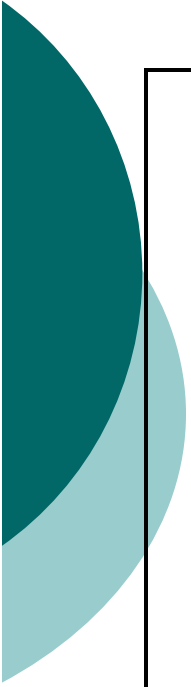




Strategies for Sustainability: NGVs in the New Paradigm

Brian Stokes
Chairman, CVEF
Manager, Clean Air Transportation
Pacific Gas and Electric Company



**Market changes are creating
the best opportunity
our industry has had to
break through barriers
to
NGV sustainability.**



Last Year

“Oil prices have hit a 21-year record high of over \$43 a barrel, and prices have fluctuated rapidly with every new threat of supply disruption.”



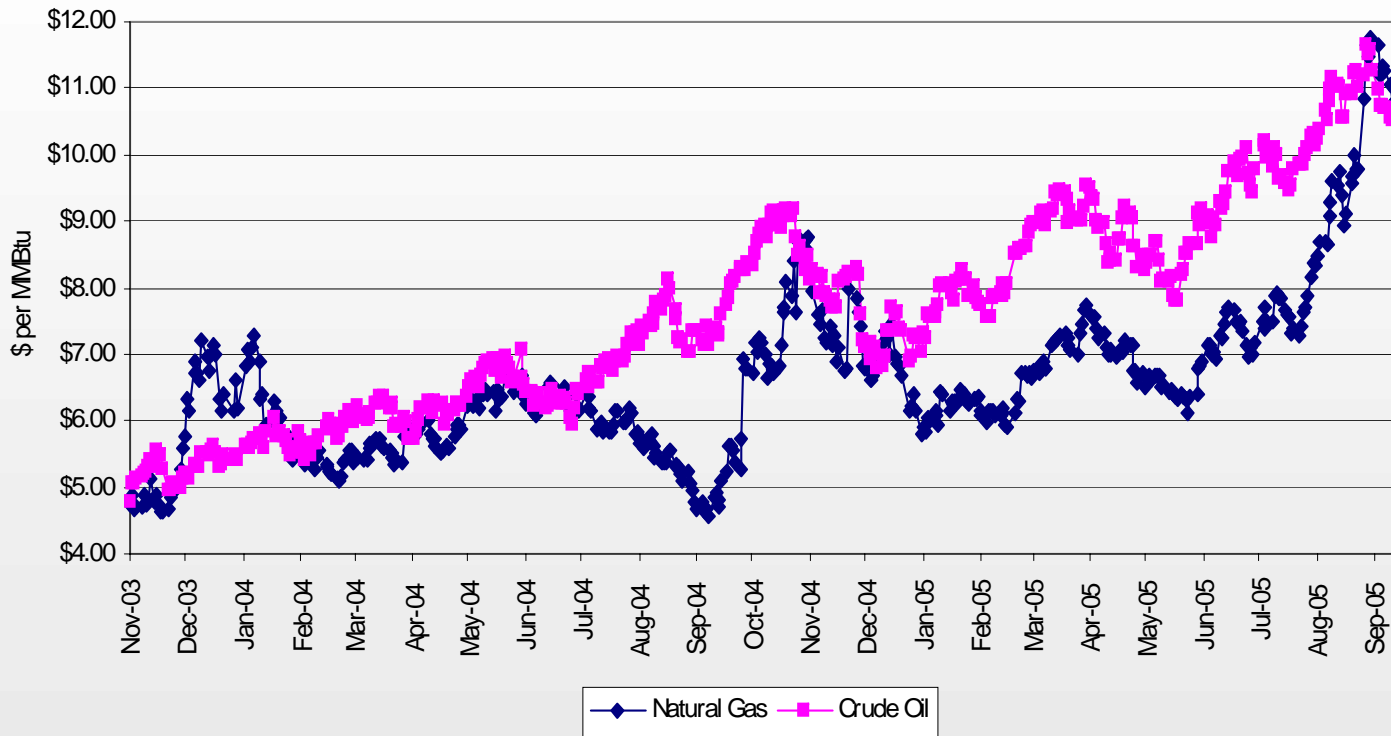
Shell Oil on Oil Supply Scarcity

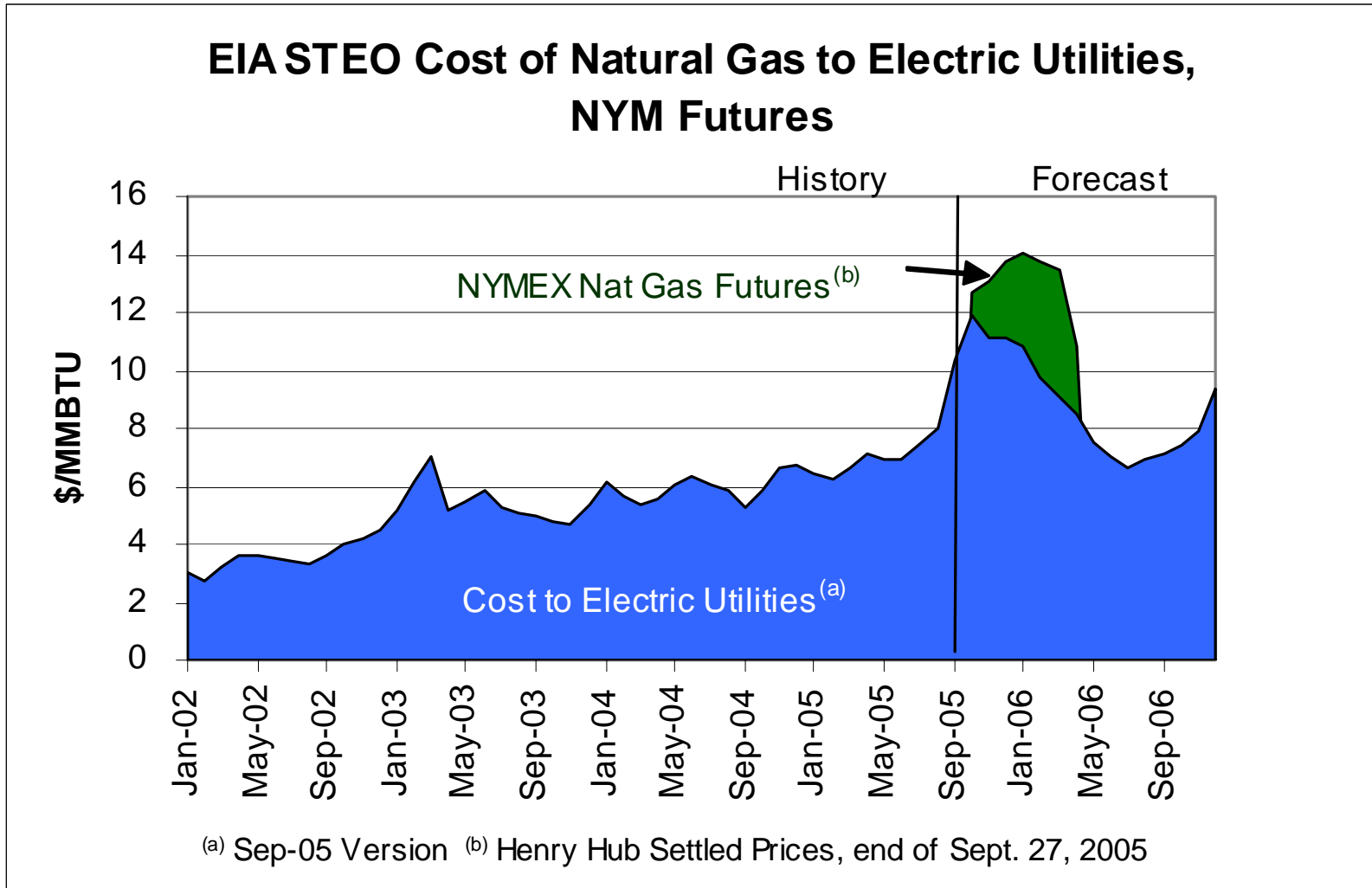
- “A scarcity of oil supplies, including unconventional sources and natural gas, is very unlikely before 2025. This could be extended to 2040 by adopting measures to increase vehicle efficiency...”

Gas Market

Oil And Natural Gas Have Converged In Price Following The Gulf Supply Disruption

Crude Oil and Natural Gas Prices, Prompt Month Contract



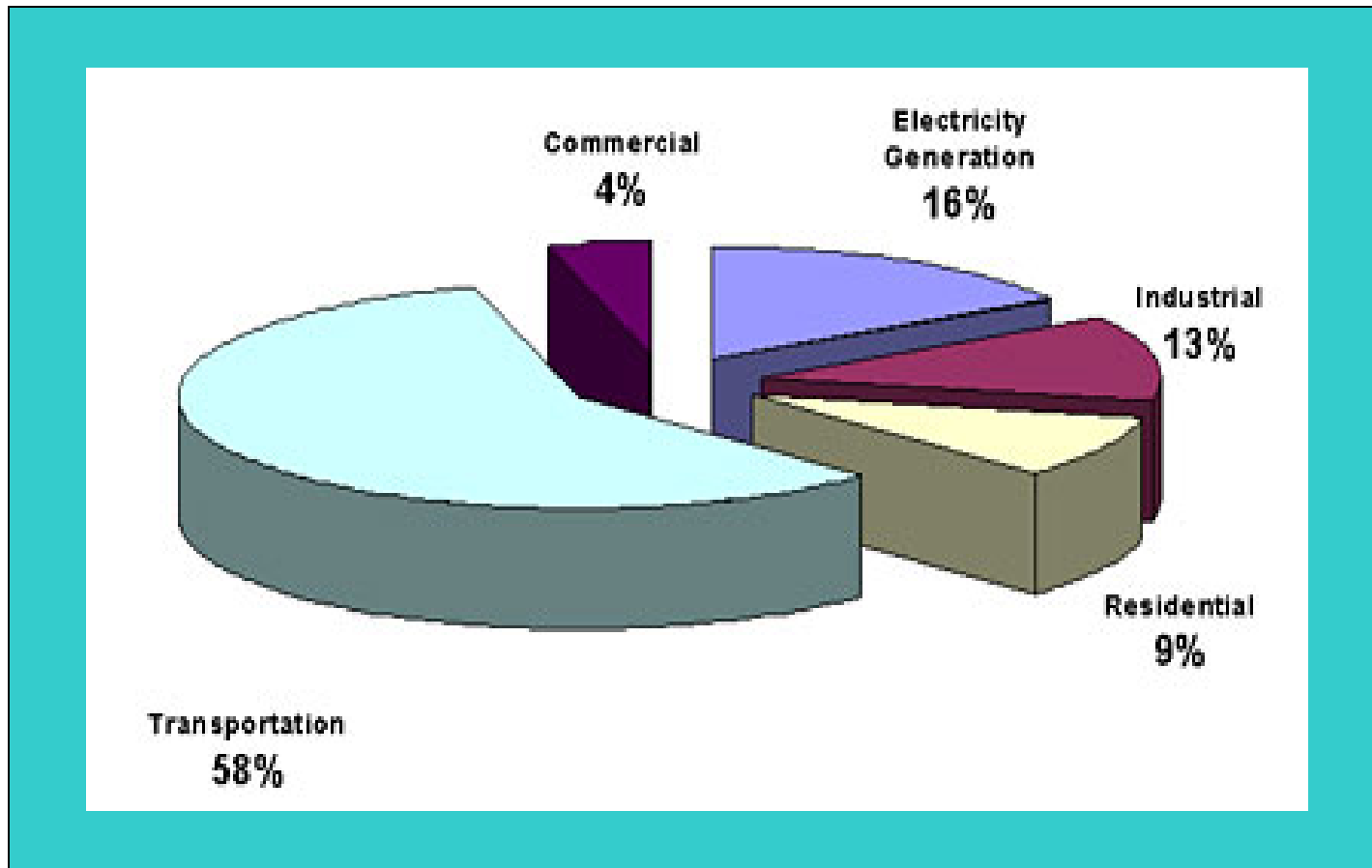




Impact of EPA's 2007-10 Heavy-Duty Vehicle Emission Requirements

- Projected to increase diesel truck prices \$15,000 or more
- Add 5 to 10 cents to a gallon for low-sulfur diesel fuel
- Increase operating and maintenance costs

Sources of CO2 in California





CARB on Fleet Rules

- Rejected Refuse & School Bus rules
- Adopted Transit Rule requiring NGV path
- Adopted resolution supporting SCAQMD rules, future action if challenged
- Decision to change HD emission requirements pending

CEC Petroleum Reduction and Benefits for Very High Petroleum Price Scenario

			Highest Cumulative Benefit or Change Present Value, 2005-2025, 5% discount rate, With GHG Standards, Billion \$2005			
			A	B	C	A+B+C
Alternative Fuel Option or Scenario	Displacement in 2025, billion gallons gasoline equivalent	Percent Reduction from Base Case Demand	Direct Non-Environmental Net Benefit	Direct Environmental Net Benefit	External cost of Petroleum Dependency	Direct Net Benefit
Ethanol Blend (E10 reduced price case)	0.48	2.30	0.00	1.98	0.53	2.51
LNG and CNG for Medium and Heavy-duty Vehicles (Aggressive Case)	1.70	8.16	1.20	0.16	0.61	1.97
Renewable Diesel (20%, \$1.00/gallon federal tax subsidy)	1.00	4.80	0.00	0.96	0.52	1.48
Renewable Diesel (20%, \$0.30/gallon federal tax subsidy)	1.00	4.80	0.00	0.96	0.52	1.48
Electric Battery Technologies (NEV and CEV)	0.10	0.48	1.11	0.07	0.04	1.22
Grid-connected Hybrid Electric Vehicles (HEV20)	0.53	2.56	0.62	0.32	0.19	1.13
Gas-to-Liquid (GTL) and Coal-to-Liquid (CTL) Fuels	1.64	7.87	0.00	0.10	0.77	0.87



CEC Calls for.....

- Establishment of alternative fuel RD&D funding
- Low-interest loans
- Direct purchase incentive programs
 - Pay-as-you-drive or Feebates
- Alternative fuel vehicle procurement requirements for State's fleet



CEC Calls for..... (continued)

- Amendments to Carl Moyer Incentive program to include petroleum reduction programs
 - Applies to “pollutant portfolio”
- Development of on- and off-road diesel use and idling reduction programs



NGVC Staff and Membership Demonstrating Characteristics

- Won over \$1 billion in tax credits and appropriations
- Built consensus with:
 - Enviros
 - Alternative fuel advocates
 - Auto lobbyists and others
- Promotions and communications



CVEF Staff and Sponsors Exemplify Same Characteristics

- Organized joint conferences
- Created NGV Zones to target:
 - High-potential market segments
 - Customer forums to promote NGV products and services



CVEF Staff and Sponsors Exemplify Same Characteristics (cont.)

- Supported DOE's NGV Technology Forum that coordinates advancements of NGV products
 - Reducing costs
 - Improving performance and value
- Created Utility and Public Fleet Council
 - Helping standardize NGV specifications
 - Creating critical mass of product orders
- Led Codes & Standards Work



Sustainability Strategies

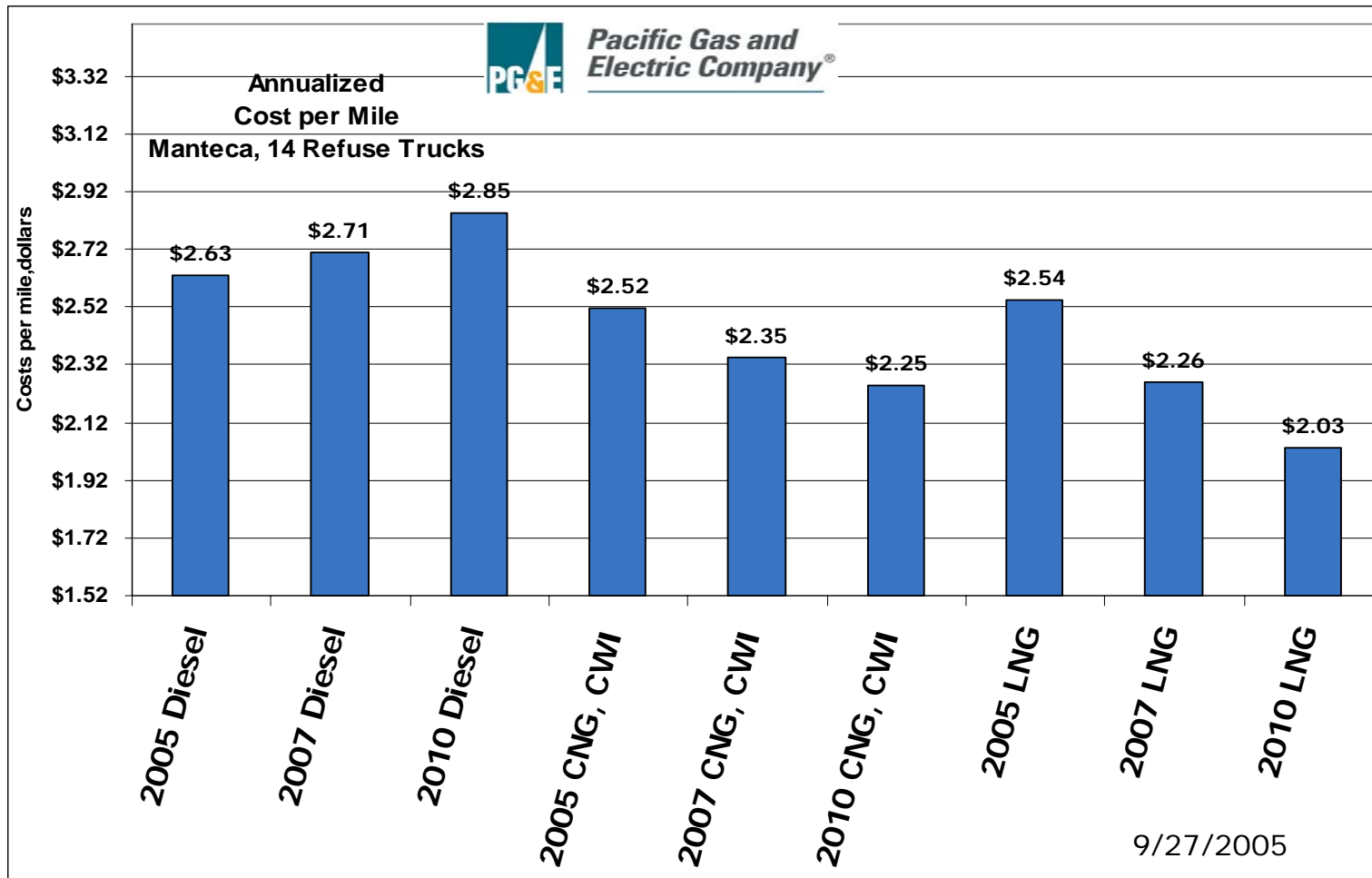
- Legislative influence
 - Strengthen NGVC outreach
- Regulatory influence
 - Expand agency interaction
 - Codes and Standards
- Accelerated product development
 - Next Gen NGV – User Councils



Sustainability Strategies

- Increase public awareness
 - more advertorials/ customer testimonial/fleet trade publication ads
 - Scheduled around conference events
- Support States' Initiatives
 - Petroleum dependency reduction
 - Climate change

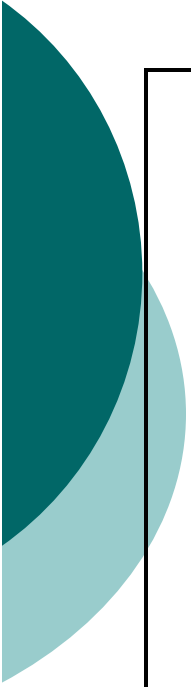
TIAX MODEL





Call to Action

- Finance lobbying & education efforts
- Promote new NGV economics
- Accelerate NGV product development
- Draw critical stakeholders (back) into market



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