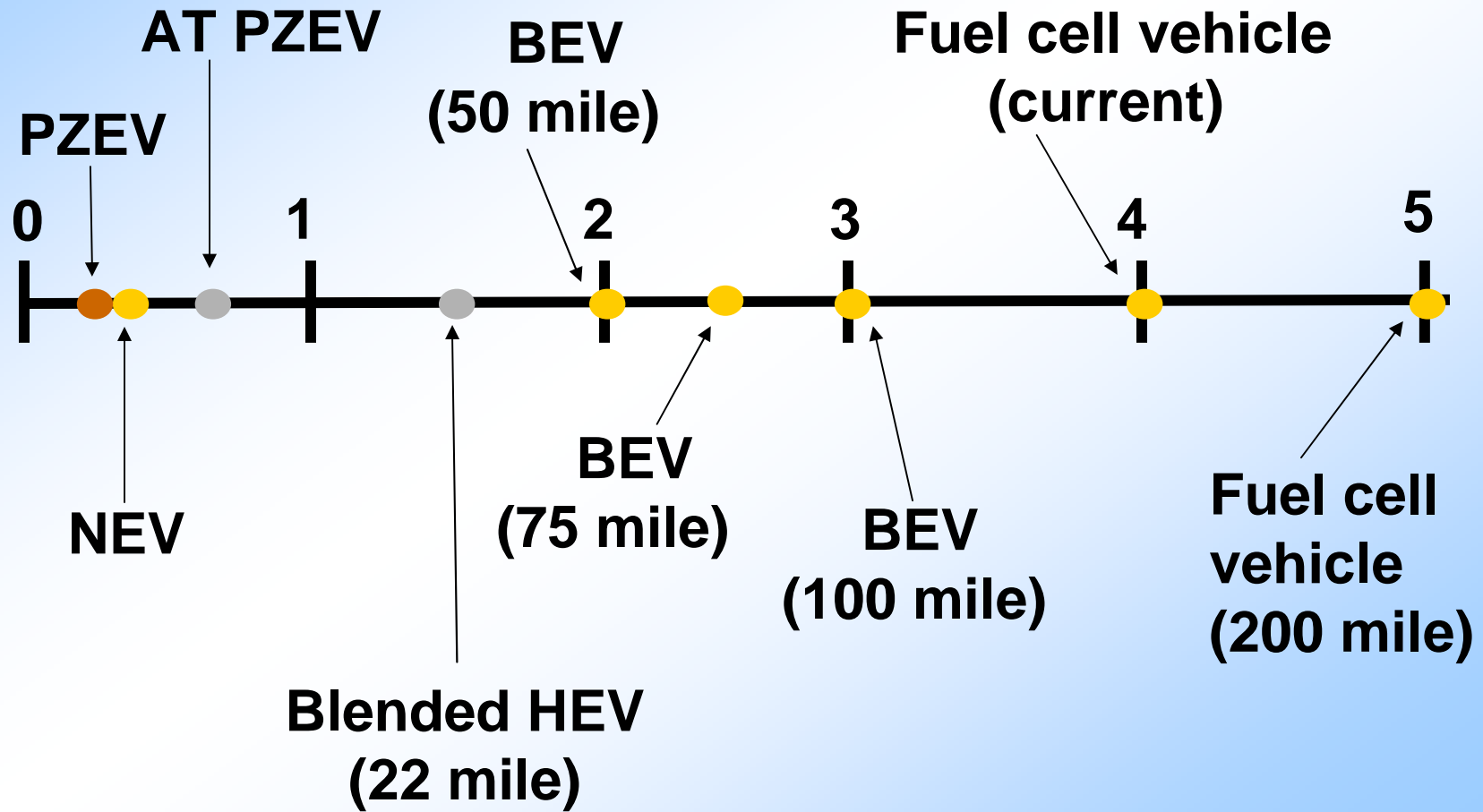
	2012 – 2014	2015 – 2017
Minimum Gold with Silver Plus ¹	2,500 +75,000	25,000 +83,000
Total Vehicles	=77,500	=108,000
Gold Only	25,000	50,000

¹ Assumes a 22-mile electric range blended HEV. Number of vehicles will vary if vehicle has different credit values.

Two New ZEV Types

- Type I.5
 - City battery electric vehicle
 - 75 to 100 mile range
- Type IV
 - Advanced fuel cell vehicle
 - Minimum 200 mile range/fast refueling capable

Credit Per Vehicle



Significance of Credits

Compliance example: 2,500 FCV₂₀₀ needed

ZEV Type		Credit	Number of Vehicles
IV	FCV 200	5	2,500
III	FCV 100	4	3,125
II	BEV 100	3	4,167
I.5	BEV 75	2.5	5,000
I	BEV 50	2	6,250
NEV	NEV	0.3	not allowed

Treatment of Battery Electric Vehicles in the Alt Path

	Current Cap	Proposed Cap
Type I	50 percent	0
Type I.5	N/A	0
Type II	50 percent	0

Increase Credits for NEVs

- Double existing credit per vehicle from 0.15 to 0.30
- Reflects positive environmental benefits
 - Reduced cold starts
 - Zero emissions for short trips
- Limited functionality and range

Carry Forward/Carry Back

Summary of
Proposed
Amendments

	2009	2010	2011	2012	2013	2014
Carry Forward	Gold ZEV credit earned			Only used for meeting Silver Plus, Silver and Bronze requirements		
Carry Back				not met	not met	Gold vehicles produced

Retains Full Credit

Public Disclosure of Production and Credit Data

- All production data to be made public beginning in 2009
- Release of ZEV credit bank balances in model year 2010
- Disclosure will allow more complete participation by all stakeholders



Section 177 (Travel) Provision

Summary of
Proposed
Amendments

Provision Sunset Year

ZEV	BEV 50	BEV 75	BEV 100	FCV	FCV 200
Existing	N/A			2011	N/A
Proposed	2014			2017	2017

- Other states able to adopt LEV/ZEV regulations

Transition for IVMs

Years	1 to 6 "Lead Time"	7 to 9 Ramp Up 1	10 to 12 Ramp Up 2	13+
Gold	0%	0%	0%	Full ZEV Program
Silver	0%	25%	33%	
Bronze	100%	75%	67%	

Summary and Staff Recommendation

Expected Number of Vehicles

– for the purpose of meeting the requirements

Type	2009-2011*	2012-2014	2015-2017
Gold Fuel Cell Vehicles	250	2,500	25,000
Or Gold City EVs	0	5,000	50,000
Silver+	30,000	75,000	83,000
Silver	107,000	95,000	153,000
Bronze	700,000	1,260,000	1,260,000

*Includes probable credit use

Number of Gold and Silver Plus for 2012 to 2017

	Existing	Proposal	
		Maximum use of FCVs	Minimum use of FCVs
Gold	75,000	75,000	27,500
Silver Plus	0	0	158,333
Total	75,000	75,000	185,833

Air Quality Impacts

(tons in thousands)

	ROG + NOx	CO2
Current Regulation	17	21,000
Proposed Amendments	10	15,450
Average Emission Reduction	7	5,550

Issues

Minimum Number of Gold ZEVs In 2012 and Beyond

Staff proposal:

Allows 25,000 vehicle gold requirement to be reduced to 2,500 if backfilled with silver plus vehicles

Issue:

Should minimum number of ZEVs (“floor”) be increased?

Pro:

- Accelerate commercialization of ZEVs
- Accelerate fueling infrastructure

Con:

- FCVs not ready for commercialization
- Costs too high

Credits for FCVs Relative to BEVs

Staff Proposal:

FCVs get 4 or 5 credits; BEVs get 2-3.

Issue:

Should credit for FCVs relative to BEVs be increased?

Pro:

- Helps assure continued investment in FCVs despite higher cost than BEVs
- Helps overcome greater barriers to commercialization

Con:

- Continued investment in FCV seems certain
- Emission benefit doesn't justify difference

Public Disclosure of Production and Credit Data

Staff proposal:

All production data to be made public beginning in 2009; release of specified ZEV credit bank balances in model year 2010

Issue:

Should trades be made public?

Pro:

- Provide all interested parties with all data for analysis

Con:

- Could compromise and reduce trades
- Disclose could impact credit monetary value

Transition for Intermediate Volume Manufacturers

Staff proposal:

Extend phase-in from 6 to 12 years, with silver requirement ramping up over last 6 years

Issue:

Should phase-in be shortened?

Pro:

- All but one IVM already demonstrating ZEVs
- Requirement known for a long time

Con:

- May cause BMW to abandon H2ICE development

Number of ZEVs Required in Other States (“Travel”)

Staff Proposal:

ZEV numbers not affected by other states until 2014 for BEVs and 2017 for FCVs

Issue:

Should Silver Plus vehicles be included within this provision?

Pro:

- Softens introduction ramp of new technology

Con:

- Reduces numbers of vehicles in California
- Technology ready for full commercialization
- Infrastructure not an issue

Staff Recommendation

- Approve the proposed amendments
 - Increase air quality benefits
 - Encourage emerging technologies
 - Maintain progress in transforming California's vehicle fleet to zero emissions

Additional Activities

- Alternative Fuel Incentive Program
- AB 118
- California Fuel Cell Partnership
- California Hydrogen Highway Network
- Driveclean.ca.gov

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Staff Presentation Concluded