

The Role of Carrots and Sticks in Achieving Air Quality and Petroleum Displacement Goals



Advanced Transportation Technologies

Clean Transportation Solutions

Clean Vehicle Education Foundation Conference

September 2004

John Boesel

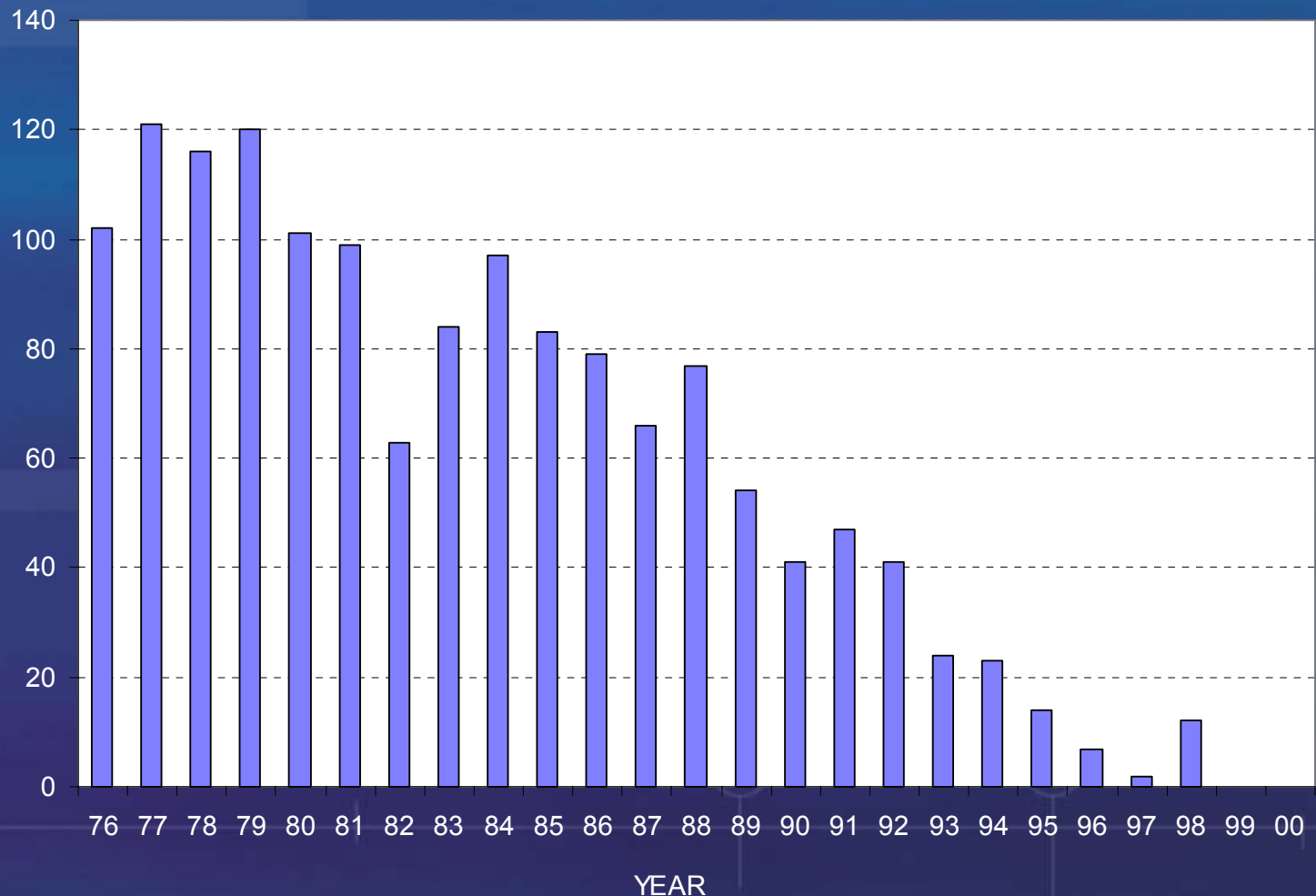
President and CEO

Carrots or Sticks?

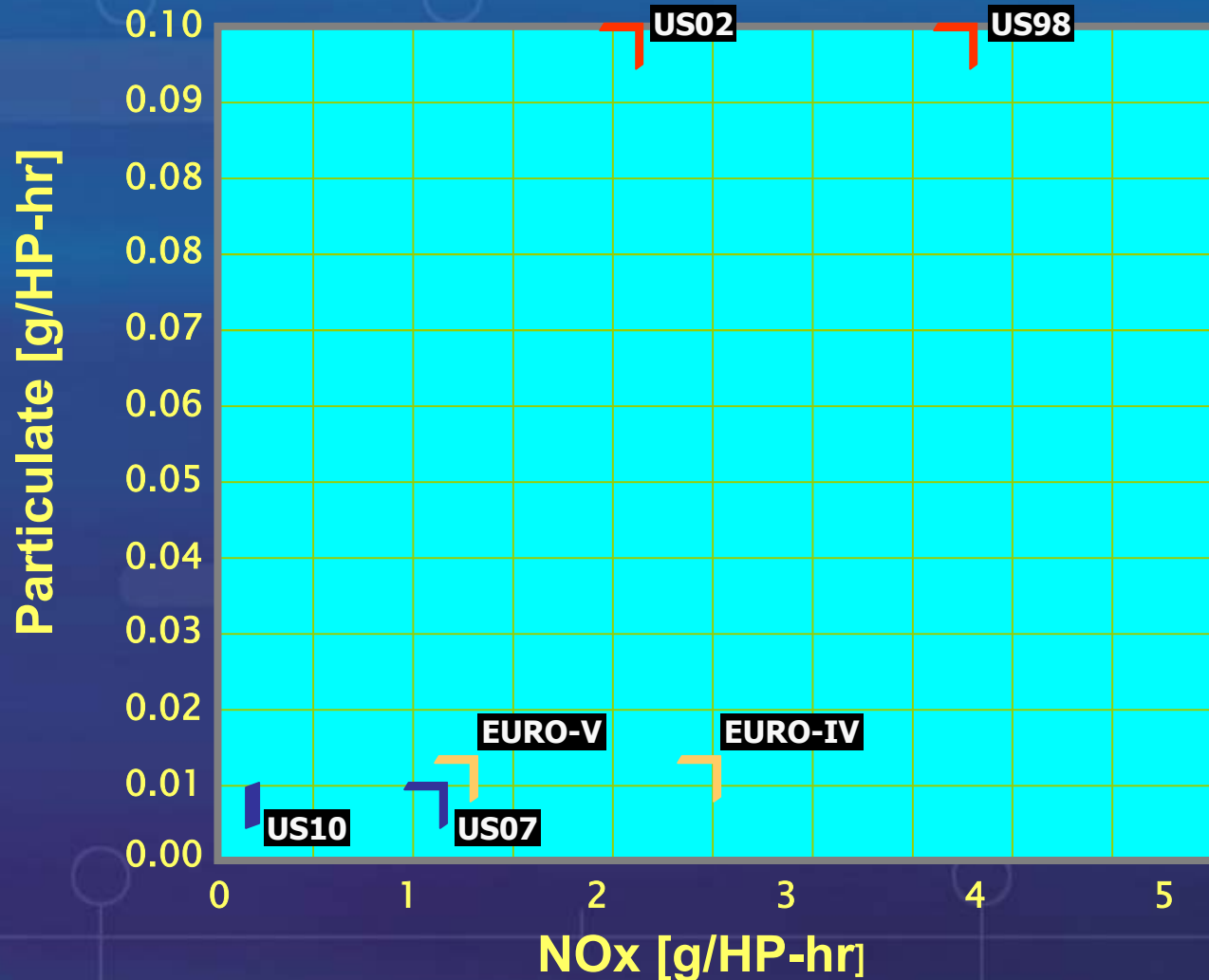
What's Working?

Strong Rules Have Resulted in Cleaner Cars & Air

**# of
Unhealthy
Air Days in
greater LA
(1976-
2000)**



US 2010 HDV On-Road Rules Very Challenging



2004 HD Vehicles emit 40% less NOx than 1998 versions

Will be 90% cleaner in 2010

Moyer Type Program – An Effective Carrot

Moyer Program Summary – Greater Los Angeles Area Only

Number of Vehicles by Category

	On-Road		Off-Road	
	Trucks	Buses	Marine	Other
FY 1998-99	139	120	8	128
FY 1999-00	198	117	26	40
FY 2000-01	401	507	2	222
FY 2001-02	417	283	46	80
TOTAL	1,115	1,027	69	470

- State funding has been extremely beneficial in retiring older, high polluting, pre-1994, heavy-duty diesel engines
- Funds have supported diesel to diesel and diesel to alternative fuel strategies
- \$60M/year in CA going forward

TERP Funding

based on new HB 1365

- **Funding restored to an average of \$150 million per year**
- **87.5% (\$130 million) of funding for TCEQ's emission reduction programs**
- **0% for the light-duty purchase and lease incentives**
- **0% for energy efficiency programs**
- **9.5% (\$14.25 million) for new technology and research (TCET)**
- **3.0% for administrative costs of TCEQ and the Energy Systems Lab at Tx A&M**

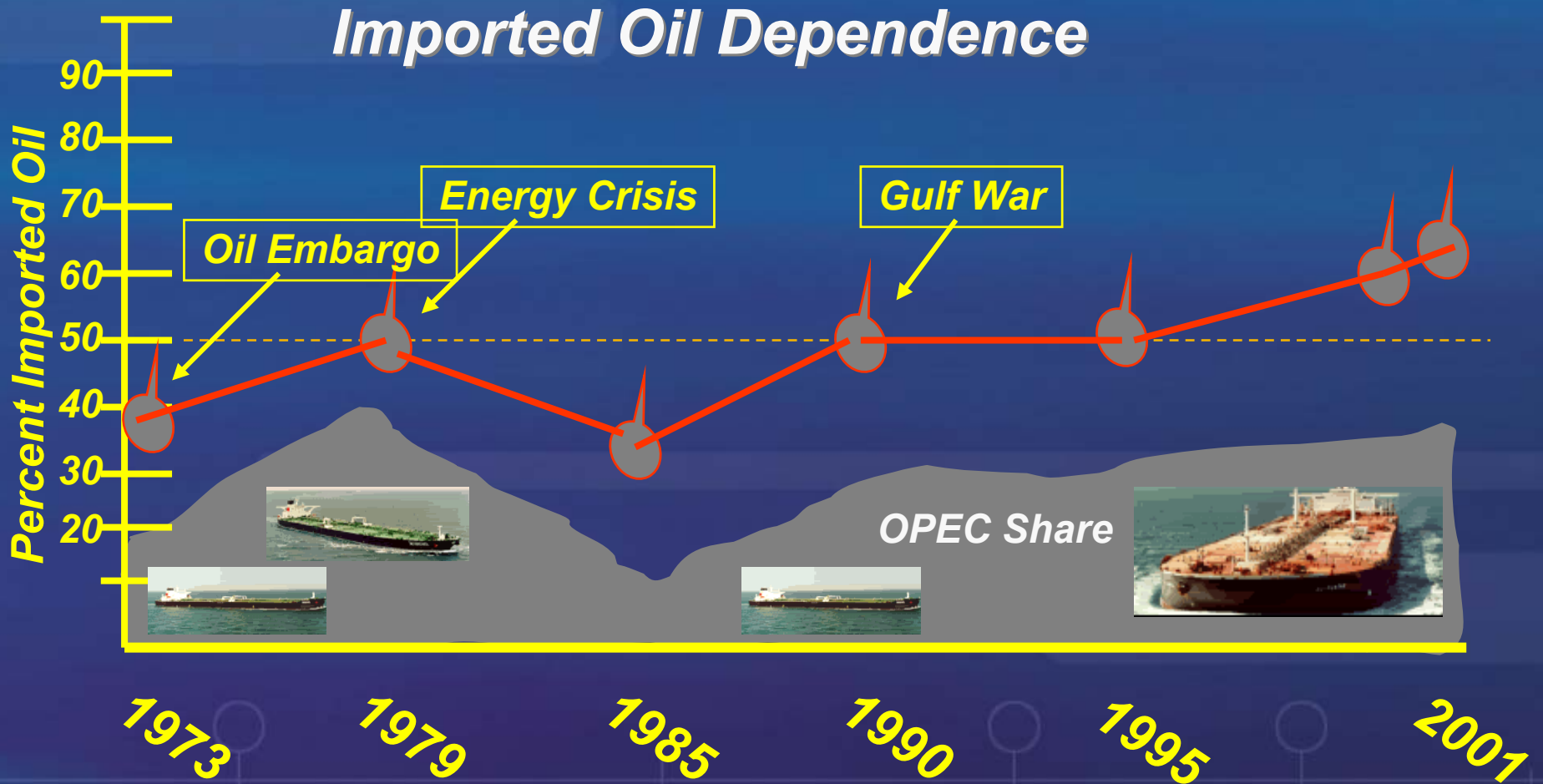
Carrots or Sticks?



**What's NOT
Working?**

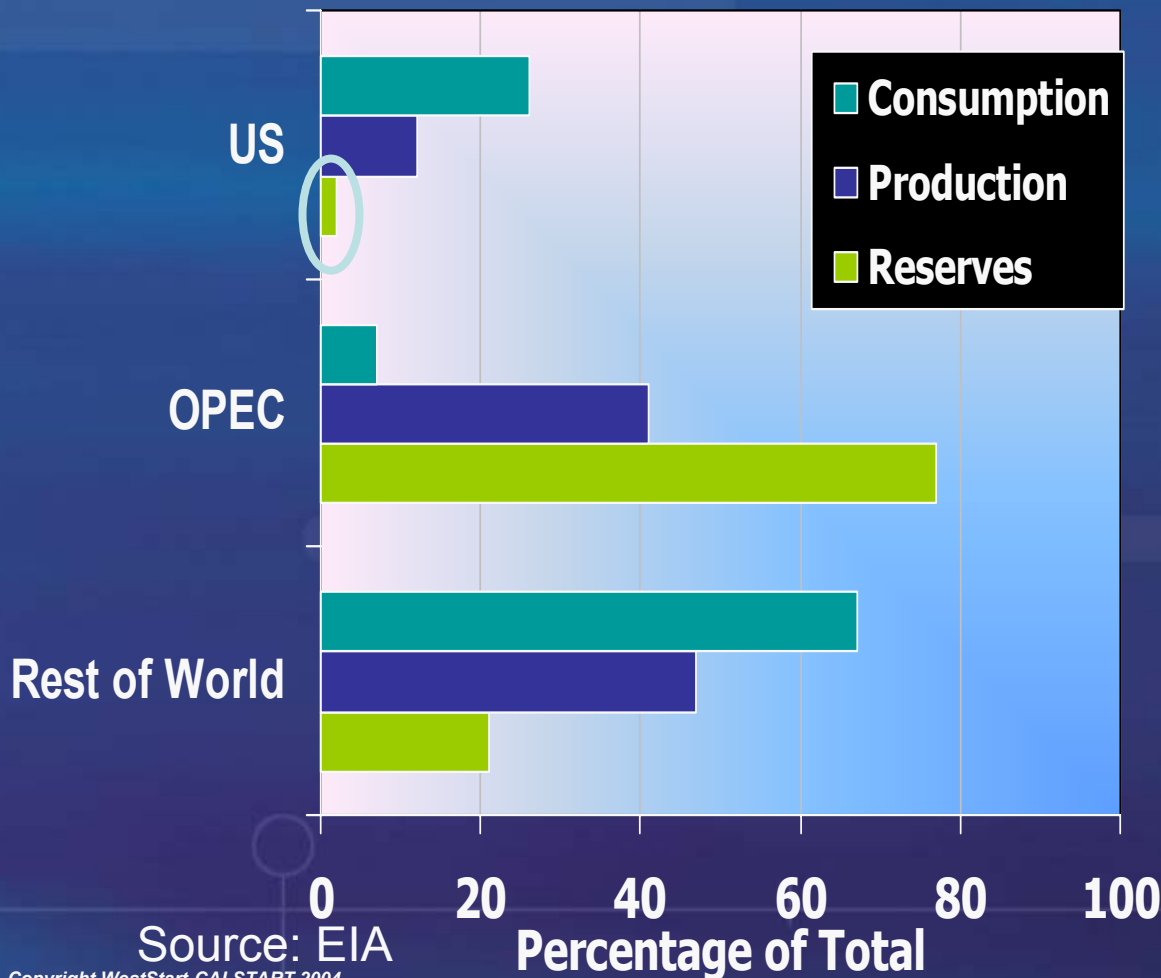


The Petroleum Trap



Source:
Energy Information Admin.

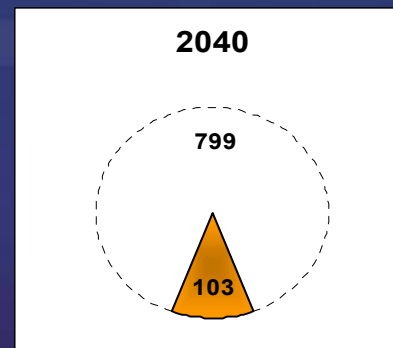
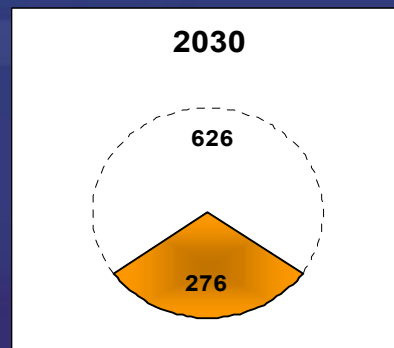
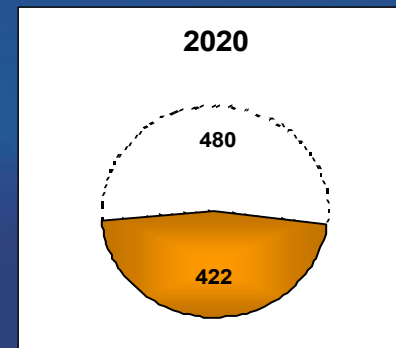
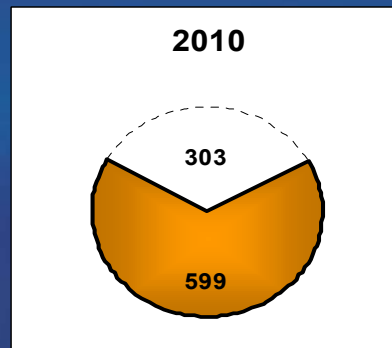
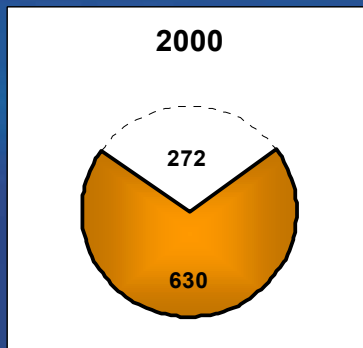
Energy Security – The Growing Risk



- Most major U.S. reserves have been drained
- By 2020, OPEC will control 70% of world oil reserves

SHRINKING CARBON BUDGET = LIMITED TIME FOR ACTION

Ask not, "How big is the pie?"
Ask, "How much of the pie is left?"



**Current
Trajectory**

Billions of
tonnes
carbon

Budget for 450 ppm Stabilization (1900-2100)

Source:
NRDC

Hidden Costs of Oil



- Alternative fuel forced to compete against subsidized price of oil
- Pre-Invasion of Iraq estimate of defending Persian Gulf: \$60 billion* = \$0.44/gallon
- Approximately \$100B/year to import oil
- Additional healthcare expenses add at least another \$0.50/gallon

* *Source: Cato Institute*

Oil Displacement Signals Not Being Sent to OEMs



Navistar CXT

- Fleet fuel economy today lower than it was 20 years ago
- R&D \$ going into better performance, horsepower, and acceleration
- Gas prices still not resulting in strong signals to OEMs

Carrots or Sticks?

**How Could It Work
Better?**

European Union Transportation Energy Goals

The EU Supports Portfolio Approach

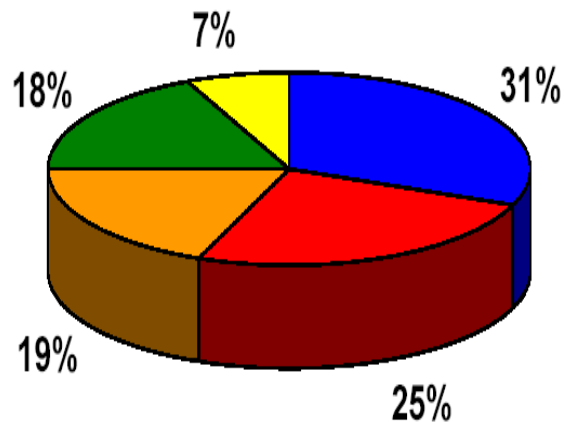
State of CA Also Has 20% by 2020 Goal

Hybrids major part of CA strategy

Year	Biofuel %	Naturalgas %	Hydrogen %	Total %
2005	2			2
2010	6	2		8
2015	7	5	2	14
2020	8	10	5	23

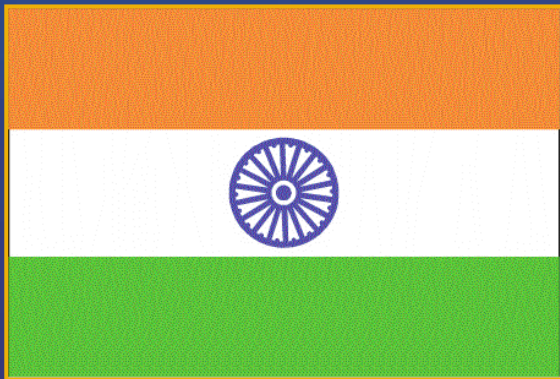
German NGV Program: Strong National Leadership

Natural gas supplies for Germany 2002



- Long-term commitment to preferential tax policy for natural gas – through 2020
- 20,000 to > 500,000 NGVs by 2018
- 1,000 new stations in next four years

Supreme Court of India Requires NGVs



- Severe air quality problems in results in Supreme Court of India mandating conversion of all Delhi buses to CNG; 7,500 CNG buses in operation
- Indian government mandated Euro IV emission norms in 11 target cities by 2010; market averages 25,000 new buses per year
- Natural Gas B-series engines will be manufactured by Cummins India in early 2005

Raising the Cost of Gasoline Vehicles

- French and Swedes considering SUV tax -- gas guzzler tax
- Pay as you go insurance – the more you drive a conventional fuel vehicle the higher your insurance
- Waiving the registration fees for alternative fuel vehicles

Supreme Court Limits SCAQMD Fleet Rules

- U.S. Supreme Court tells South Coast Air Management District it can't require private fleets to use alternative fuels
- Court held that Fleet Rules constitute an emissions standard - a power reserved to the federal government by the Clean Air Act
- Case returned to U.S. District Court to determine if rules apply to public fleets



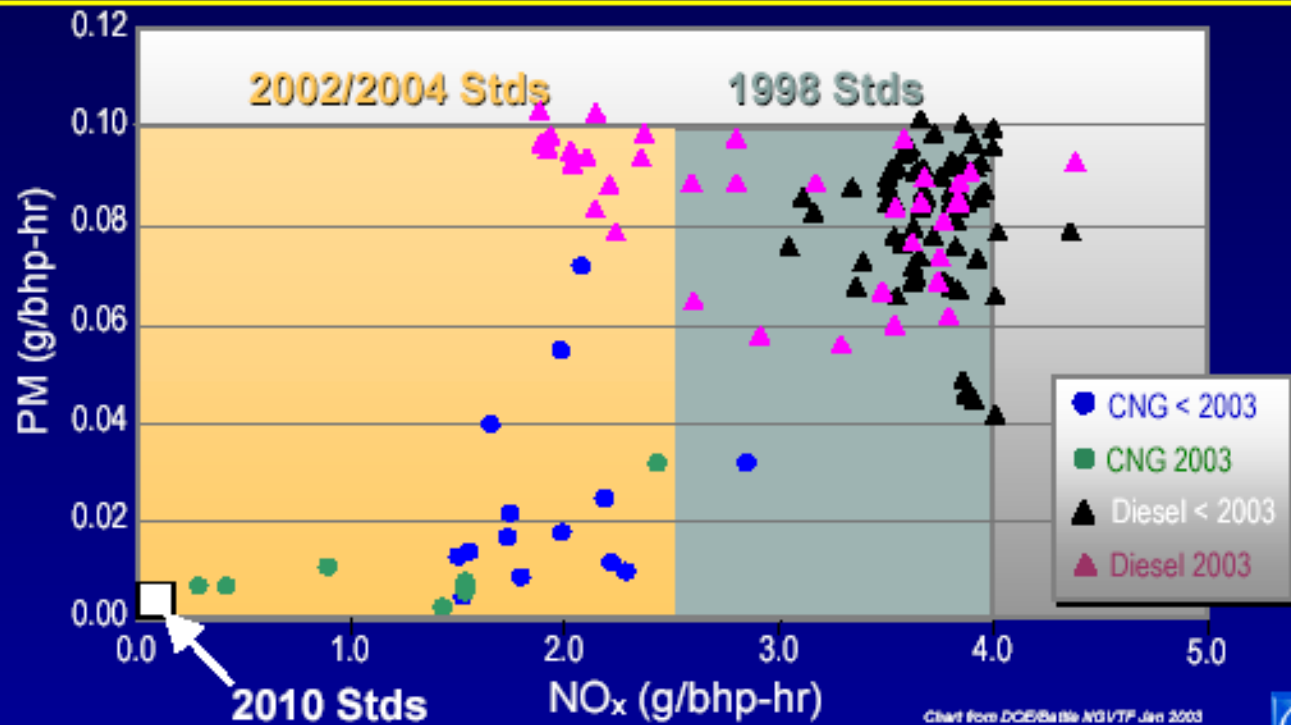
Federal R&D Success Story



- 1993-1998 DOD & DOT supported heavy-duty hybrid electric drivetrain R&D
- Almost every major bus manufacturer now offering hybrid products
- Almost every hybrid drive train supplier participated in DARPA/AVP program and now partnering with bus manufacturers
- Drivetrain technology now being developed for much larger truck market

Another R&D Success Story: NGNGV

Current Certification Data for Heavy-Duty Diesel Engines



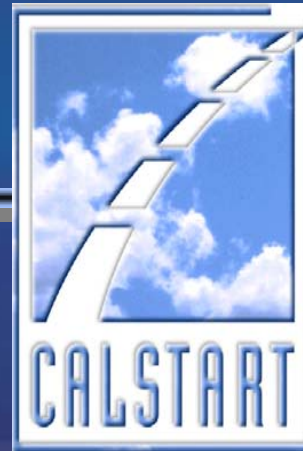
like Jackson (TIAx) "Diesel: What the Future Holds", Jan 27, 2004

Chart from DCE/Bafile NGV/TF Jan 2003



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www.weststart.org