

Consumers & Fuel Economy

CAR Management Briefing Seminars | Traverse City, Michigan | August 2016



AUTO ALLIANCE
DRIVING INNOVATION®

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Setting the Table...

Consumers, Business & Government = Success

CAFE



- Goals are meaningful & aggressive
- Success requires **SHARED** commitment
- CAFE already yielding significant progress
- Need an open, honest conversation about post MTE predicated on real analysis
- **Failure is bad** for everyone/society;
balance is important
- Yet only OEMs have real skin in the game



"If we don't quite get there ... it is not going to be the fault of those companies... They are trying hard. They are working. They are investing."

Gina McCarthy | EPA Administrator | January 13, 2014

Industry R&D Spending
2015



High Mileage Vehicles
2016

40+ MPG
(Highway)



30+ MPG
(Highway)



Hybrid & Electric Models for Sale
2016

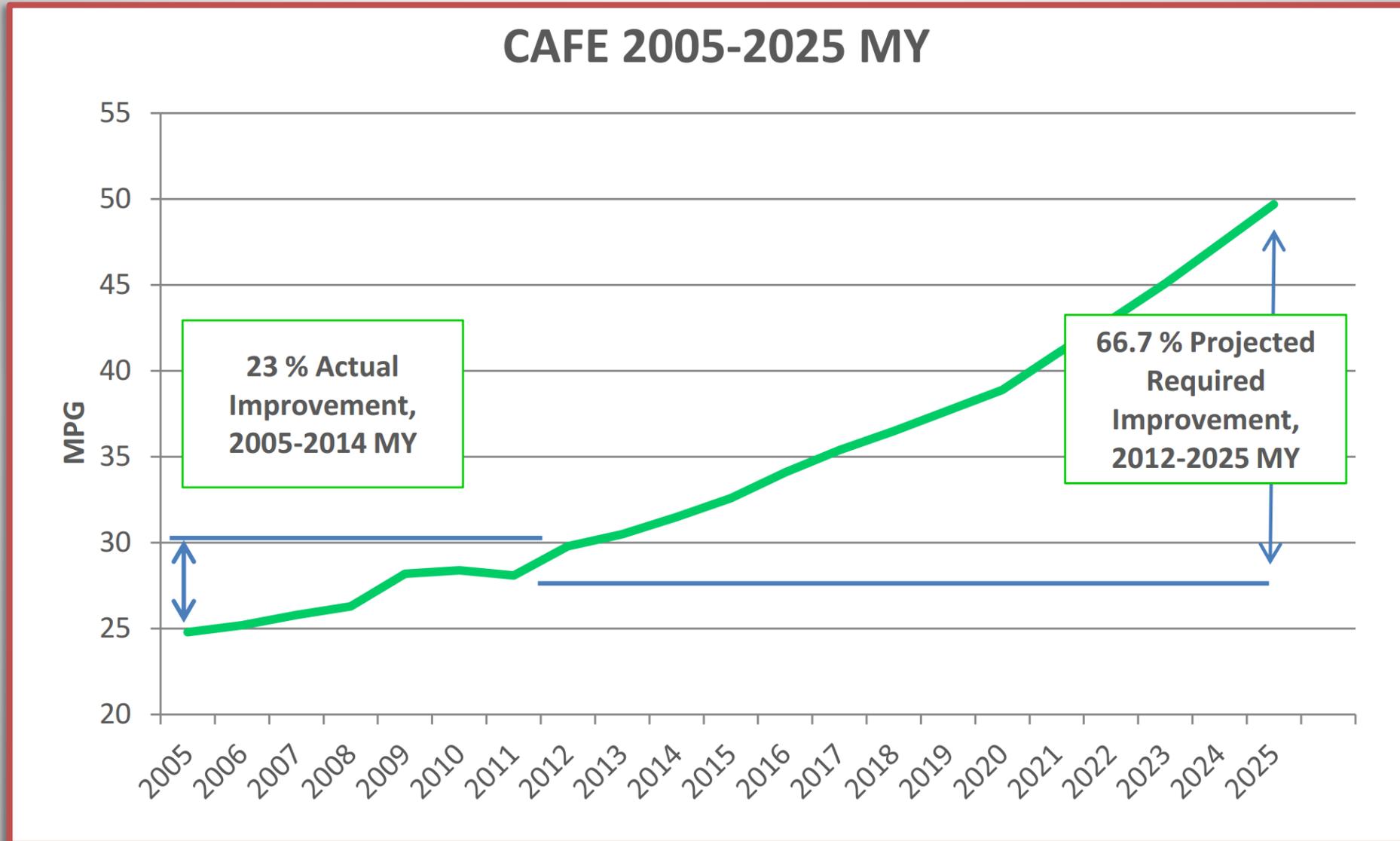
Hybrid & Plug-in



Electric

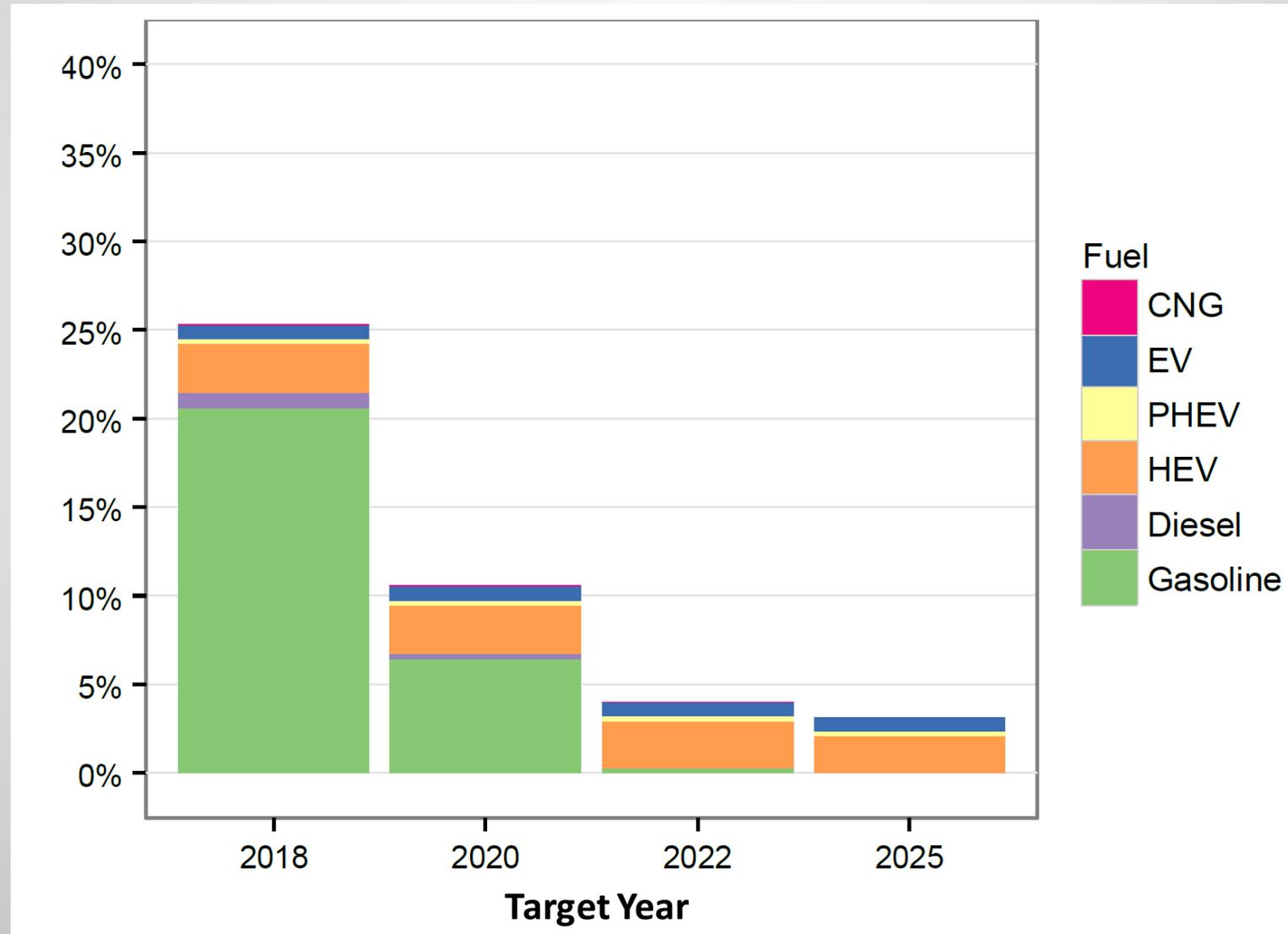


The Road Ahead Gets Steeper and Tougher



And Very Few Products Now Get There...

MY 2015 Vehicle Production That Meets Future CO2 Emission Targets with Current Powertrains



**Here's How Regular
People Reflect on These
Issues...**

Climate Low on Perceived Threats...

The biggest threat facing the United States today:

Terrorist attacks	31%
Race relations	22
Weak economy	20
Climate change	11
Something else	13

Is climate change = global threat that requires greater government regulations even if that raises prices on new cars or is the cost of government regulations to achieve better FE and lower carbon emissions pricing new cars out of reach of many American families?

		DEM	GOP	Other
Global threat, more regulations	42%	70	18	38
Pricing new cars out of reach	41	16	64	42

Source: Auto Alliance Polling 2016

Mobility Essential; Gas Price Stable

Should mobility be discouraged because cars increase carbon levels and harm the environment or should mobility be encouraged because it provides people the freedom and flexibility to decide where they live and work?

		DEM	GOP	OTHER
Discourage mobility	16%	25	9	14
Encourage mobility	69	54	82	71

Thinking about gas prices over the next decade, will they:

Decline	9%
Remain roughly the same	28
Increase slightly	35
Increase a lot	19

Like Idea of EVs But No Appetite to Pay...

If electric cars cost the same as cars with traditional gas-powered engines, and also could travel 250 miles per charge, would you prefer to purchase an EV or a traditional gas-powered car?

		DEM	GOP	OTHER
EV	48%	64	33	44
Gas	43	30	58	43

How much more would you pay for an electric car if you could plug the car in at home and avoid the cost of buying gas?

Nothing	43%
Up to \$2,000	28
\$2,000-\$5,000	12
\$5,000-\$10,000	5
More than \$10,000	2
Not Sure	9

Just 7% would pay more than 5K

CAFE Standards Seen as Too Aggressive...

Car companies are obligated to reach an average FE standard of 54.5 MPG by 2025. OEMs say under the new standard, consumers will have to pay more for cars and buy more hybrids and EVs. Is the 54.5 MPG target:

5 to 1 see CAFE as too aggressive

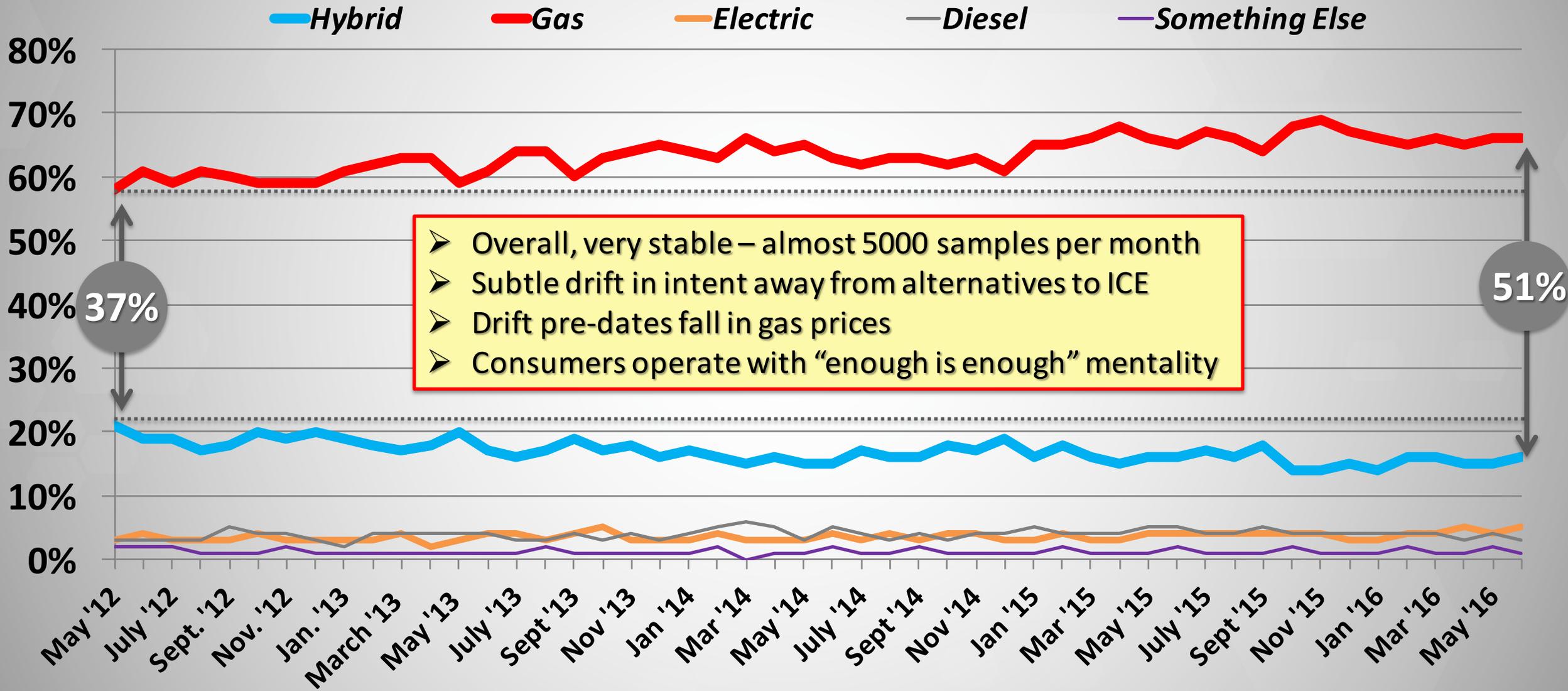
		DEM	GOP	OTHER
Far too aggressive	22%	12	35	20
Too aggressive	25	19	35	22
About right	36	49	21	38
Too lenient	7	12	2	7
Far too lenient	3	2	1	4
Not sure	7	7	6	9

Our Thoughts on the TAR

Concern 1: Consumer Acceptance

- **Yes - people care about fuel efficiency**
- **But they care even more about other factors...**
- **Policymakers want consumers to optimize but they are saying “enough is enough - we have a range of priorities”**

What Type of Engine Will Your Next Vehicle Most Likely Be Powered By?



Source: Alliance Auto Index 2012-2016



EV and Hybrid Loyalty Falls to All-Time Low, Even as Overall Fuel Economy Thrives, Says Edmunds.com

Follow-up to 2015 Earth Day Study Shows Alt-Fuel Trade-ins Are More Likely to Go Toward a SUV Purchase than another EV or Hybrid

SANTA MONICA, Calif. — April 21, 2016 — Only 27.5 percent of all hybrid and electric vehicle trade-ins in 2016 have been applied to the purchase of another hybrid or EV, according to a new analysis from car shopping destination Edmunds.com. The rate is a precipitous drop from the 38.5 percent of hybrid and EV trade-ins in 2015.

Vehicles Purchased in Connection with a Hybrid or EV Trade-in (Select Segments)

Segment	2015	2016*
Hybrid or EV	38.5%	27.5%
SUV	29.0%	33.8%
Truck	4.1%	5.3%
Compact/Subcompact Car	8.9%	12.1%
Luxury	11.1%	11.5%

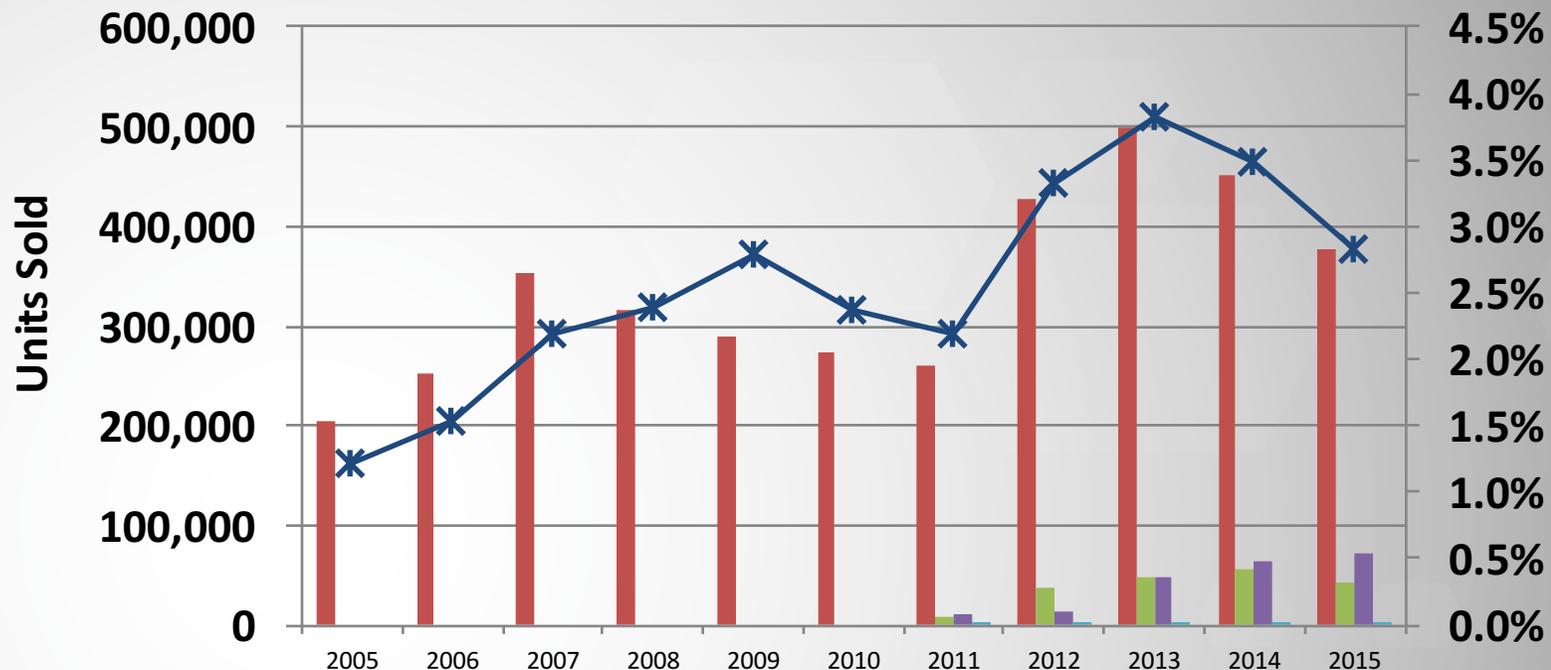
purchase of a SUV (33.8 percent) than another hybrid or EV. It's also apparent when looking only at EV trade-ins — 25.7 percent of EV trade-ins went toward a SUV, compared to just 4.8 percent that went toward another EV.

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Segment	2016*
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SUV	33.8%
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Alternative Powertrain Sales And Percentage Of All Volume

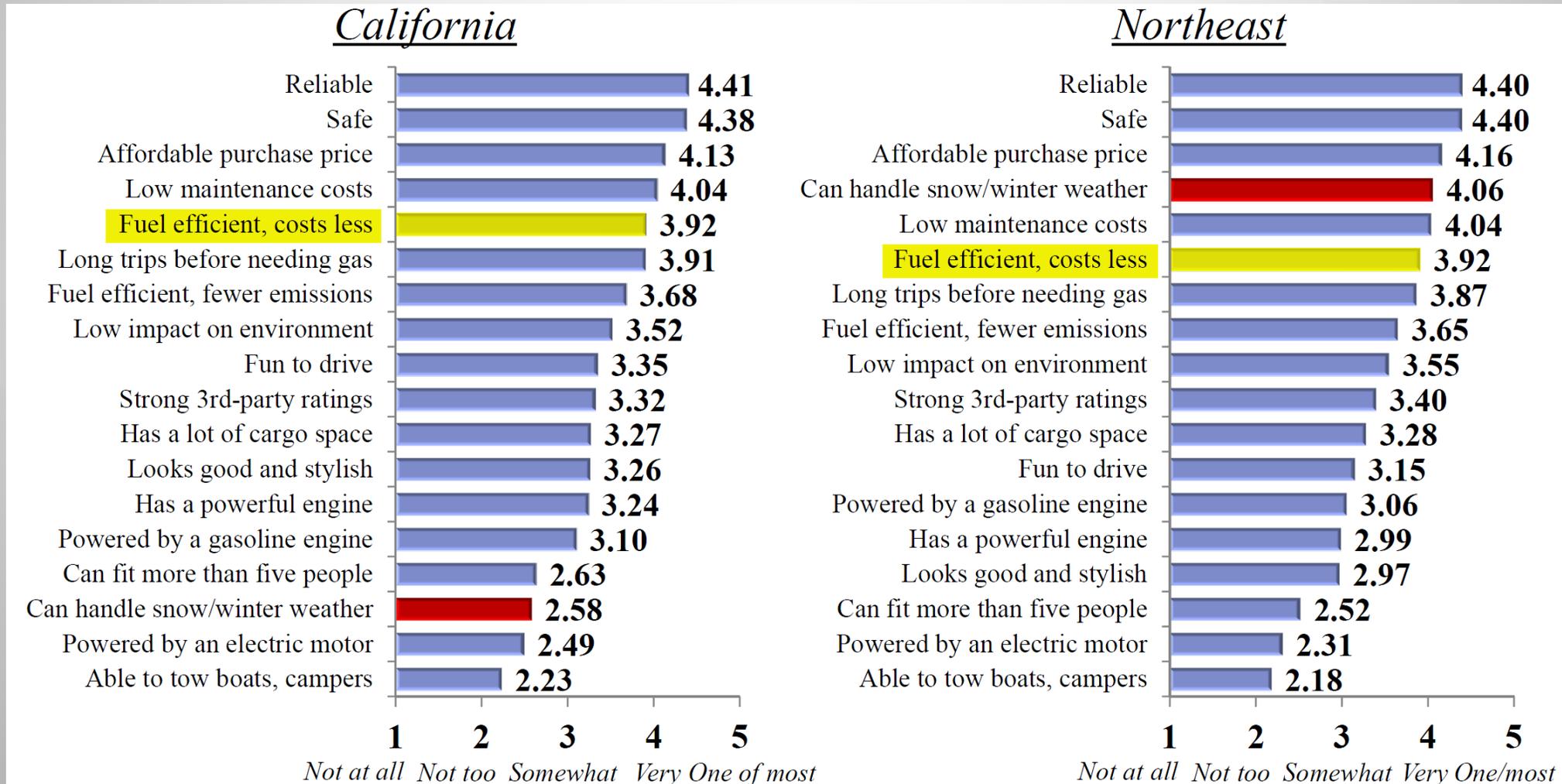
Hybrids Plug-in Hybrid Electric Hydrogen * Percent All Volume



- “EV and Hybrid Loyalty Falls to All-Time Low”
- Premise that exposure is all it takes is false
- Purchases down two years in a row

Buyers Largely Value The Same Attributes in CA and NE

When buying or leasing a vehicle how important is the following factor to you?



Fuel Efficiency Not Nearly The Biggest Driver

Fuel economy, although important, is not a top purchase reason for new car buyers.

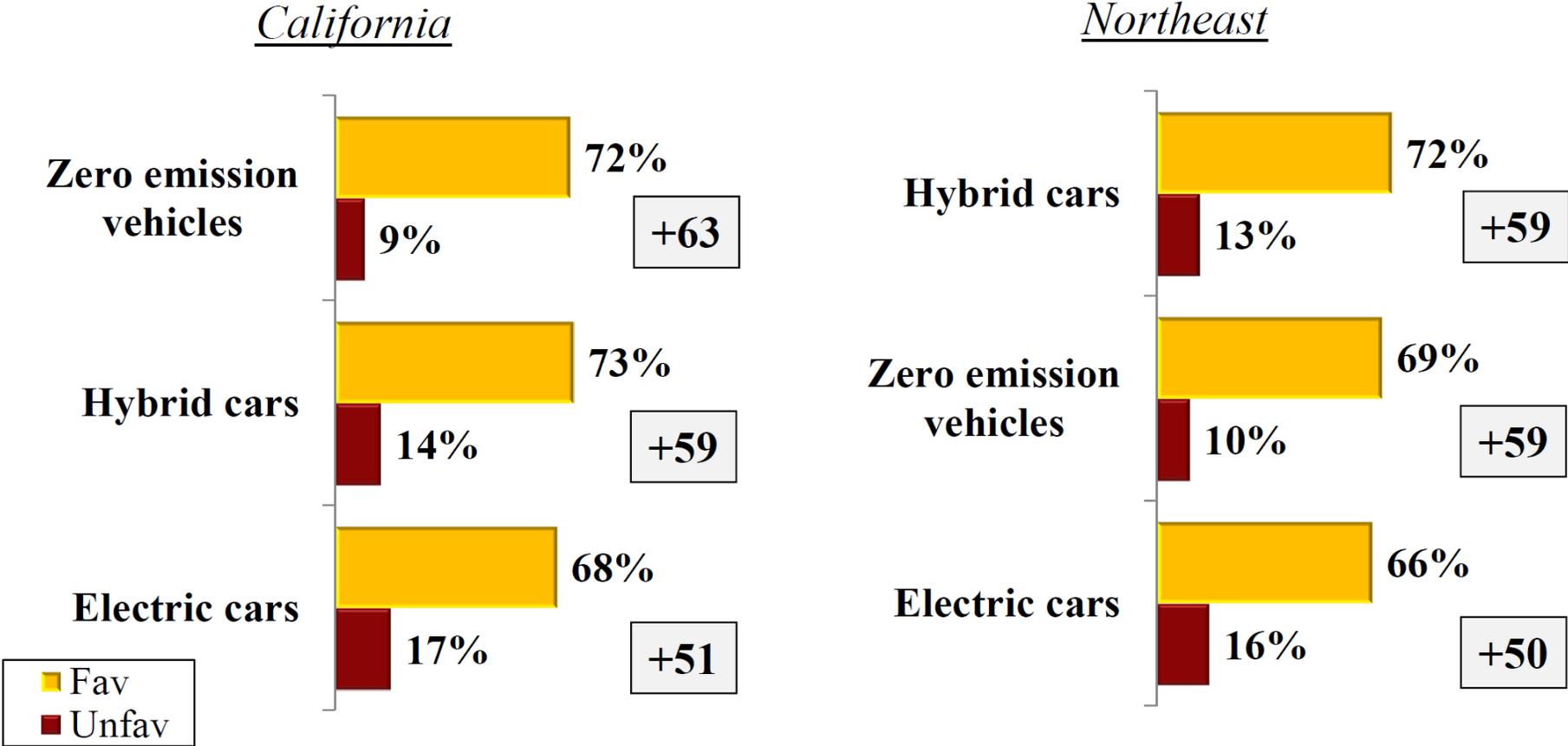
Rank	Purchase Reasons	Percent
1	Overall Safety of the Vehicle	63%
2	Overall Driving Performance	59%
3	Overall Value for the Money	58%
4	Overall Impression of Durability/Reliability	58%
5	Price/Deal Offered	56%
6	Safety Features	56%
7	Riding Comfort	54%
8	Handling	53%
9	Braking	52%
10	Comfort of Front Seat	52%
11	Affordable to Buy	50%
12	Road Holding Ability	50%
13	Front Visibility	50%
14	Engine Performance	50%
15	Warranty Coverage	50%
16	Overall Seat Comfort	48%
17	Overall Exterior Workmanship	47%
18	Maneuverability	47%
19	Fun To Drive	46%
20	Fuel Economy/Mileage	46%

Source: NVES 2015 Survey

In 2015, after reviewing the Strategic Vision survey results, the NAS panel concluded that, **“...while consumers value fuel economy, they do so in the context of other attributes they also value... they look for the most fuel-efficient version of a vehicle they already want to purchase... Consumers are buying fuel efficient versions of vehicles that suit their wants and needs.”**

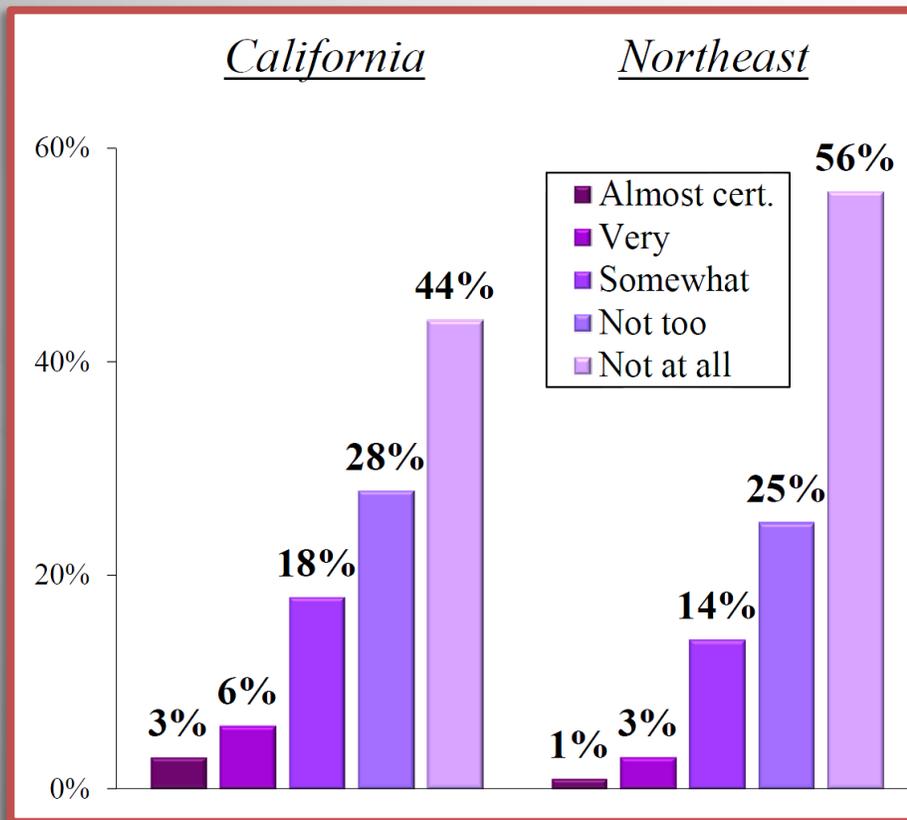
Favorability of Alternatives Doesn't Translate Into Sales

Automobile Favorability – Ranked by Net Favorable



Few Are Actually In The Market For A Plug-In

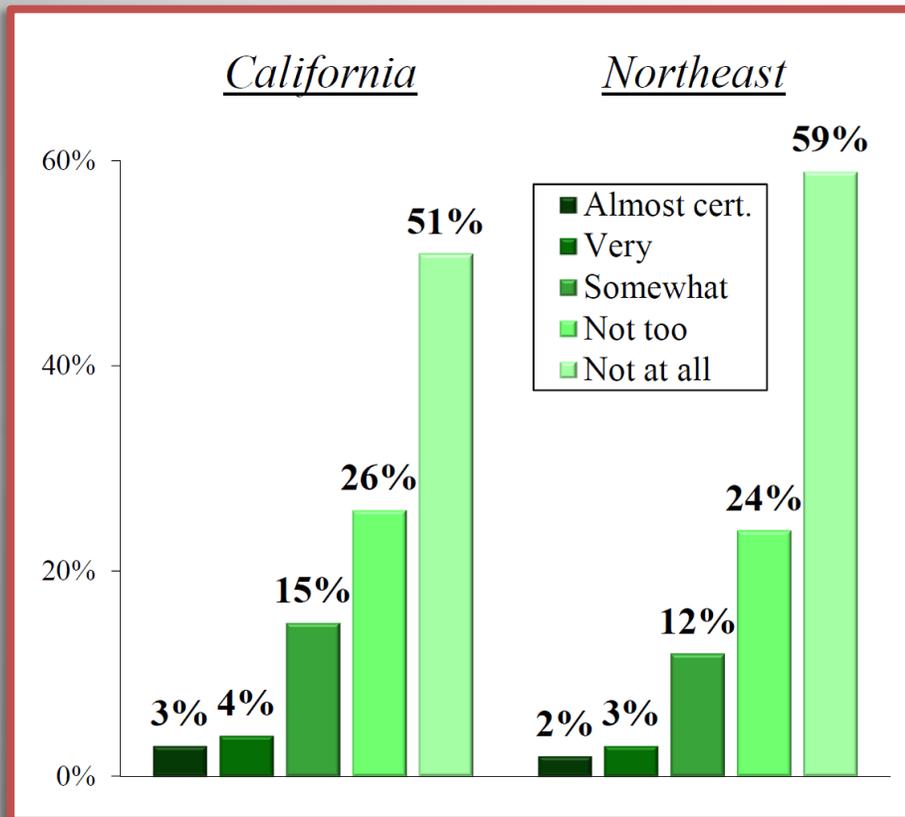
Over the next year or two, how likely are you to consider buying a plug-in hybrid vehicle?



	Calif.		NE	
	Ver+	Swt	Ver+	Swt
Democratic	9%	21%	6%	21%
Independent	9%	14%	5%	9%
Republican	8%	17%	2%	9%
Younger Women	9%	23%	4%	22%
Younger Men	11%	17%	7%	16%
Older Women	9%	12%	3%	7%
Older Men	5%	20%	5%	12%
Income <30k	8%	13%	0%	19%
30k-60k	8%	18%	5%	11%
60k-100k	9%	20%	8%	12%
100k+	15%	21%	4%	18%
Environmentalist	16%	20%	8%	16%
Early Adopter	14%	18%	6%	21%
Car Owner	10%	18%	4%	14%
ZEV Great Deal	25%	14%	13%	15%
ZEV Heard Some	8%	27%	5%	19%
Not Too/Nothing	1%	4%	3%	9%
Know Someone w/ PI	15%	22%	11%	22%

The Same Is True For Electric Vehicles

Over the next year or two, how likely are you to consider buying an electric vehicle?

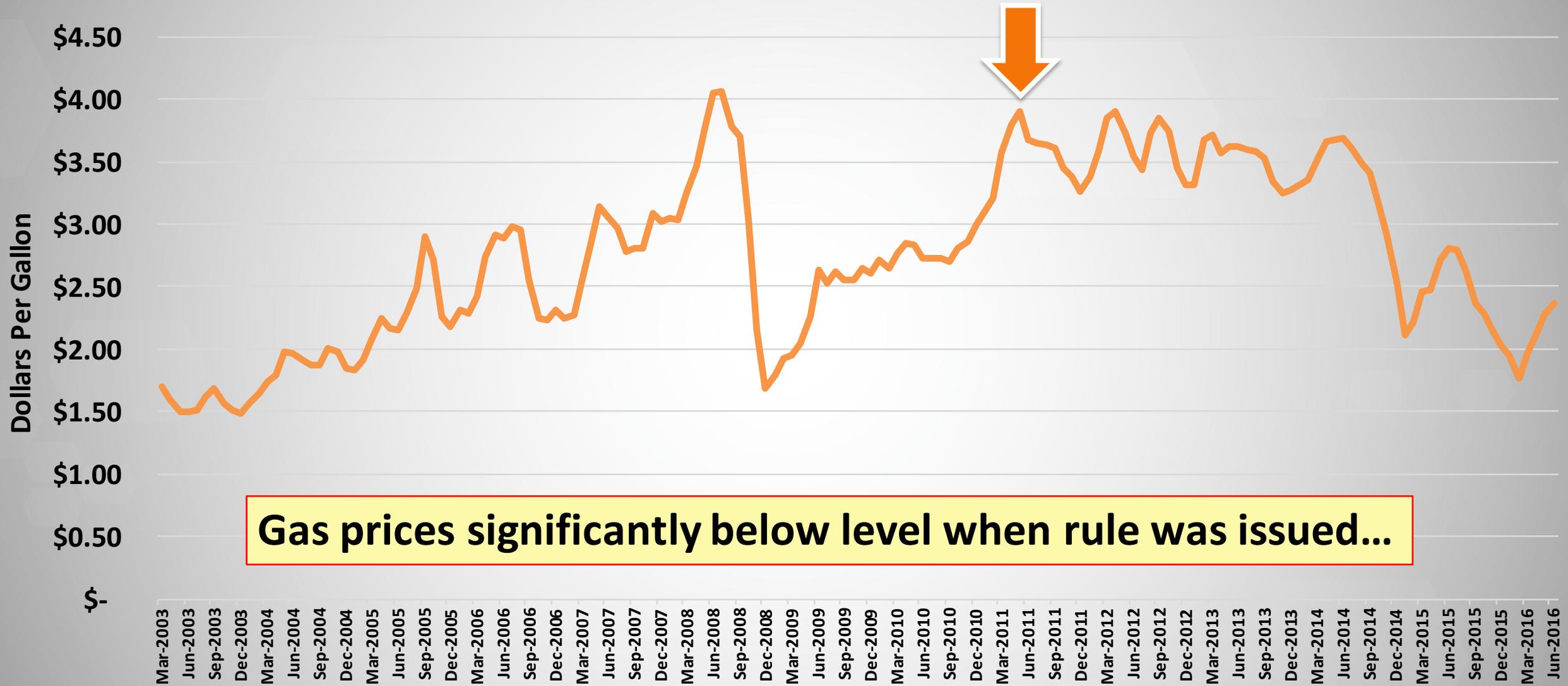


	Calif.		NE	
	Ver+	Swt	Ver+	Swt
Democratic	8%	17%	6%	17%
Independent	6%	13%	4%	10%
Republican	10%	12%	4%	6%
Younger Women	6%	20%	3%	18%
Younger Men	11%	15%	8%	12%
Older Women	6%	9%	2%	9%
Older Men	8%	16%	8%	9%
Income <30k	5%	16%	1%	12%
30k-60k	8%	16%	7%	10%
60k-100k	7%	14%	7%	15%
100k+	12%	20%	4%	19%
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Not Too/Nothing	1%	4%	2%	9%
Know Someone w/ EV	18%	24%	13%	20%

Concern 2: Gas Impact Partially Applied

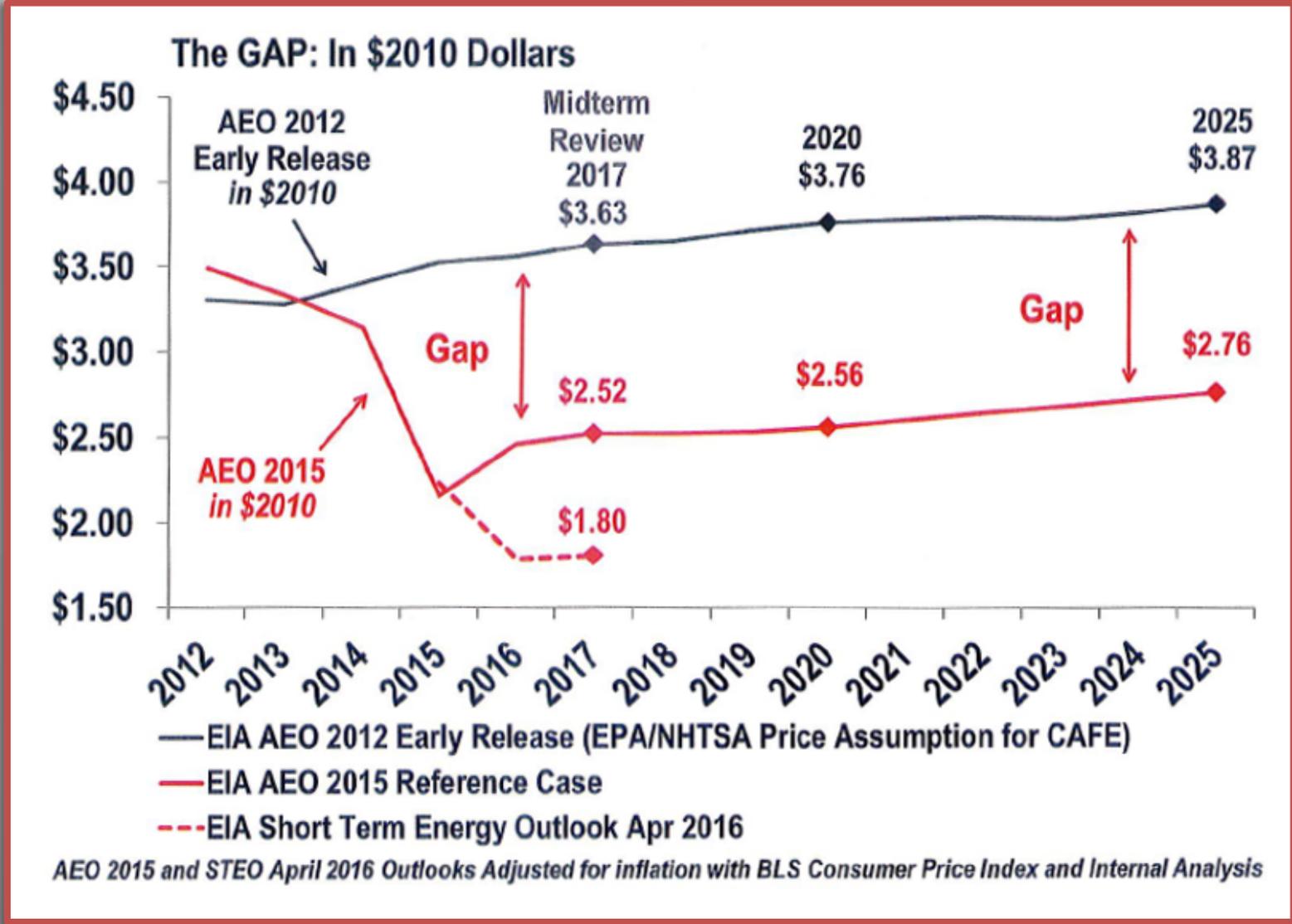
- Regulators factored in the well-reported impact of lower gas prices on the fleet mix, recognizing purchase pattern change**
- However, regulators did NOT recognize the impact of lower gas prices on purchases within segments**

Retail Gasoline Prices: March 2003 - April 2016



Gas prices significantly below level when rule was issued...

New Reality of Structurally Lower Gas Prices



... we are entering an era of longer term relatively low gasoline prices. Low gasoline prices will lead to a mismatch, perhaps severe and already underway, between consumer preferences and the auto fleet requirements...

Such a mismatch... represents a substantial risk to the health of the US auto industry.

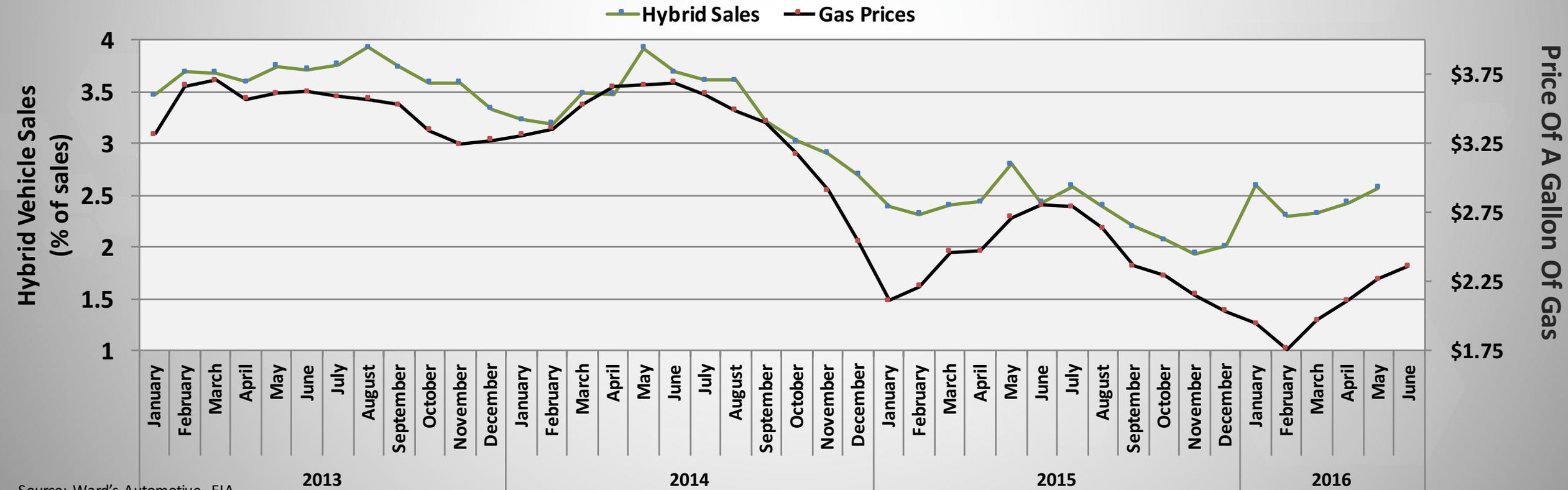
[Energy Policy Research Foundation - 8/1](#)



“Even though you see that the gas price has gone down, I see no indication long term that people are changing their buying habits.”

Gina McCarthy | EPA Administrator | January 7, 2015

Yet Buying Habits Very Much Linked to Gas Prices...

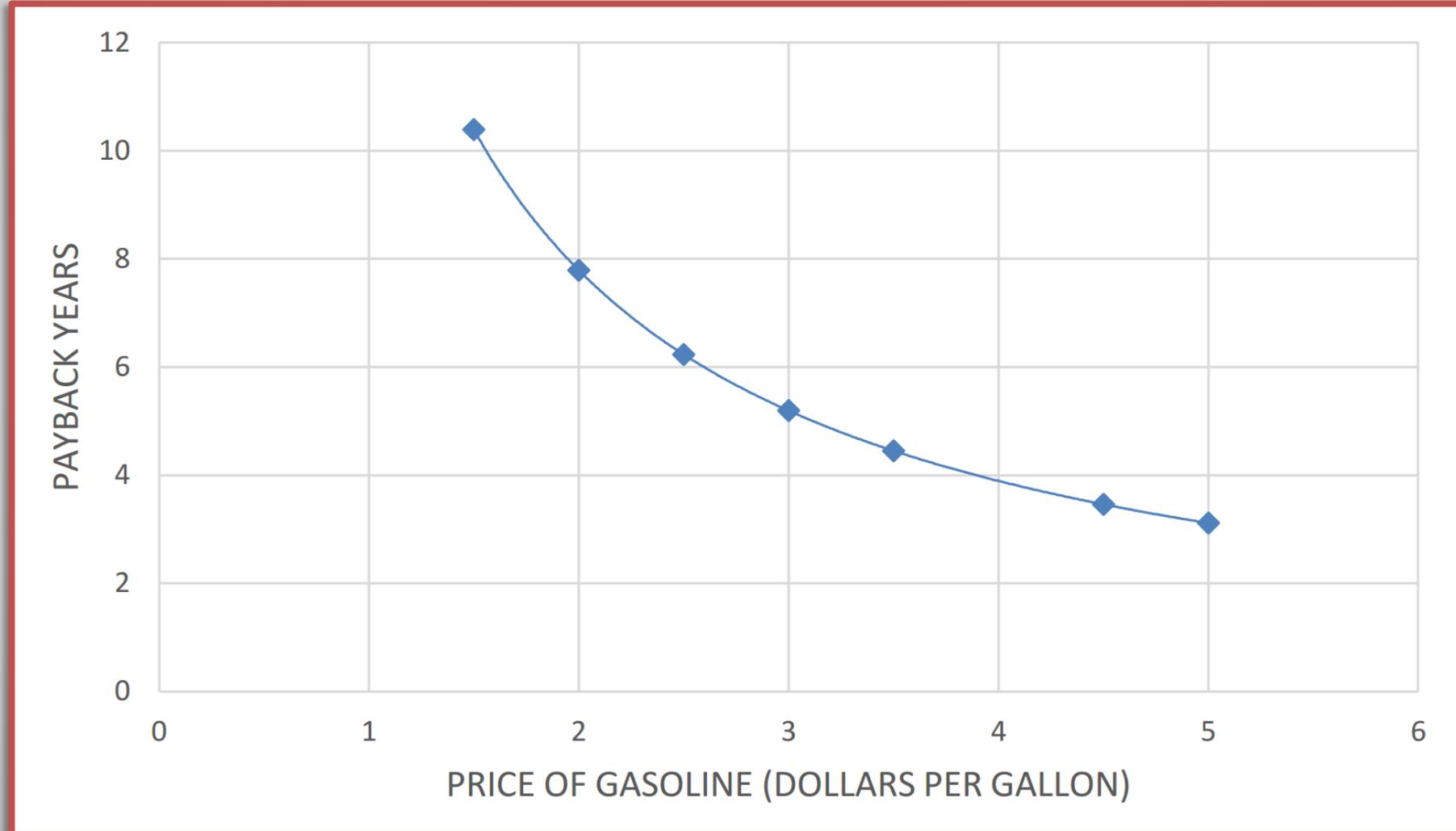


Consumers Optimizing? Not Really...

<u>Model</u>	<u>Gas</u>	<u>Hybrid</u>	<u>% Gas</u>	<u>MPG</u>
Ford Fusion	253,532	36,845	87%	
SE (gas)				22-34
SE (hybrid)				43-41
Honda Civic	429,508	4,848	99%	
Gas				31-41
Hybrid				44-47
Subaru Crosstrek	112,923	6,591	94%	
Gas				26-34
Hybrid				30-34
Toyota Highlander	213,136	5,580	97%	
Limited (gas)				18-24
Limited (hybrid)				27-28

Perceptions / Reality of Payback Drive Behavior

SIMPLE PAYBACK PERIOD



Gas Price Fall Impacts More Than Just Fleet Mix



Do Low Oil Prices Undermine US Passenger Vehicle Fuel Economy Standards?

Jul 19, 2016 | Benjamin Leard, Joshua Linn, Virginia D. McConnell

RESOURCES
FOR THE FUTURE

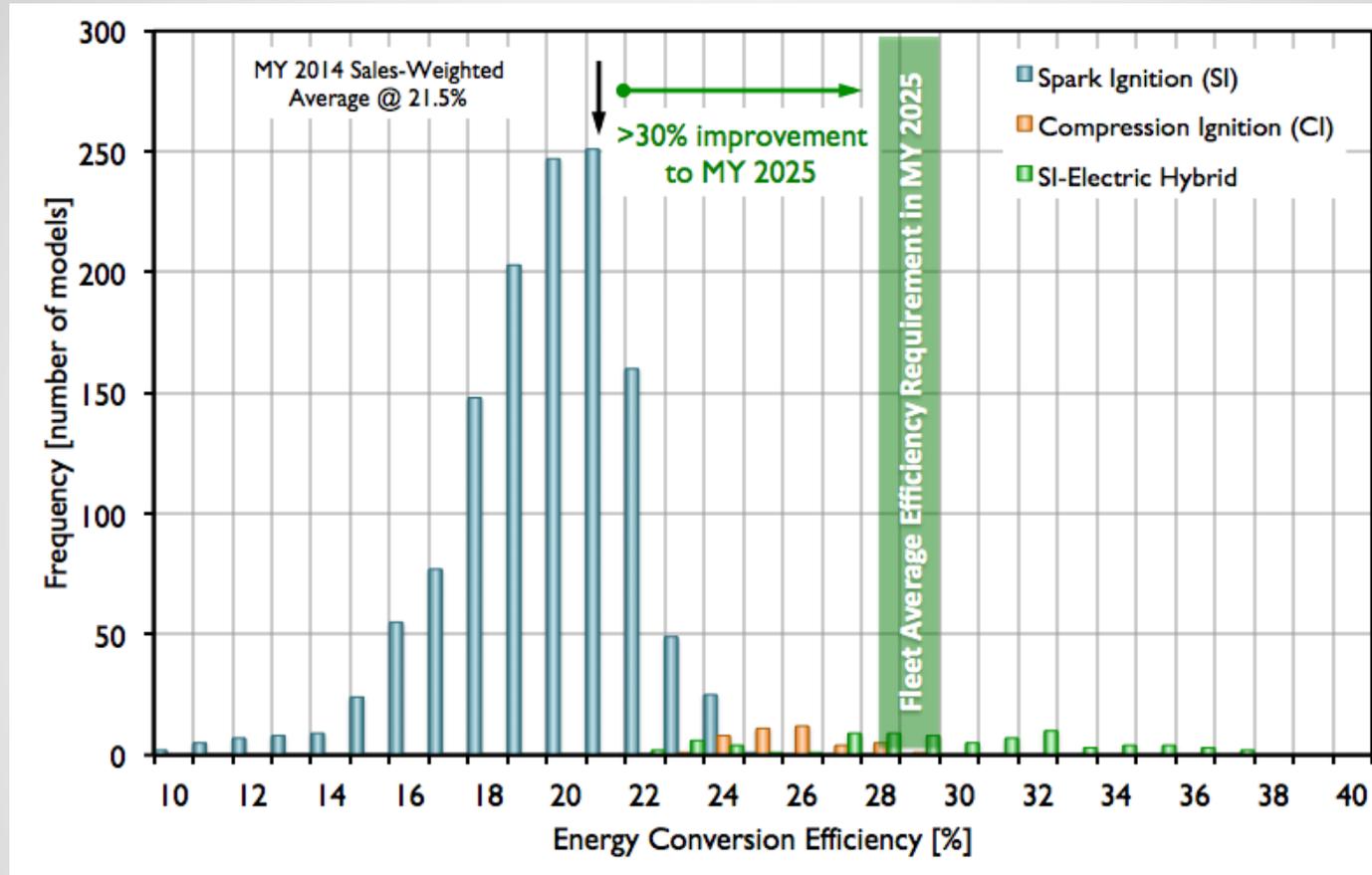
Q: Have lower gasoline prices caused the level of fuel economy consumers choose to fall... below the level manufacturers must attain?

This could happen if consumers shift across vehicles subject to the same standard but with lower actual fuel economy, for example, if they opt for the version of a vehicle with a six-cylinder engine rather than a four-cylinder engine. The six-cylinder version has lower fuel economy, but because the two vehicles are the same size, they are subject to the same fuel economy requirement. **If consumers shift to vehicles with lower fuel economy but the same size they would have chosen otherwise, the costs to manufacturers and eventually to consumers of meeting the standards would be higher...**

Concern 3: Tech Yield Overstated

- **Fundamental modeling issues have led to the over projection of technology performance**
- **The standards cannot be met with the techs assumed in 2012 rule (more tech needed)**
- **Future technologies booked in the TAR may not be market-ready by 2025**

Hybrid Efficiency Will Be New Norm = +\$



- **The MY 2025 fleet efficiency requirements represent >30% improvement when compared to the MY 2014 fleet.**
- **The only current products that can achieve these efficiency requirements are full hybrids and electric vehicles.**

Concern 4: Tech Cost Understated

- **TAR predicts even lower compliance cost than initially determined**

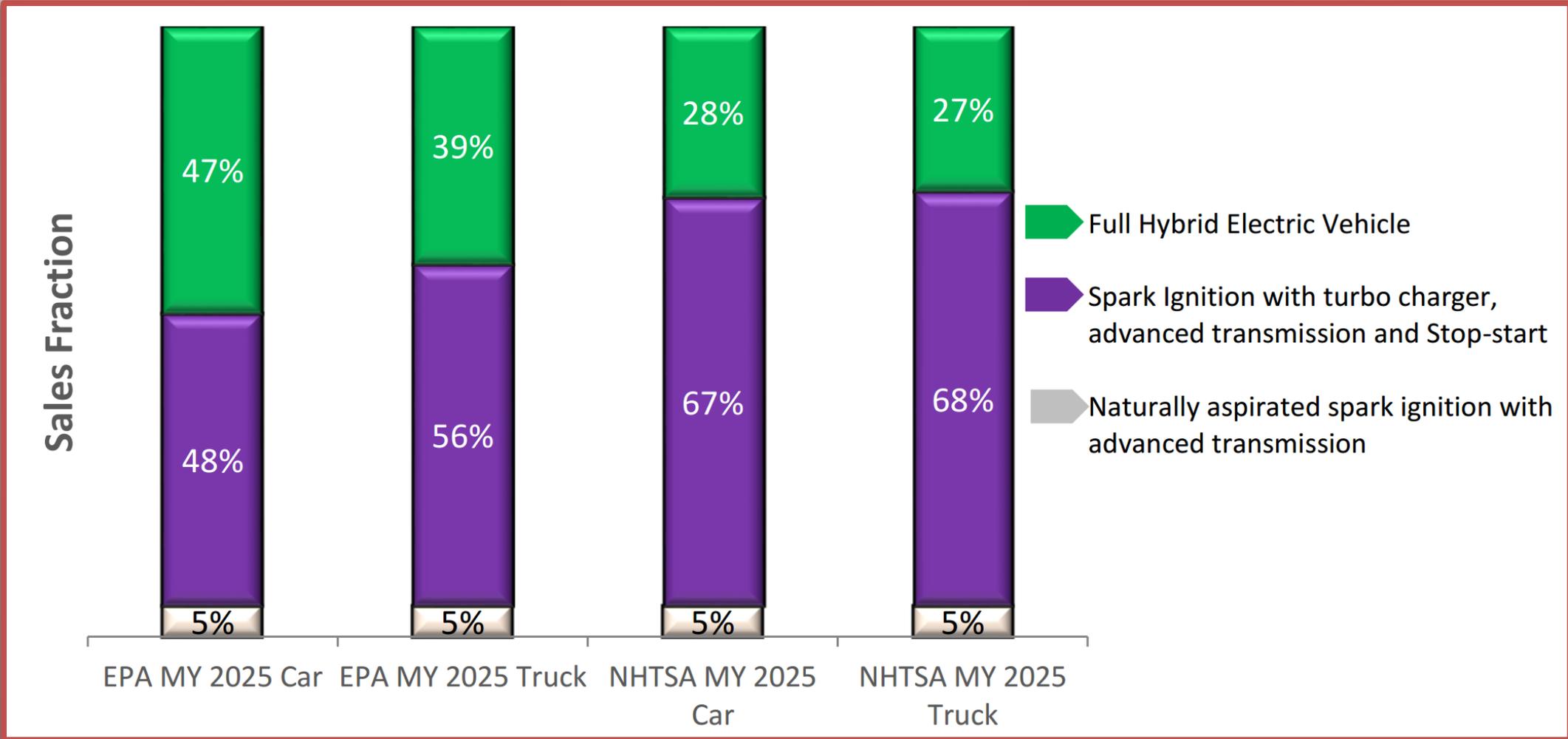
	2012 FRM	Draft TAR	Change
EPA Increase in Vehicle Costs (2016-2025 MY)	\$1,836	\$1,205	\$631

Source: 2016 TAR, Table 12.45 (adjusted to estimate 2010 dollars and 2016 fleet)

- **Early results from Alliance sponsored studies show a higher compliance cost than originally predicted in 2012**

Much More Hybridization Necessary To Comply

TECHNOLOGY PENETRATION RATES TO ACHIEVE MY 2025 AGENCY STANDARDS (EXAMPLE)



Concern 5: There is No “ONP”

- EPA and NHTSA are NOT harmonized; that produces regulatory friction which results in higher consumer costs**
- Regulators say electrification not necessary for CAFE compliance so costs irrelevant; but in real world EPA grants CA waiver for ZEV mandate, thus requiring fleet electrification**

“A clear and uniform national policy is not only good news for consumers who will save money at the pump, but this policy is also good news for the auto industry which will no longer be subject to a costly patchwork of differing rules and regulations.”

Carol Browner, May 2009



- **Still subject to costly patchwork**
- **Compliance with more stringent EPA carbon requirements may still not equal NHTSA compliance**
- **ZEV produces no net CAFE benefit but adds significant compliance costs for consumers nationally**

Absence of ONP Only Likely To Get Tougher

“EPA-NHTSA Tensions Drive CARB Threat To Adopt Stricter Auto GHG Rules”

“The ability to do this as one national program is definitely going to be more of a challenge in the future”

Mary Nichols, CARB Administrator, addressing vehicle GHG standards at a July 21, 2016 (CARB) Meeting



- Our concern is both about the here and now and the long term
- Lack of harmonization = higher consumer costs
- Focus on minimizing regulatory friction critical to affordability and virtuous cycle / fleet turnover

Wrapping This Up...

Need to Get This Right: Big Implications

- 1. Forcing excess costs inhibits fleet turnover (compromising FE, safety, productivity, etc.)**
- 2. People buy fewer cars = less production = lost jobs (MW and South)**
- 3. Vehicle choice conceptually protected by footprint approach until stretching to comply threatens affordability and availability**

Bottom Line Points to Take Away

1. **Investing / Working hard to make this work** – Success is our objective
2. **Friction we hear overstates the gap**; the debate is ultimately on the margins – not about fundamental direction
3. **Our concerns are significant** though – and they mostly flow from the reality that a consumption mandate is an incredibly inefficient mechanism to achieve a policy goal, especially when gas prices are low
4. **Consumer attitudes are critical** but are not yet getting adequate and serious focus from regulators
5. **Balance is a must**; forcing an outcome on the market that consumers reject will only result in job loss and diminished safety and environmental gains

The image features a blurred city street scene with a blue horizontal band across the middle. The text "Thank You!" is written in white, bold, sans-serif font on the blue band. The background shows a perspective view of a city street with buildings and cars, all blurred to create a sense of motion. The overall color palette is dominated by warm tones like gold and brown, contrasted with the cool blue of the band.

Thank You!