



# Climate Change & VMT: Why How Much we Drive Matters A Lot

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**Center for Clean Air Policy (CCAP)**

Transportation Research Board Executive Committee  
Summer "Red Meat" Policy Session:  
"Transportation's Role in Climate Change Mitigation"  
**June 13, 2008**



# Center for Clean Air Policy

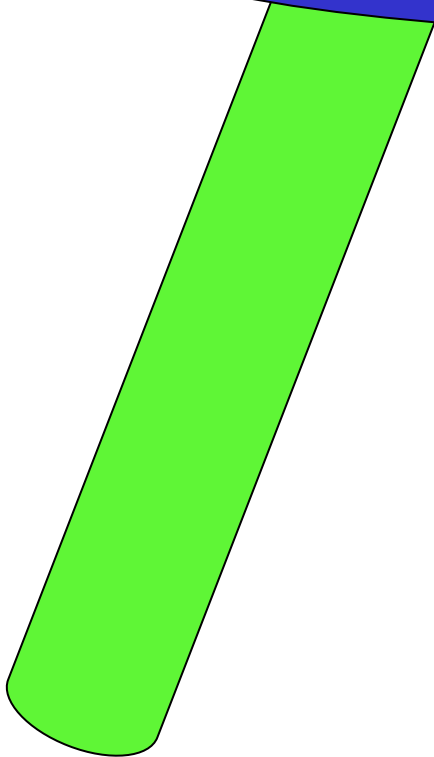
## Dialogue. Insight. Solutions.

- Develop/implement state climate plans: **CA**, CT, NY...
- **US Climate Policy Initiative**
- **Smart Growth and Climate Change**
  - » CCAP Transportation Emissions Guidebook
  - » **VMT and Climate Policy Dialogue**
    - AASHTO, state DOTs, MPOs, CARB, FHWA, EPA, NGOs...
- **Urban Leaders Adaptation Initiative**
  - » “Ask the Climate Question”: Chicago, King County, LA, Miami, Milwaukee, Nassau, Phoenix, San Fran, Toronto
- European Climate Policy Dialogue
- Future Actions Dialogue with climate negotiators
- GHG policy projects in China, Mexico, Brazil, India

# Climate Change Context

- IPCC: Likely warming: 1.1°C to 6.4°C by 2100
- Emerging consensus: limit warming to 2°C to 3°C
- US must cut GHGs 60-80% below 1990 levels by 2050
- Delayed action means higher risks and costs
- Transportation about 1/3 of US CO<sub>2</sub> emissions
- Three choices:
  1. Proportional reductions in all sectors
  2. Fewer cuts in some sectors, compensate in others
  3. Fail to meet GHG targets

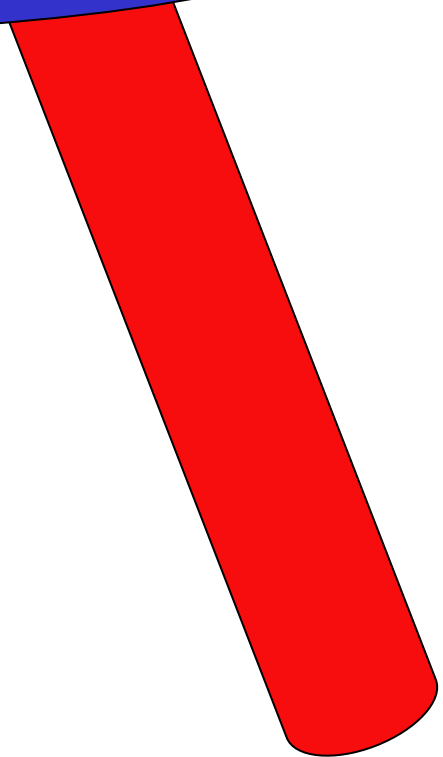
**Transportation  
CO<sub>2</sub>**



**Vehicles**



**Fuels**



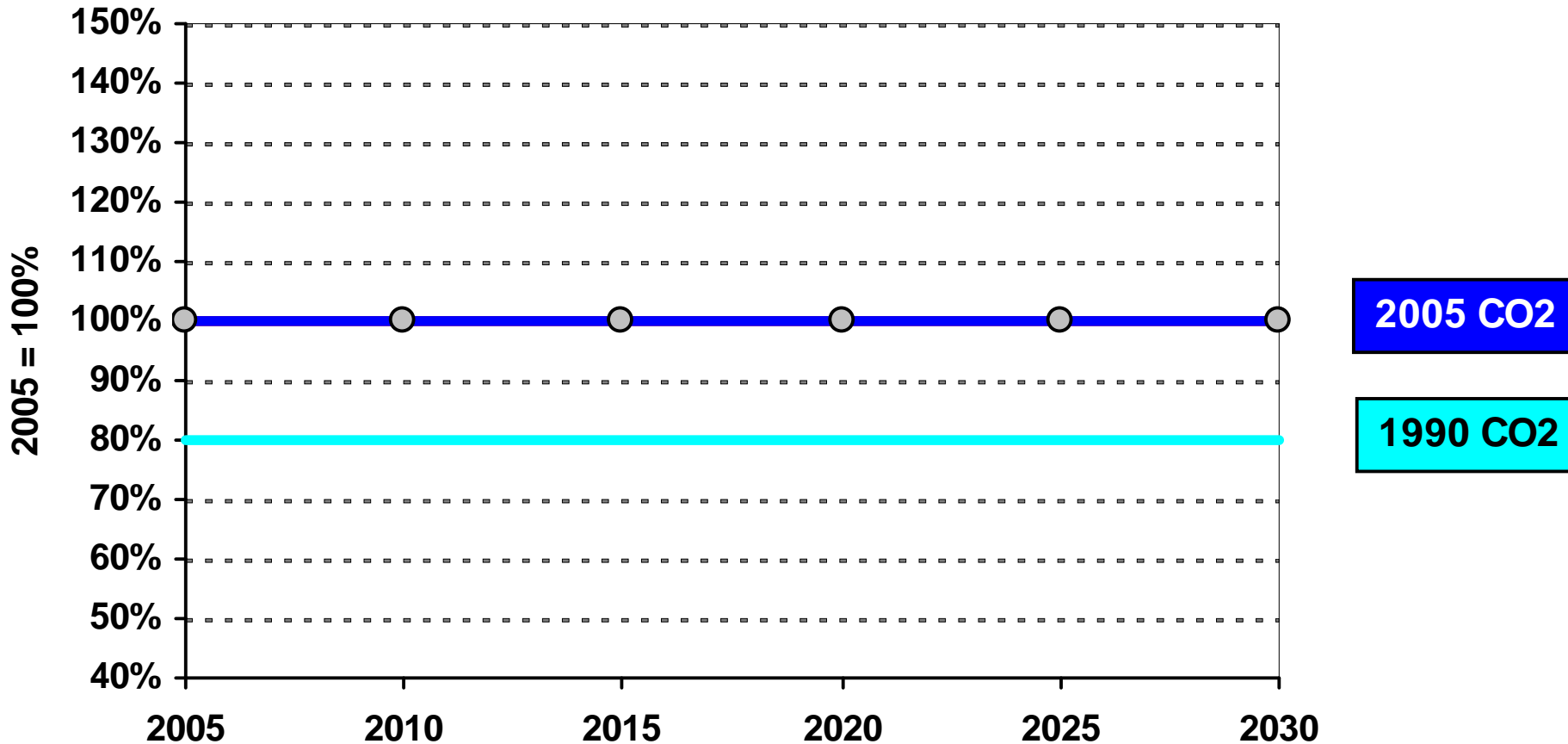
**VMT**



1/3 of US CO<sub>2</sub> emissions & growing fast

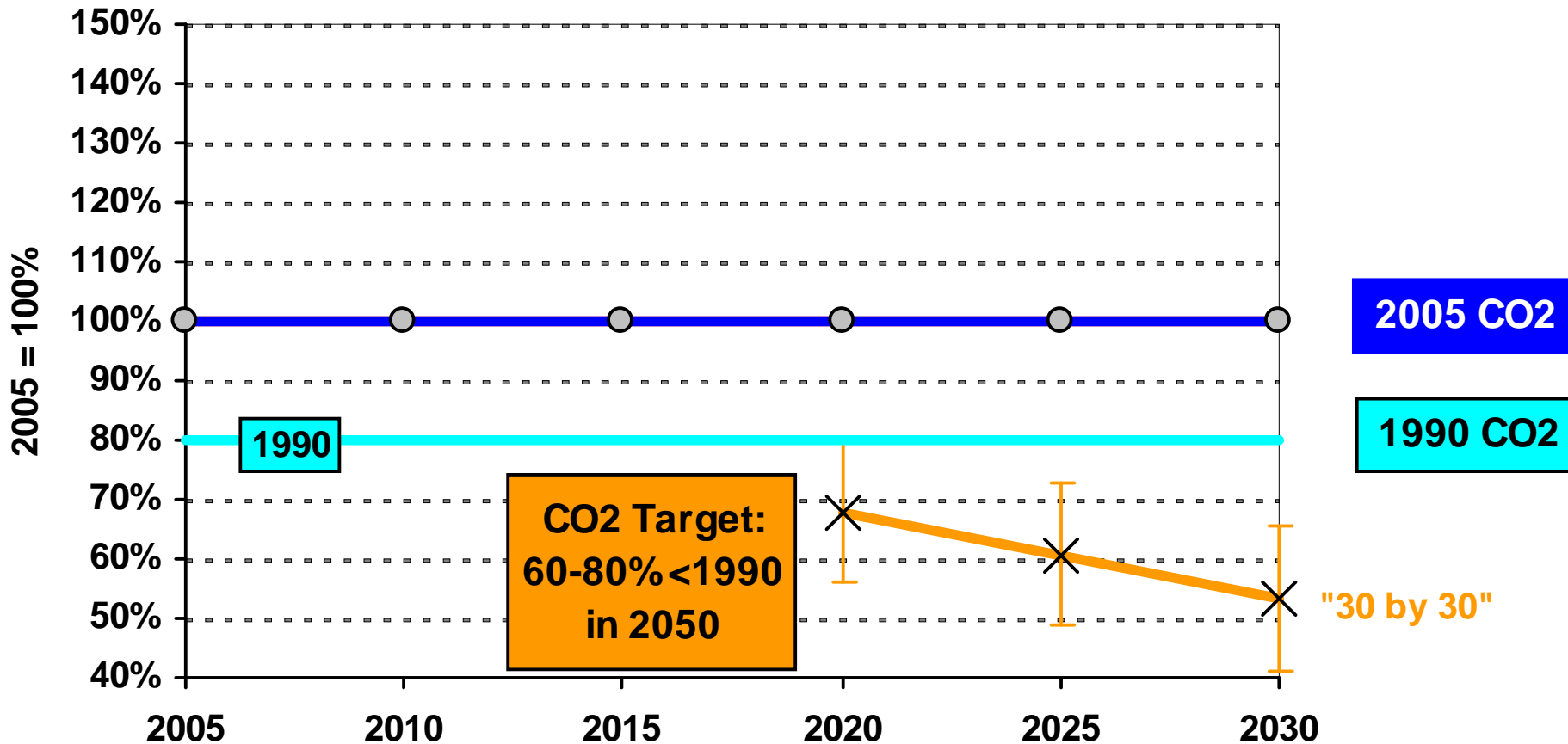
# 2005 CO2 Levels are 25% above 1990 levels

(1990 levels are 20% < 2005 levels)

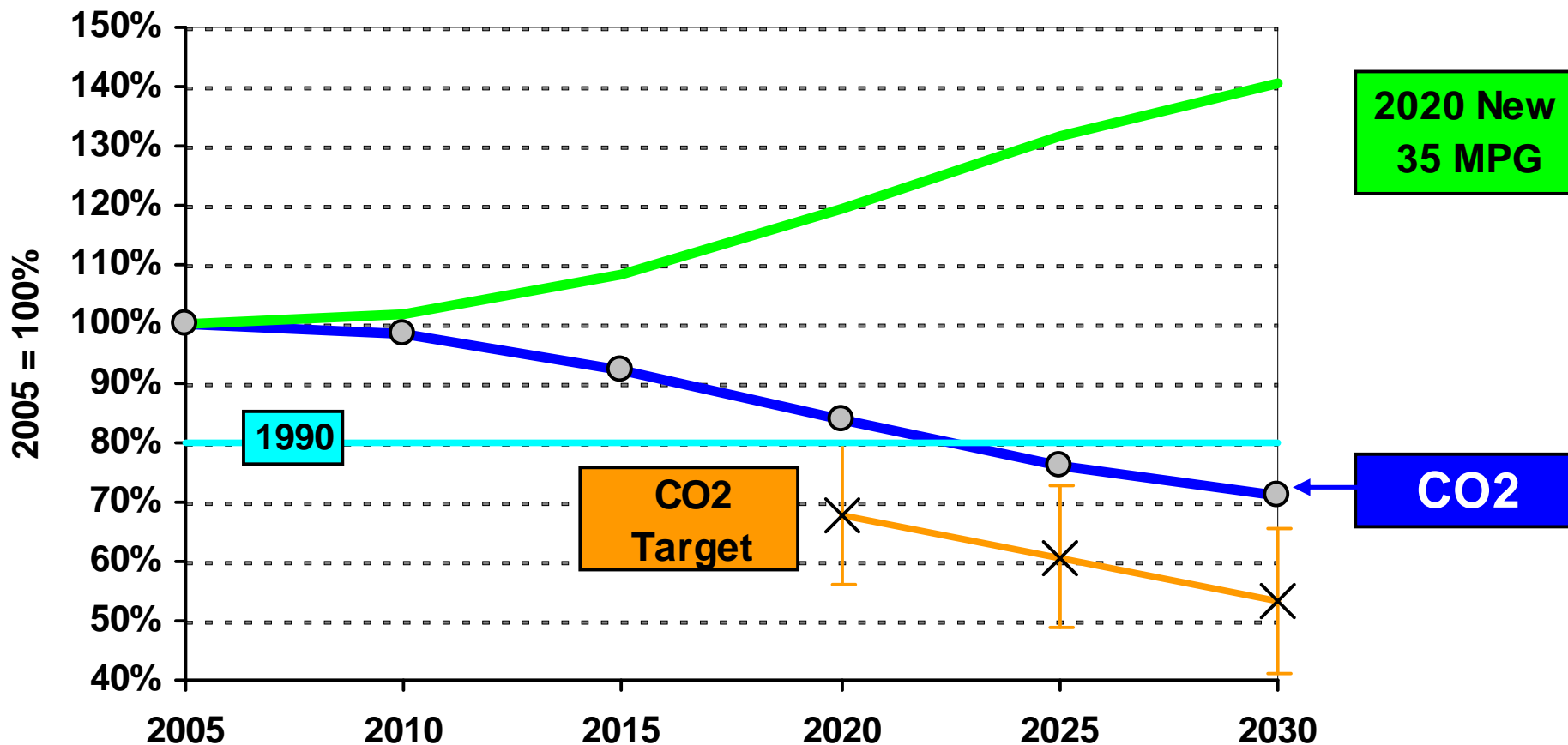


# CO<sub>2</sub> Targets: 60-80% < 1990 in 2050

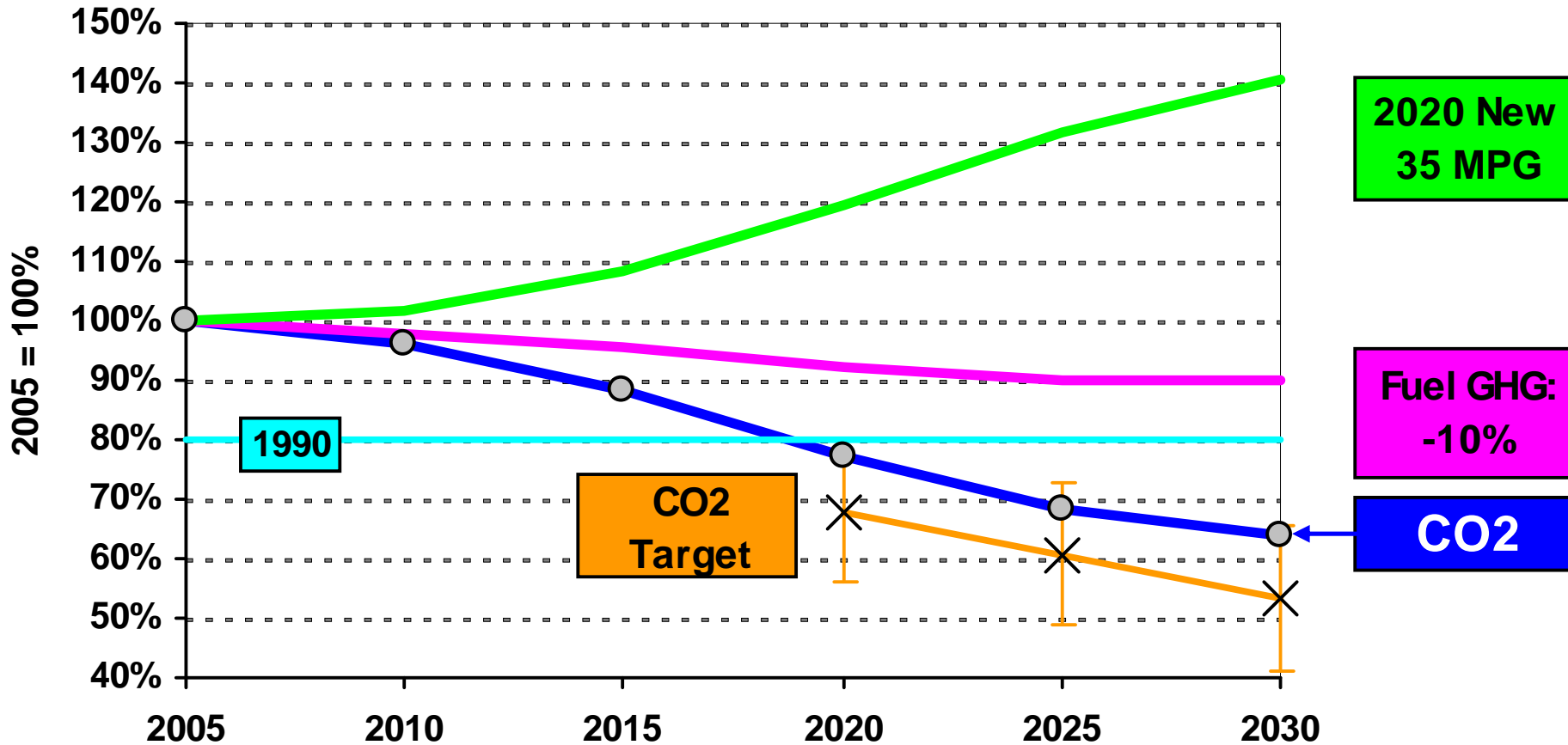
≈33% < 1990 in 2030: **30 by '30**



# CAFE: 35 MPG new vehicles in 2020. 2030 CO2 is 11% < 1990 levels

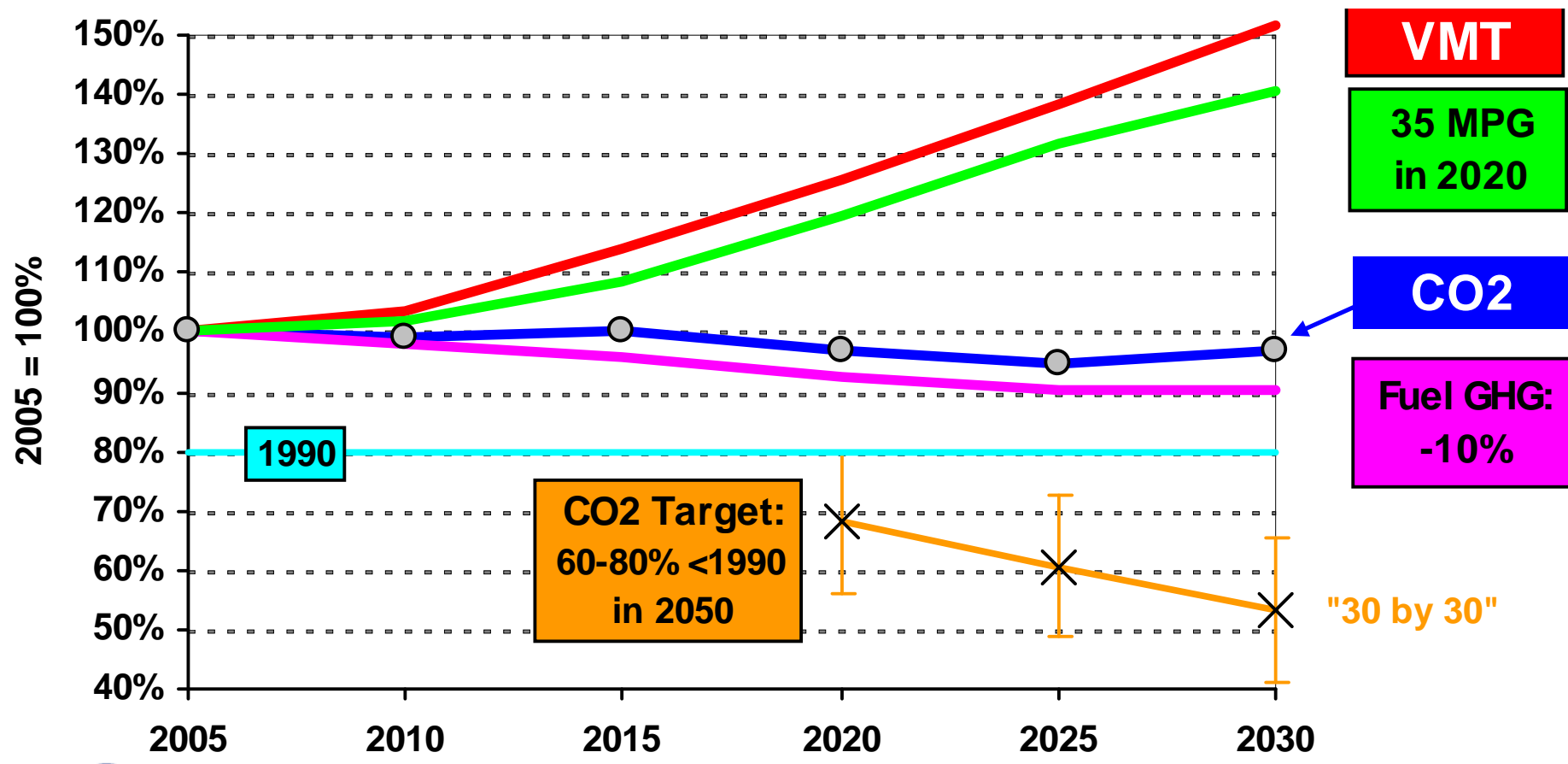


# Energy Bill: CAFE & -10% Fuel GHG by 2025. 2030 CO2 is 20% < 1990



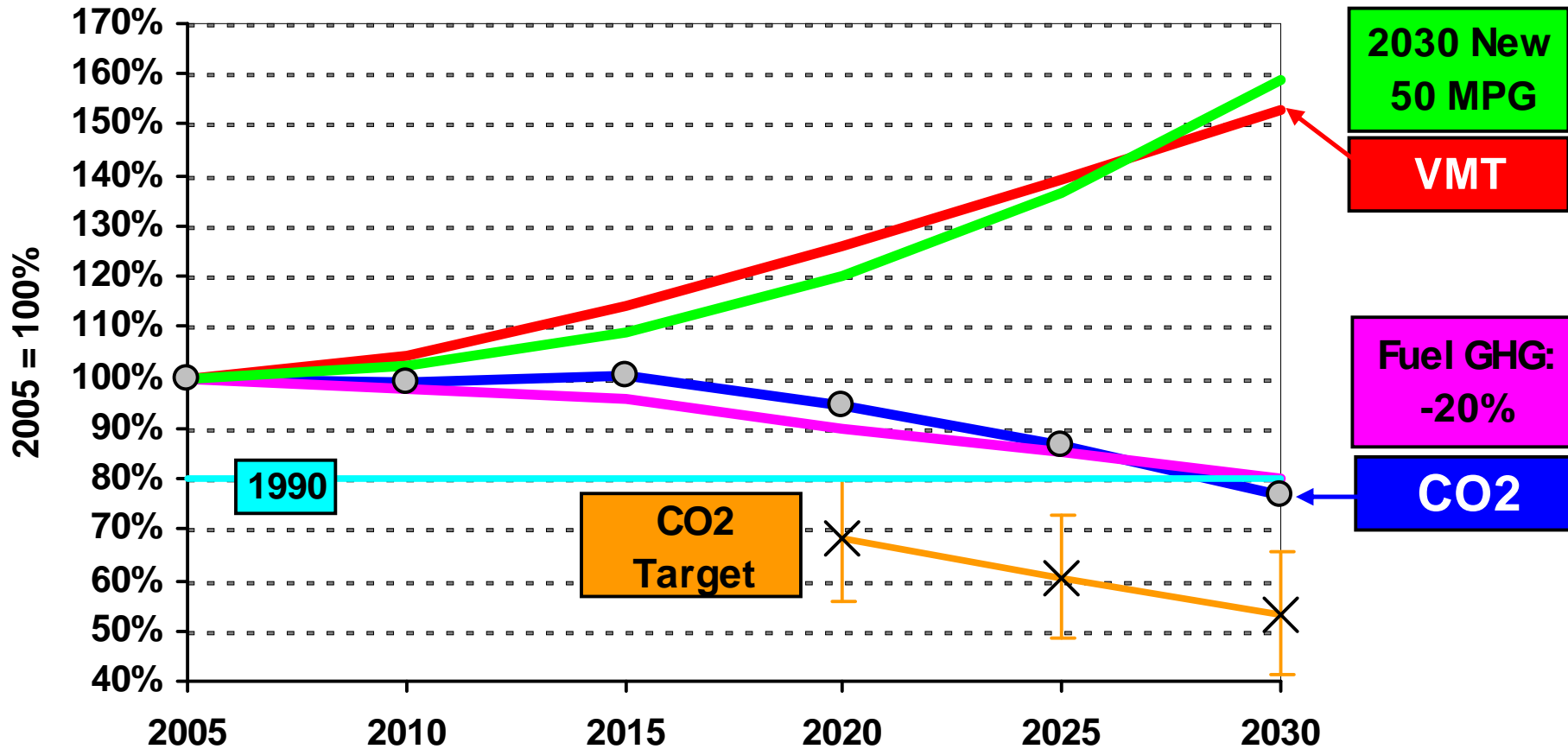


# VMT Growth to Wipe Out Energy Bill Savings: 2030 CO2 is 21% above 1990



Source: S. Winkelman based on EIA, HR6 and *Growing Cooler* .

# Aggressive Case: 50 mpg in 2030 & -20% Fuel GHG. CO2 is 4% < 1990



Source: S. Winkelman based on AEO 2008 , HR6, stock model calculations and sources cited in *Growing Cooler* .

# By how much can we slow VMT growth?

Ewing, Bartholomew, Winkelman, Walters & Chen (ULI 2008)

If 60% of new growth is compact:

- **4%** national VMT reduction by 2030 (from trend)
- Half the CO<sub>2</sub> savings of 35 MPG CAFE
  - » 80 MMTCO<sub>2</sub> in 2030
  - » \$260 billion fuel cost savings through 2030
- **Just from land use** - excludes pricing, other
- Up to **38%** with comprehensive policy set

# By how much can we slow VMT growth? (continued)

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- “Moving Cooler” (ULI)  
Cambridge Systematics (Bill Cowart)
  - » **18- 21%** reduction in VMT growth by 2030
    - Apply best practices: PAYD insurance, smart growth, transit, parking measures, TDM, bike/walk
- AASHTO goal:
  - » Cut VMT growth in half:  
+2 trillion VMT instead of +4T VMT from 2006-2055
  - » **23%** reduction in VMT growth in 2030

# Alternative VMT per Capita Goals (Calculations for Light Duty Vehicles)

Case	2030 VMT vs. 2007	2007 - 2030 VMT Growth	2030 GHG vs. 1990
a) Current (2007)	NA	NA	23%
b) EIA Forecast (AEO 2008)	152%	1.8%	22%
<b>VMT SCENARIOS*</b>			
c) 50mpg CAFE, -20% Fuel GHG	154%	1.9%	-4%
d) Cut VMT growth in half**	126%	1.0%	-21%
e) Flat VMT per capita	121%	0.8%	-25%
f) -10% VMT per capita	109%	0.4%	-32%
g) -17% VMT per capita	100%	0.0%	-38%
h) -30% VMT per capita	85%	-0.7%	-47%
<b>Target:</b>			<b>-20% to -47%</b>

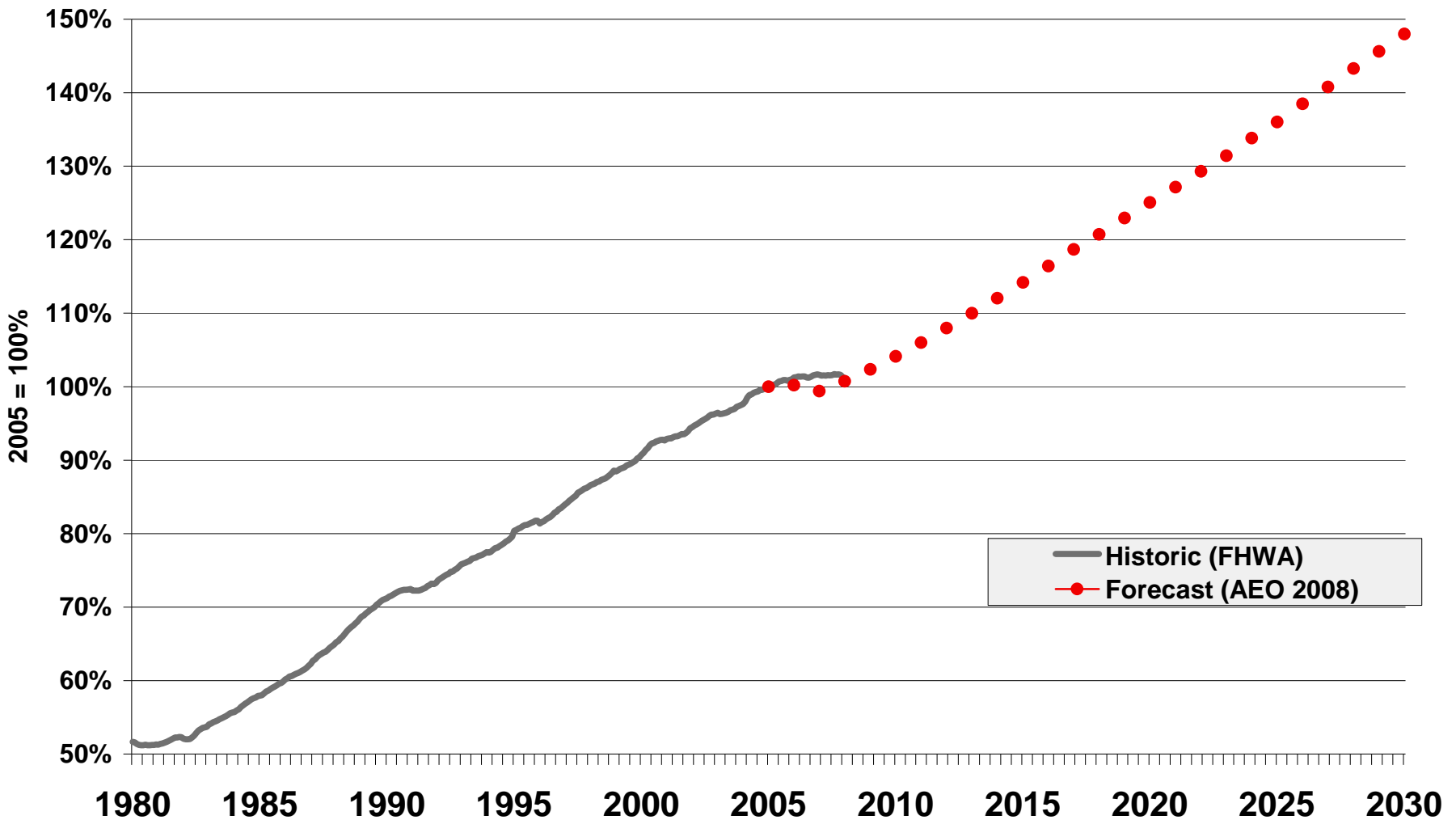
\*Note: All scenarios assume 50 mpg CAFE in 2030 and 20% fuel GHG savings

\*\* This is AASHTO's sustainability goal.

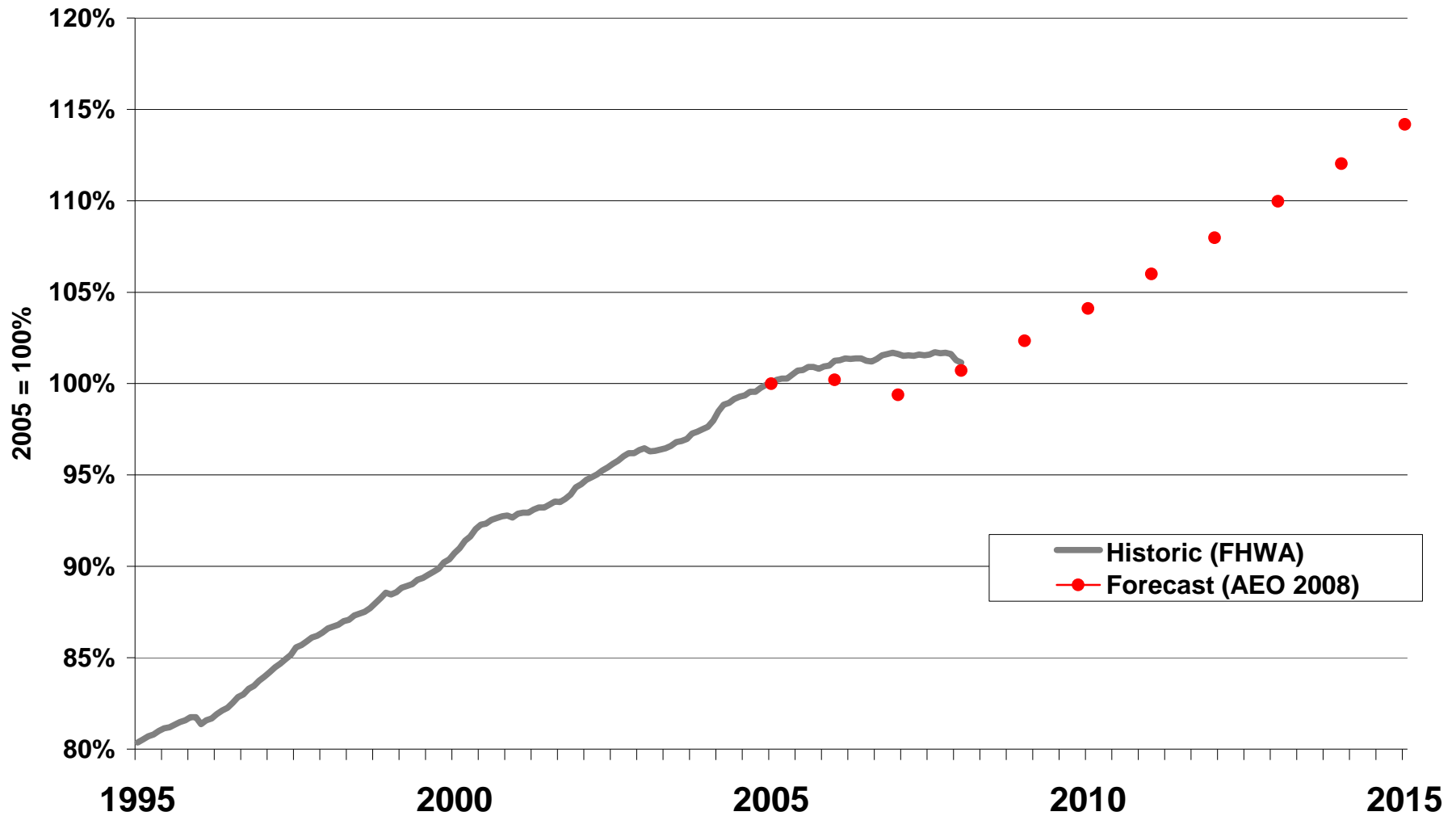
But what's really up  
with VMT?

And how do we know?

# VMT: Historic (FHWA) and Forecast to 2030 (EIA)



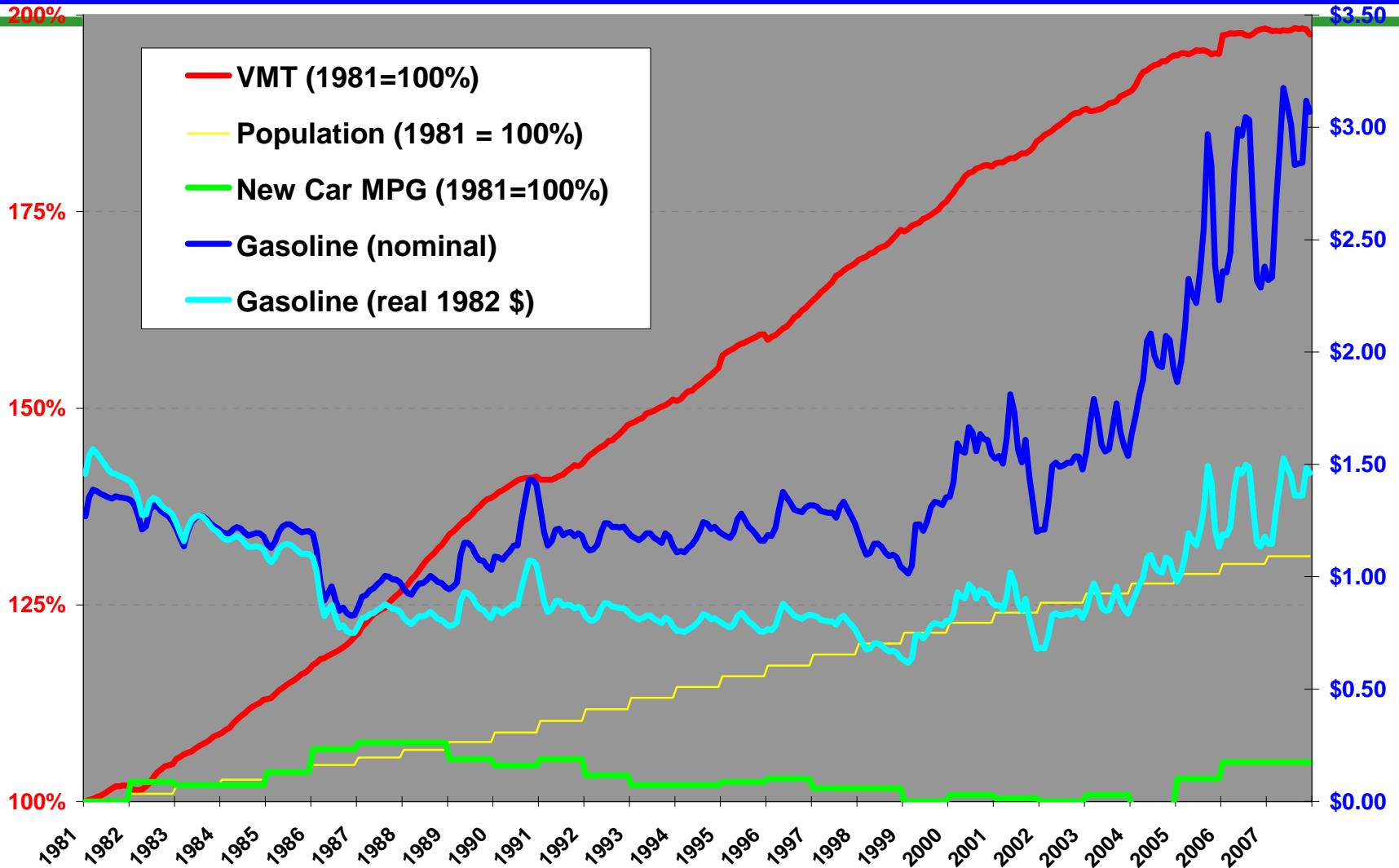
# Zoom in on VMT: 1995-2015





# VMT and Gasoline Prices: 1981 - 2007

## Problem Solved??



# Flattening VMT as a Policy Opportunity

- Combination of price and demographics
- Permanent behavior shift unlikely
- Transit ridership up, but providers can't afford to keep up with growing demand
  - » Economic hardship exacerbated for folks in places with limited travel choices
- Climate protection requires major cuts
- Need federal, state, regional & local policies to increase choices and hold down VMT

# What's the State of the Data?

- We lack robust methodologies for converting traffic counts into VMT data by vehicle type
- Traffic counters not necessarily placed in strategic locations or based on statistical requirements
- Key travel surveys have been defunded or terminated in recent years
- We lack data on state, regional and local fuel consumption
  - » We track wholesale sales. State tax depts have retail sales data...
- We lack robust measurement of on-road vehicle fuel economy (real world vs. label)

# CCAP Travel Data Webinars – Initial Recommendations

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- Restore or improve surveys that are gone or scaled back (HPMS, NHTS, VIUS)
- Design a new national panel survey on vehicle use and vehicles in use
- TRB should conduct a study on what it would take and cost to improve travel data to quality levels achieved in other OECD countries
- GAO should study the shortcomings on travel data for GHG emissions planning and policy, with recommendations
- \$50 million per year would go a long way
  - » Less than 0.1% of \$60 billion/year in surface transp funding

# CCAP Strawman Proposal: Climate Incentive Program for VMT/GHG Reduction

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- **States & MPOs must set VMT/GHG goals**
- Launch bottom-up **discovery process** to determine appropriate goals for each location
- Use **cap & trade revenues** to
  - » Fund goal development and implementation
  - » Improve: travel data, models, planning
- **A funded obligation** (not an unfunded mandate!)
  - » New responsibilities require new resources
- Set the stage for climate-friendly transp bill

# Green-TEA

## A Legacy for the Planet?

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- Business as usual policy will increase VMT
  - » Funding formulas *reward* VMT, fuel use, lane miles
- **Will the next transportation bill make the climate problem better or worse?**
- **Tie funding to GHG performance**
- **Major funding for data improvement, planning, model improvement**

# Negative \$/ton: Sacramento 2050 Blueprint vs. Business as Usual (CCAP)

## Infrastructure Costs (savings)

Major transportation capital	- \$ 1.9 billion
Other infrastructure (water, utilities, etc.)	- <u>\$ 7.5 billion</u>
	- \$ 9.4 billion

## Annual Costs (savings) in 2050

Private fuel costs	- \$ 655 million
Transit operating costs	- <u>\$ 121 million</u>
	- \$ 534 million/year

**Cumulative CO2 Savings** 7.2 MMTCO2 (14%)

	<u>Net Present Value</u>	<u>Cost per ton CO2</u>
<b>Just Transportation Costs</b>	- \$ 500 million	- \$ 70/ton
With Infrastructure savings	- \$1,400 million	- \$200/ton

Excludes savings from building energy use, mitigation land purchases (\$8.3 billion), and reduced congestion.

# The Story of Alice & Benny...





1 km walk



+



Sidewalks...

...are as  
**sexy** as  
**hybrids!**

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Center for  
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Dialogue. Insight. Solutions.

# For more information...

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Adaptation: [www.ccap.org/domestic/ULAI.htm](http://www.ccap.org/domestic/ULAI.htm)