



4th Annual Strategic Sourcing Study

Energy Prices Reshaping the Supply Chain: Charting a New Course?

August 2007



Who we are

- Supply Chain Research
- Supply Market Forecasts
- Supply Chain Consulting

On the Cutting Edge of Strategic Sourcing

How Industry Leaders Are Planning to Transform Supply Relationships over the Next Four Years

2004



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High-Impact Sourcing

Precision-Guided Sourcing Strategies for Maximum Results

Manufacturer's Edition

2005

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State of Strategic Sourcing 2006

"The Asian Sourcing Boom: How Long Will it Last?"



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State of Strategic Sourcing 2007

"Energy Prices Reshaping the Supply Chain: Charting a New Course?"



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Agenda

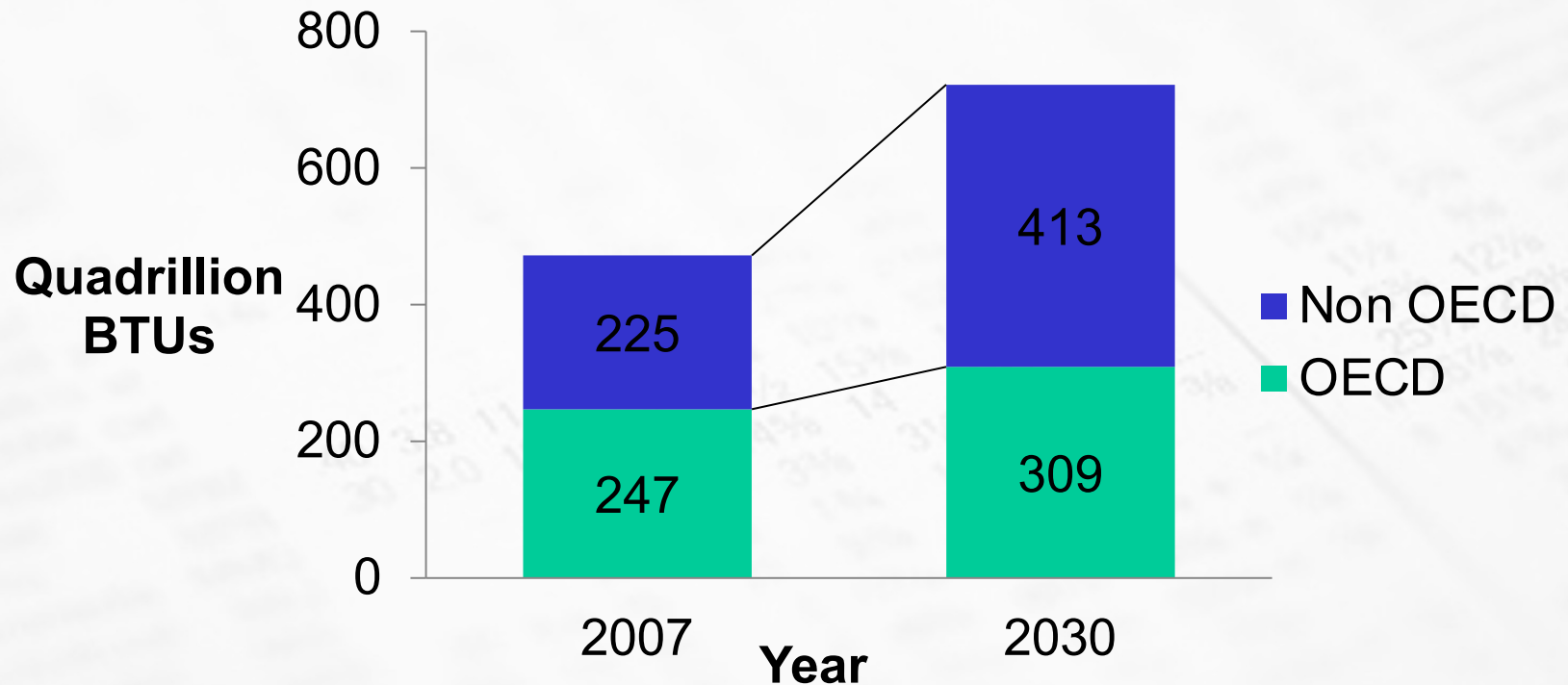
- High and Volatile
- Fragmented and Diffuse
- Supply Chain Impact
- Eight Buying Strategies
- Five Policy Issues
- The Bottom Line

High and Volatile

World energy requirements increasing

- Energy consumption forecast to increase 52% by 2030

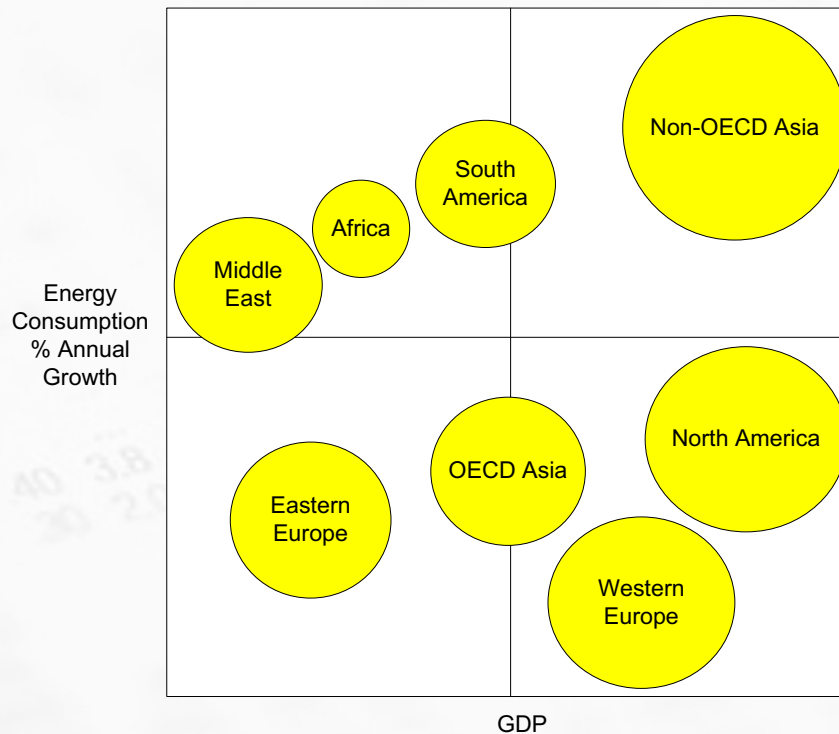
Growth in Global Energy Consumption, 2007 vs. 2030



Asia leading the growth

- China accounts for most of the demand growth
- Developed economies growing at 1% or less

Growth in Energy Consumption by World Area

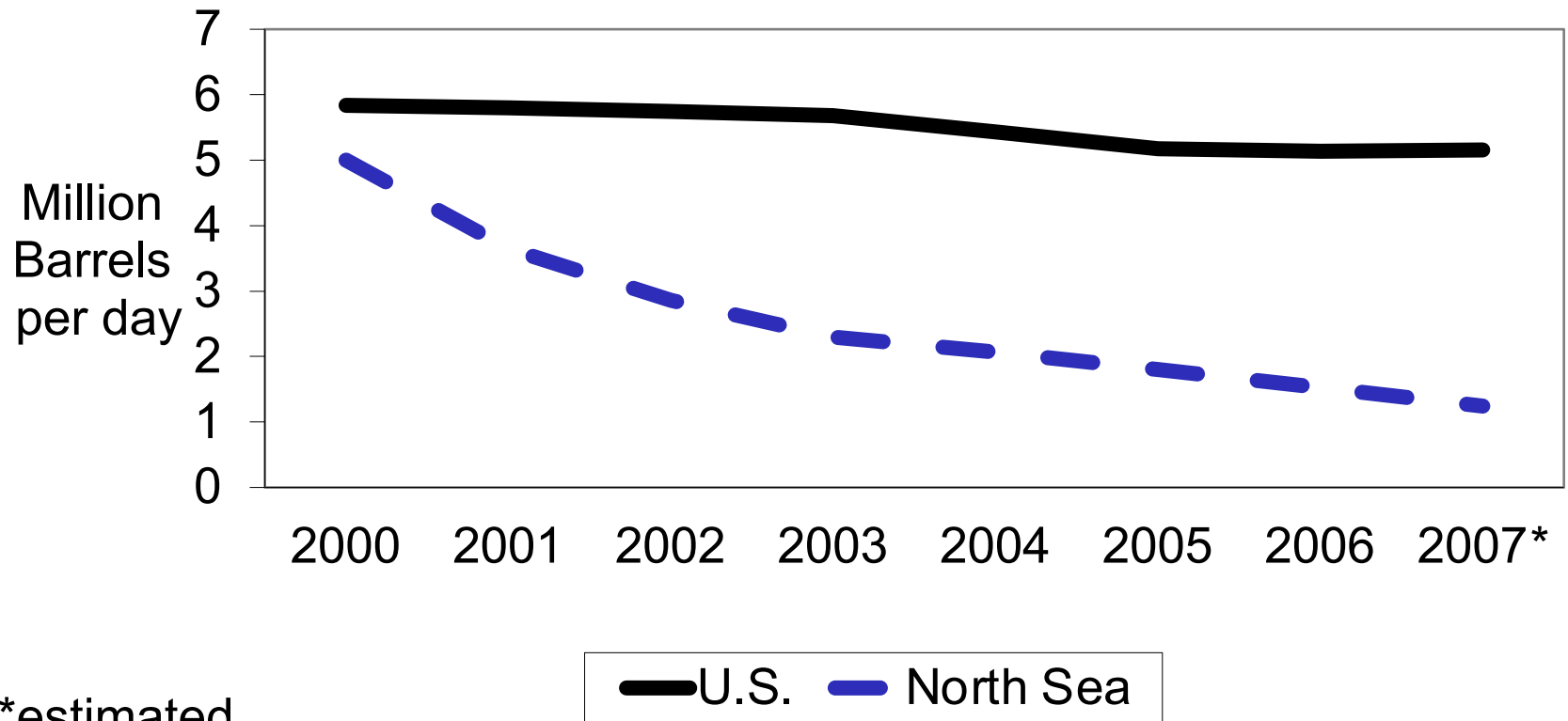


Note: Size of bubble proportional to actual energy consumption

Production falling behind

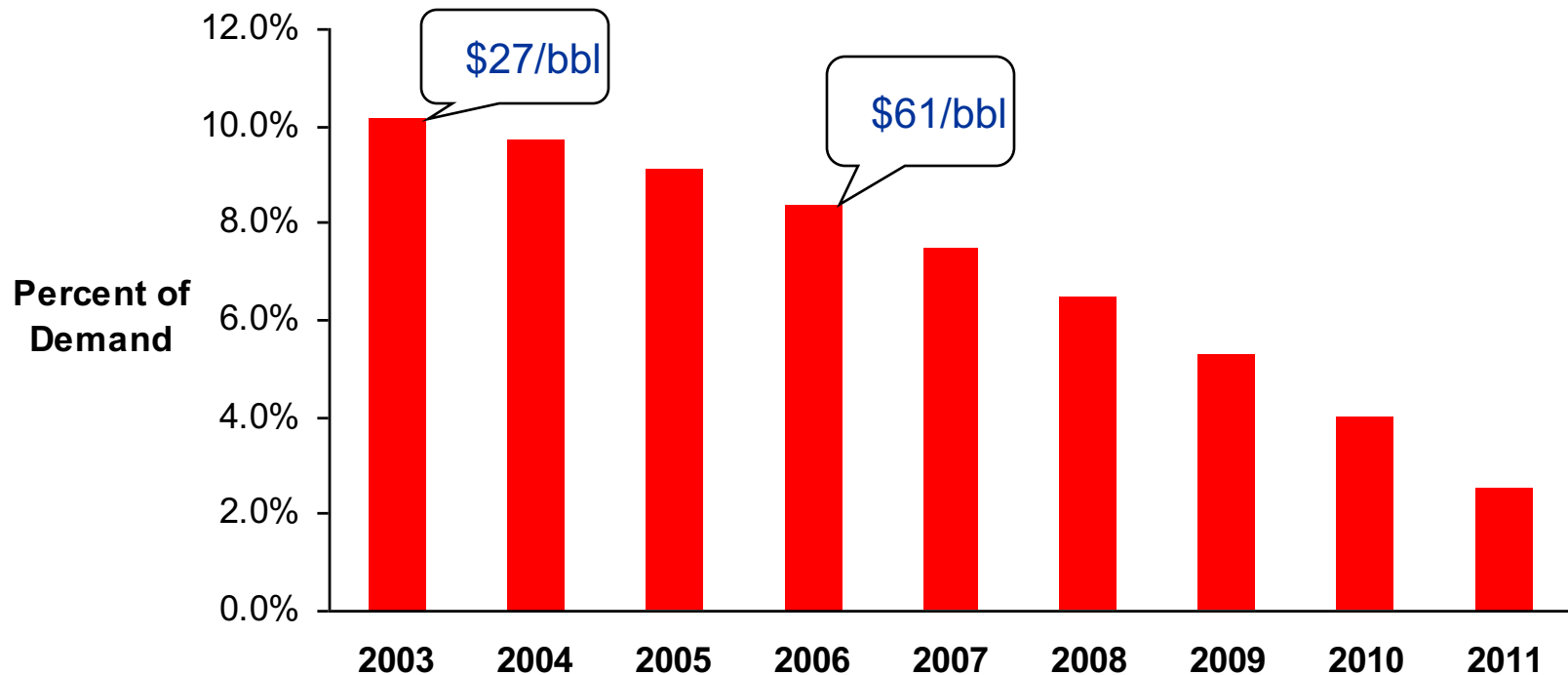
- Many locations declining in production

US and North Sea Oil Production



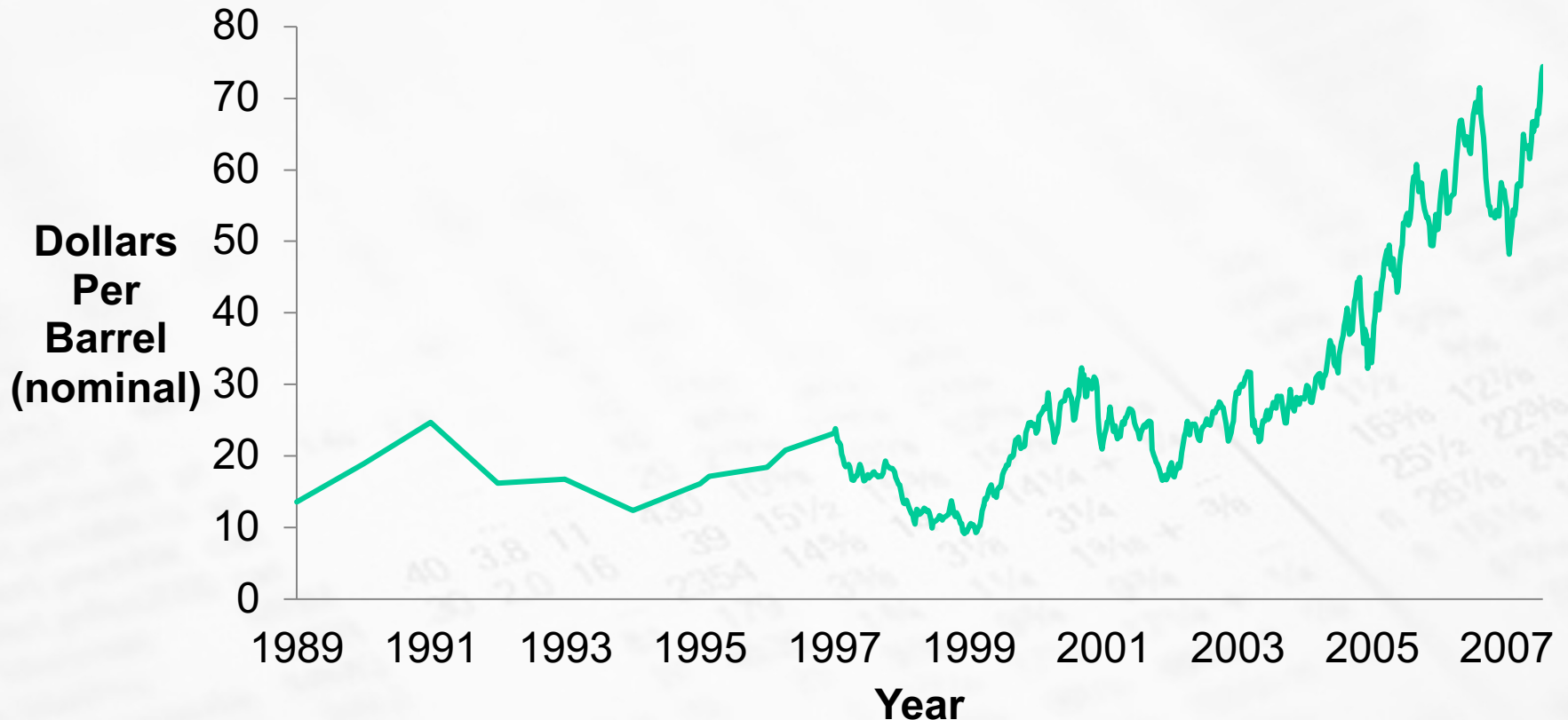
Global oil supply vs. demand

Gap Between Oil Demand and Oil Available



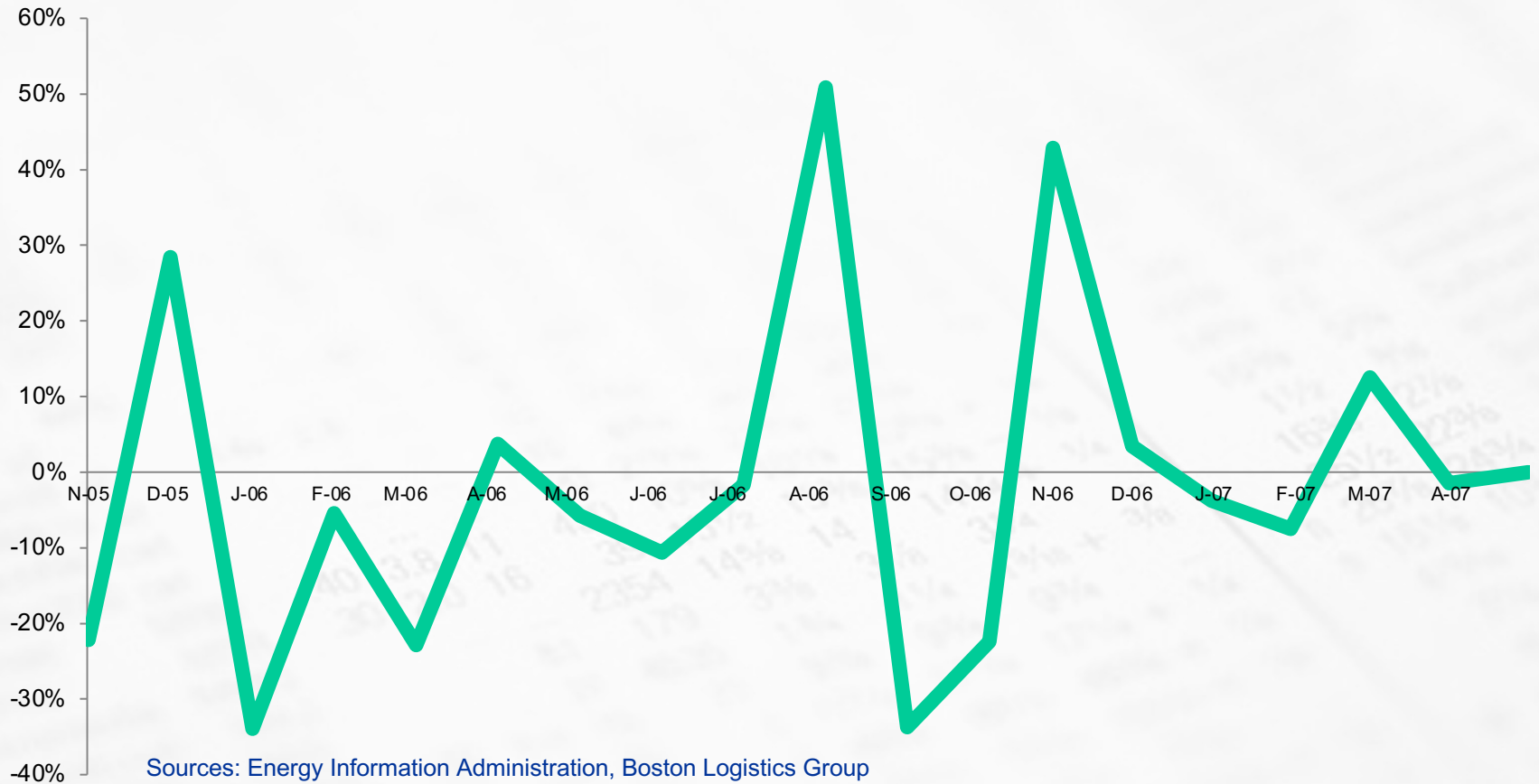
Higher oil prices here to stay?

Weighted Average World Oil Spot Prices 1989-2007



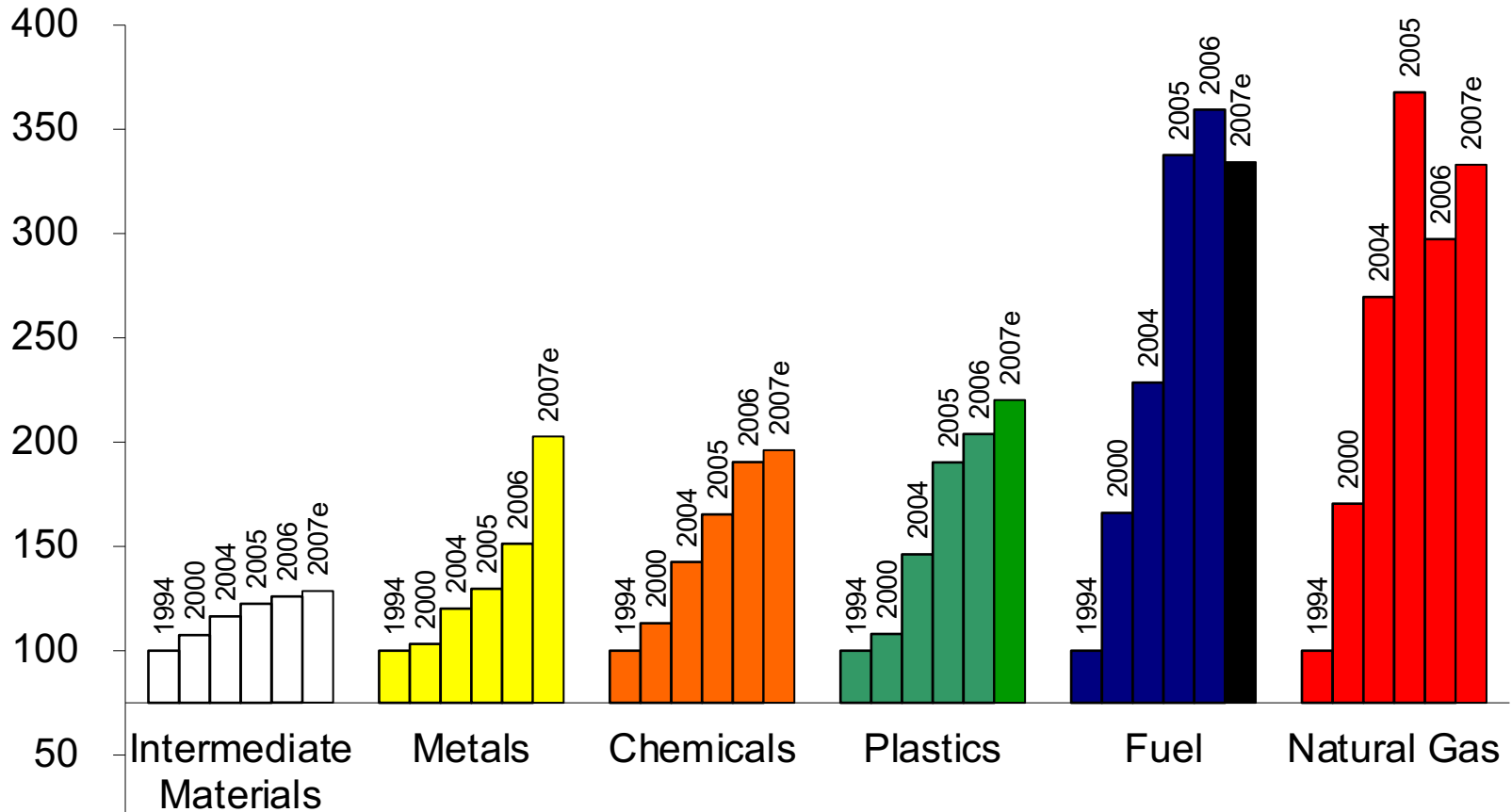
Risk & uncertainty: the new enemy

Percent Change in Natural Gas Price, November 2005 – April 2007



Material prices gone wild

Selected Producer Price Indices (1994=100)

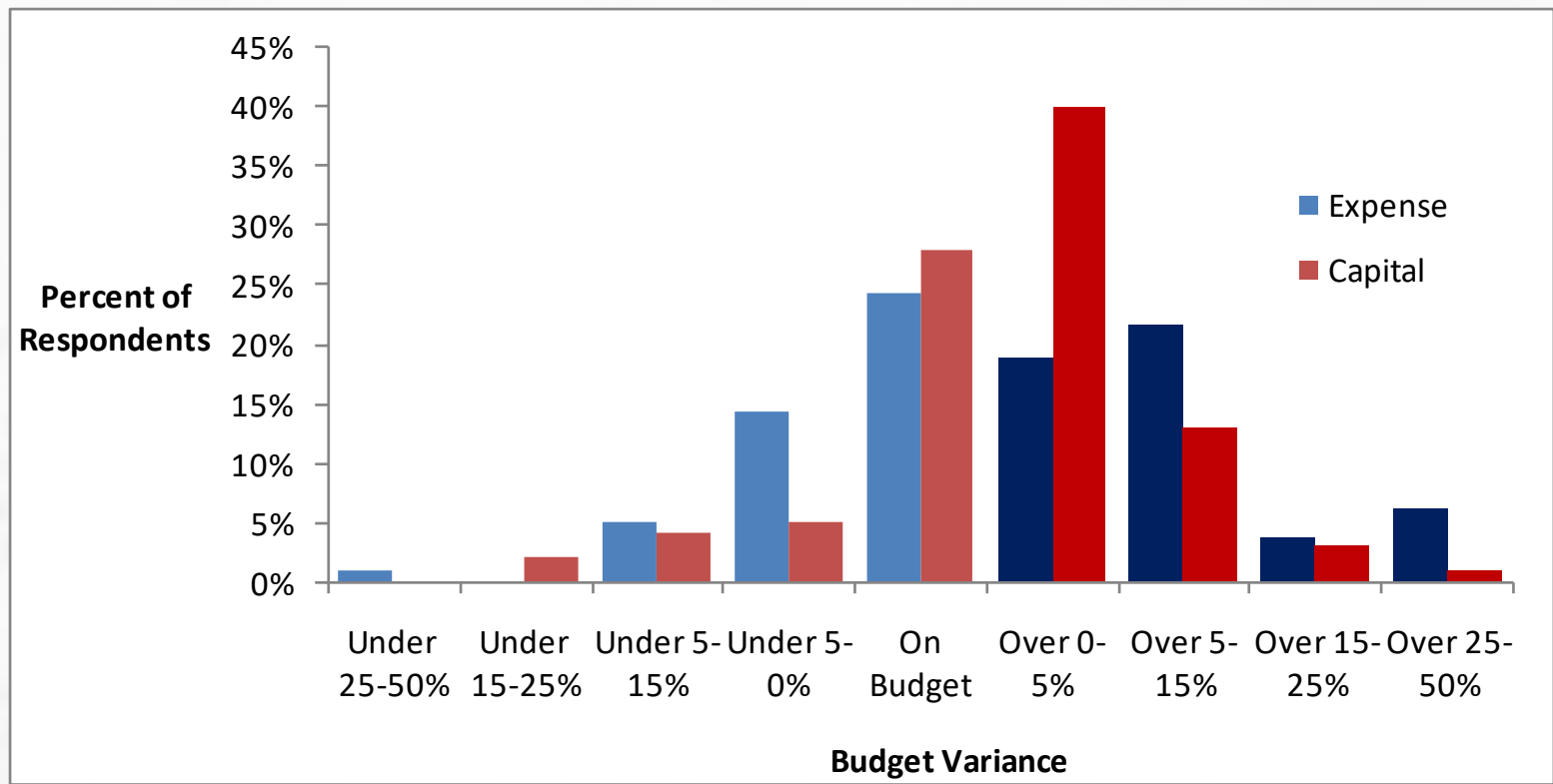


Source: Boston Logistics Group analysis of multiple data sources, including Global Insight

The End of Lean?

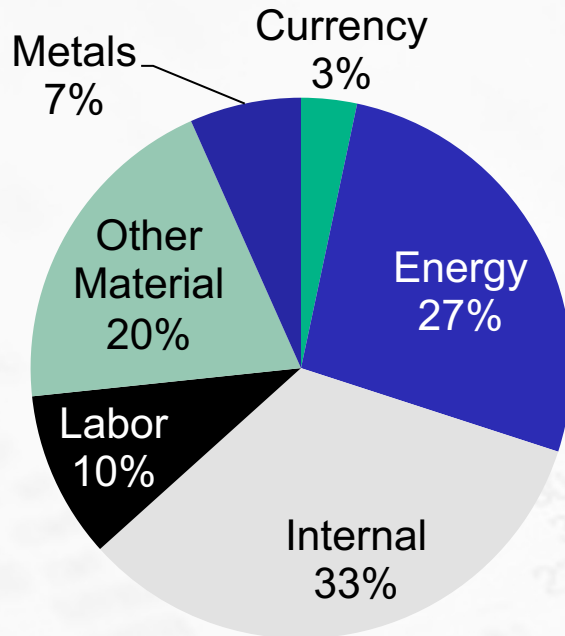
Budgets are off; variance is increasing

- Expense: 50% are over-budget, 62% worsening
- Capital: 60% are over-budget, 73% worsening

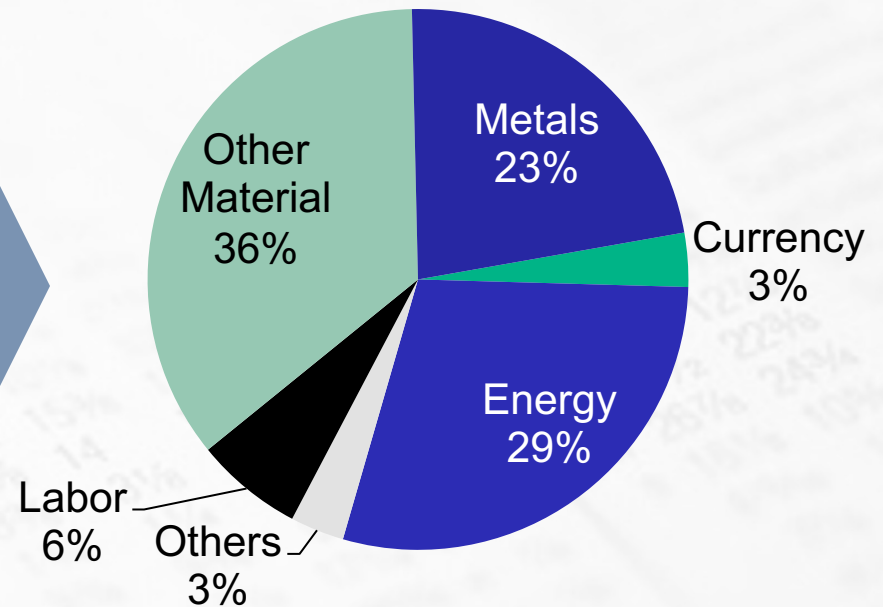


Energy on the brain

Reasons for Budget Variance



Biggest Budgeting Concern

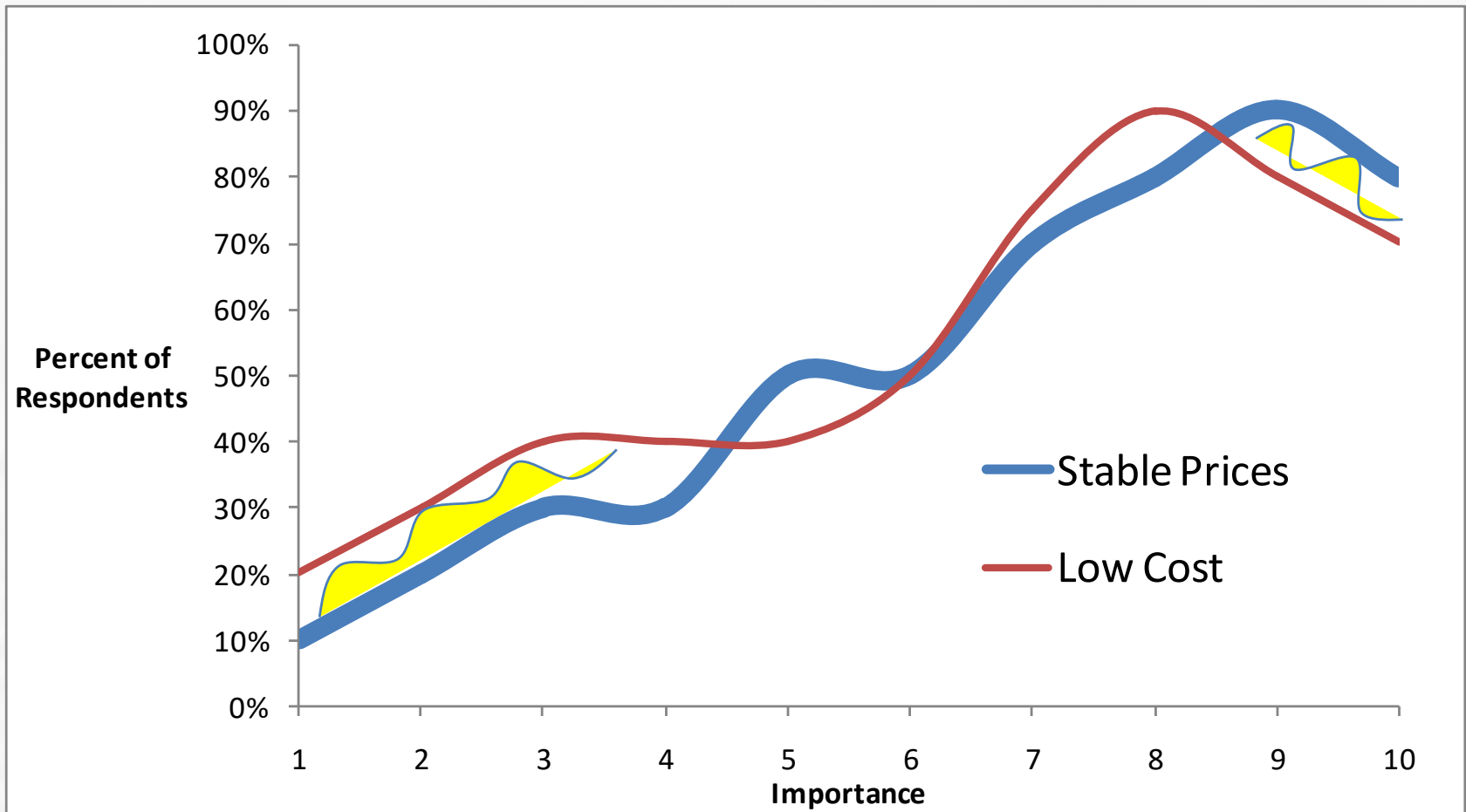


Energy economics reversing lean?

- Decentralizing operations?
- Holding more buffer stock?
- Affecting off-shoring decisions?
- Indirect economic drag?

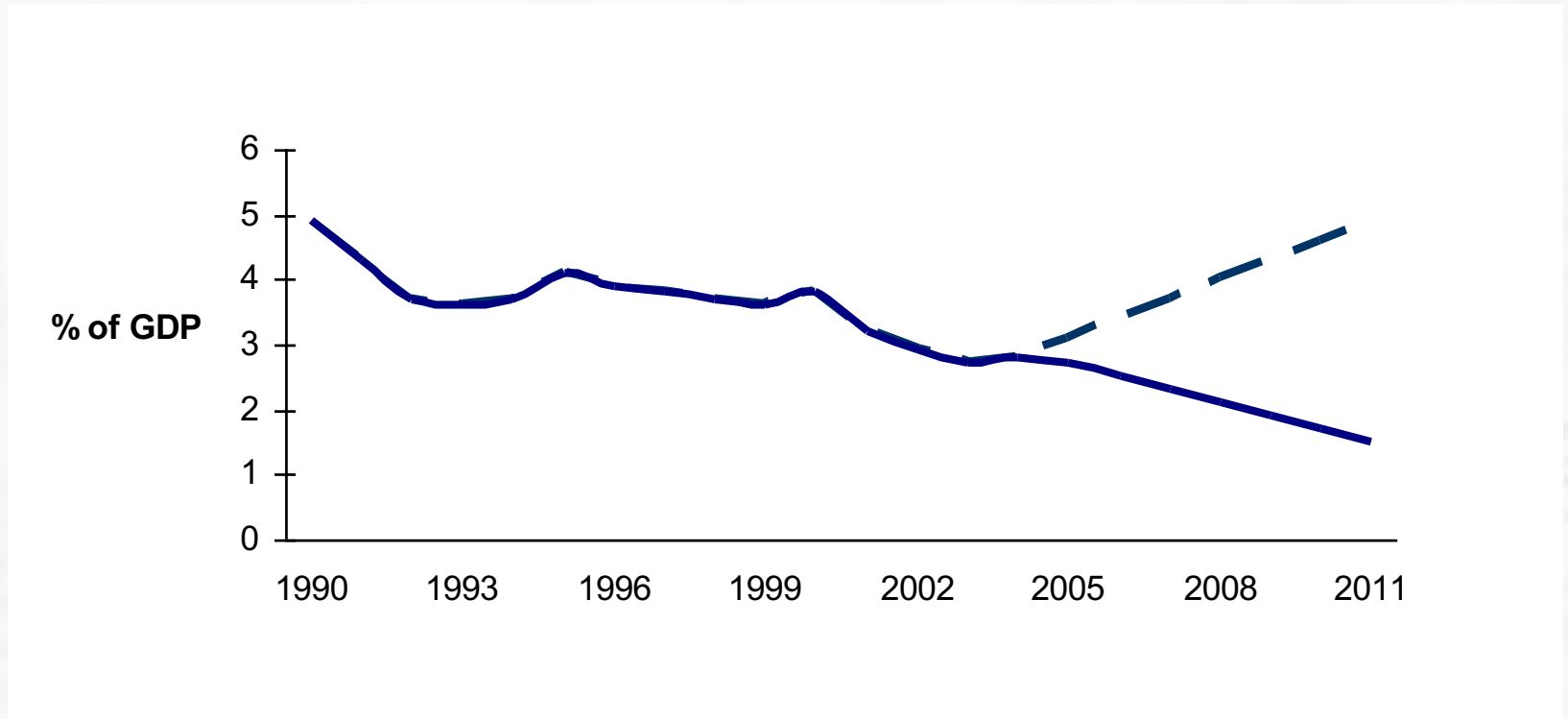


Stability as important as low cost



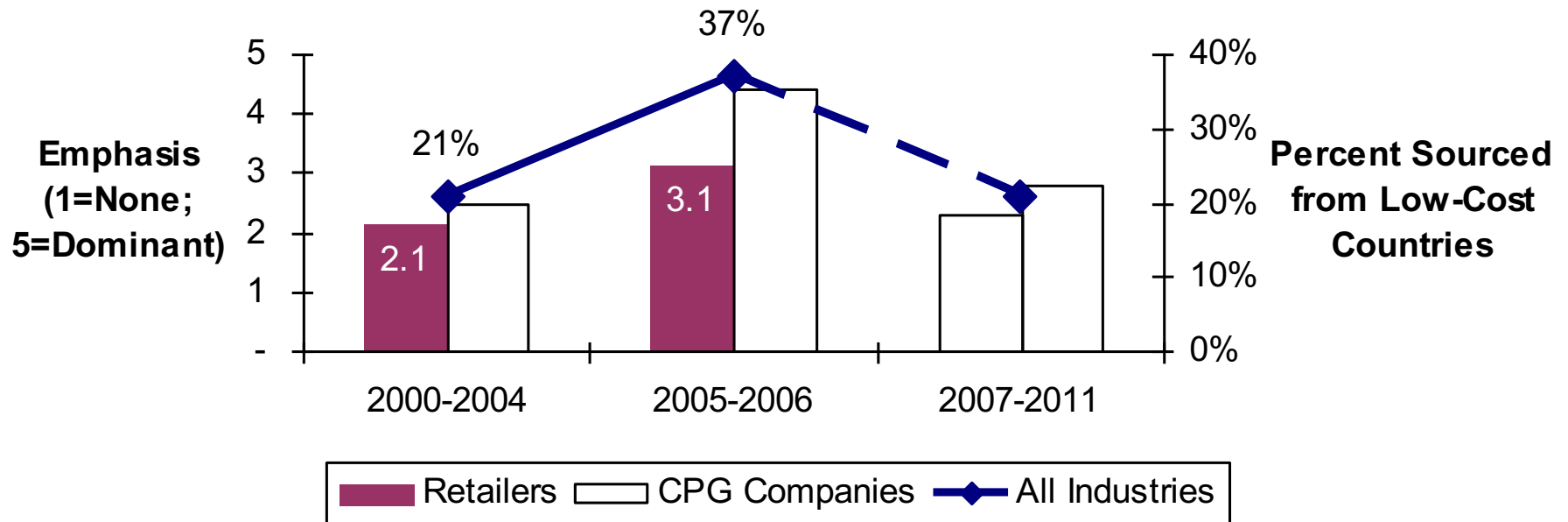
Inventory: inflection point?

Inventory as a Percent of GDP



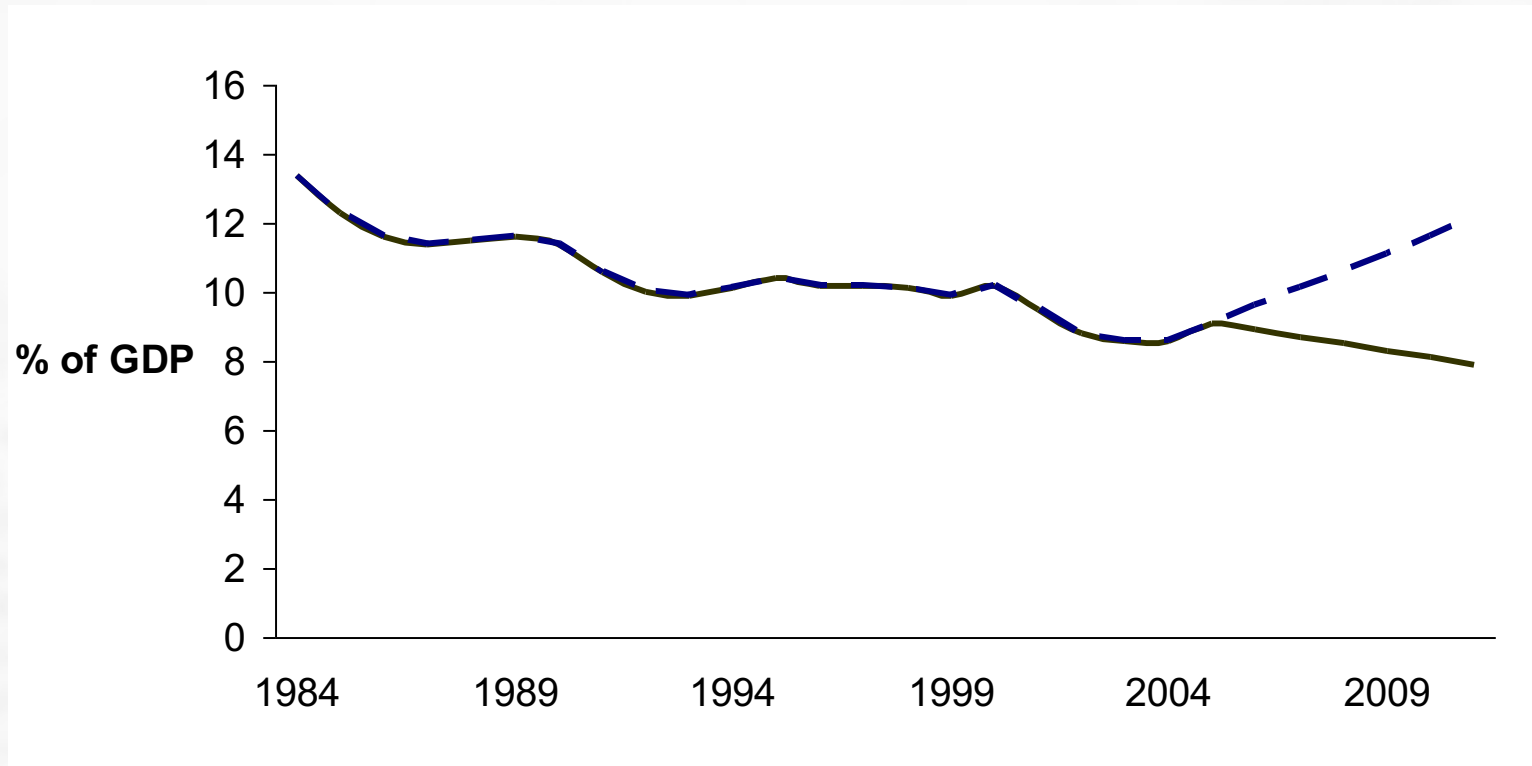
Low-cost country sourcing reversion?

Emphasis on Low-Cost Country Sourcing



Logistics cost increasing consumer prices?

Logistics Cost as a Percent of GDP

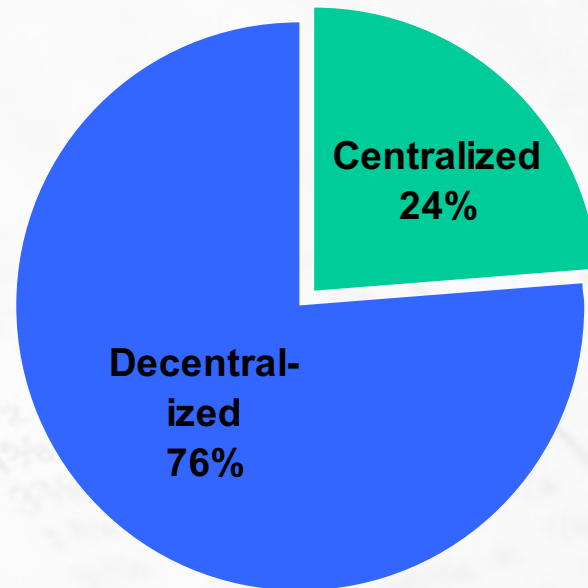


8 Buying Strategies

A fragmented buy

- Purchasing
- Transportation
- Materials
- Logistics
- Distribution
- Warehousing

Percent of Companies
Centralizing the Energy
Buy

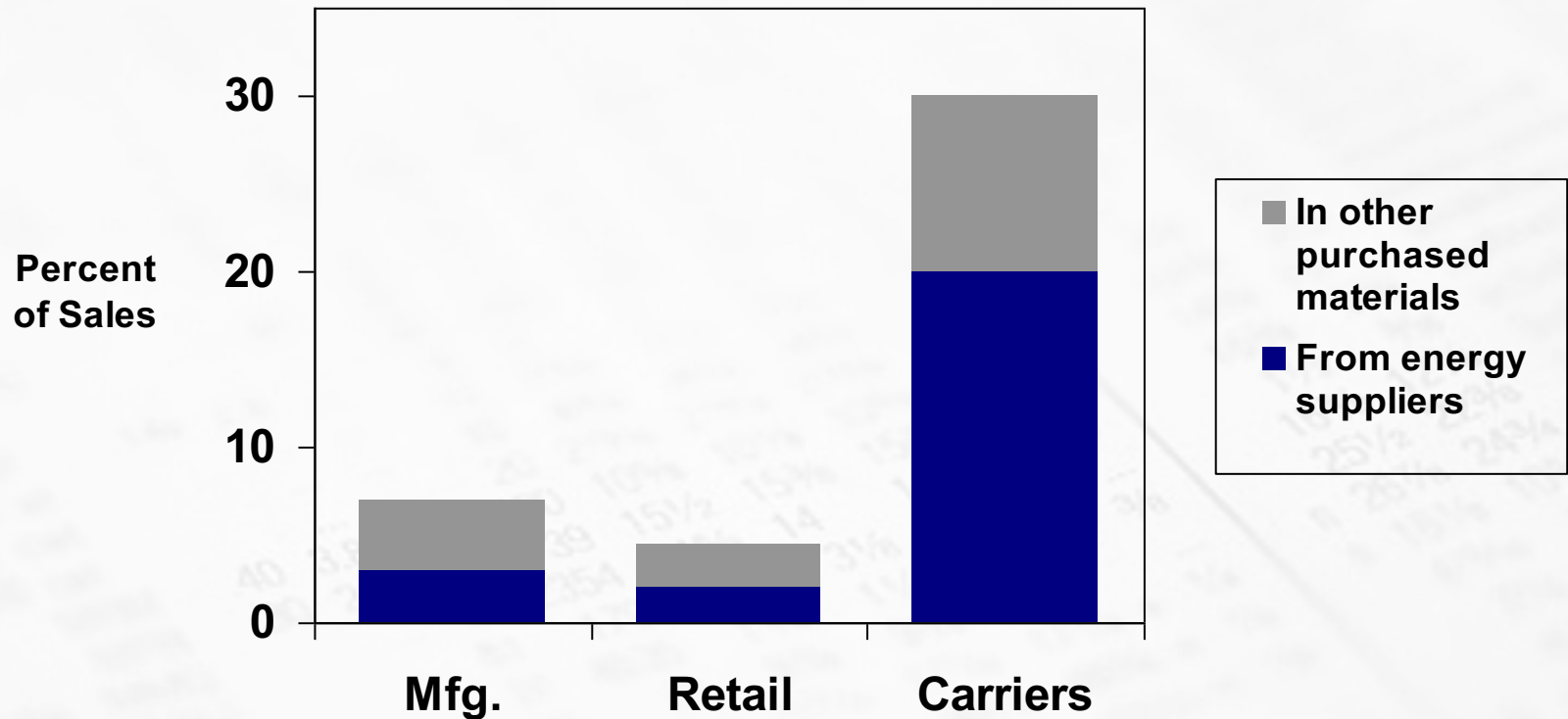


Fragmented

- “[We have]18 regional business units in the US and each one is responsible for its own energy expenditures” – Bryan Warshofsky, Director of Purchasing Applications.
- “We found that we were spending 20% more at one manufacturing plant than at an identical one in another state.” – Jacques Lalauze, Gemalto
- “[There is] a lot of gray area. It is often fragmented among Facilities, Transportation, Indirect, Manufacturing, Logistics, and Operations.” – Corporate Purchasing Manager, US consumer electronics retailer
- “Each plant manages it decentrally” – Henry Turner, Honda
- “Several folks manage power contracts” – Rich Walters, Air Products

A large but invisible expenditure

Energy as a Percent of Sales



Potential strategies

Supply Chain Strategies

1. Centralize purchasing
2. Join a buying consortium
3. Sign contracts at forecast rates
4. Reduce consumption (value engineering)

Financial Strategies

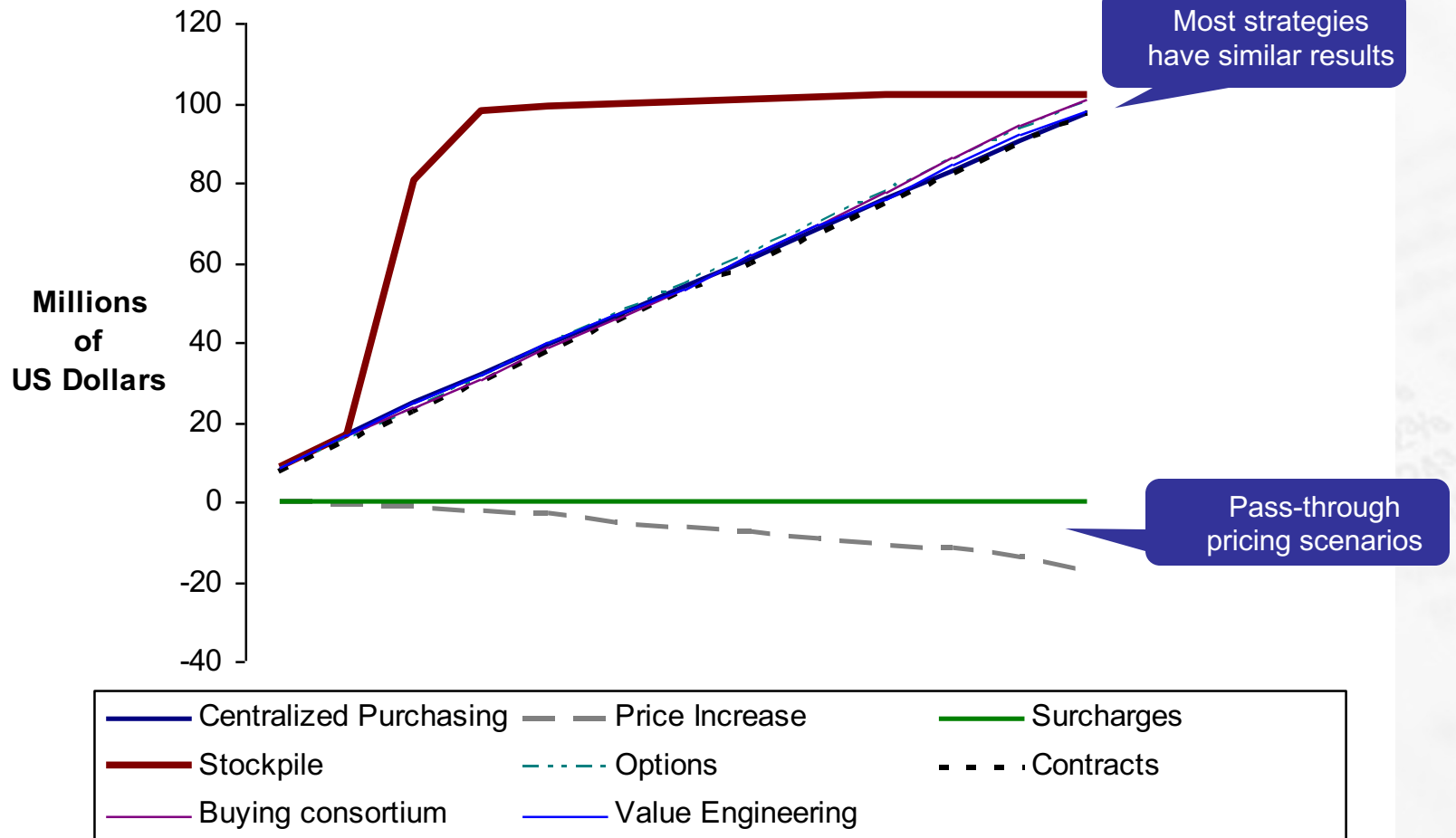
5. Buy in advance at the current price
6. Buy options

Pricing Strategies

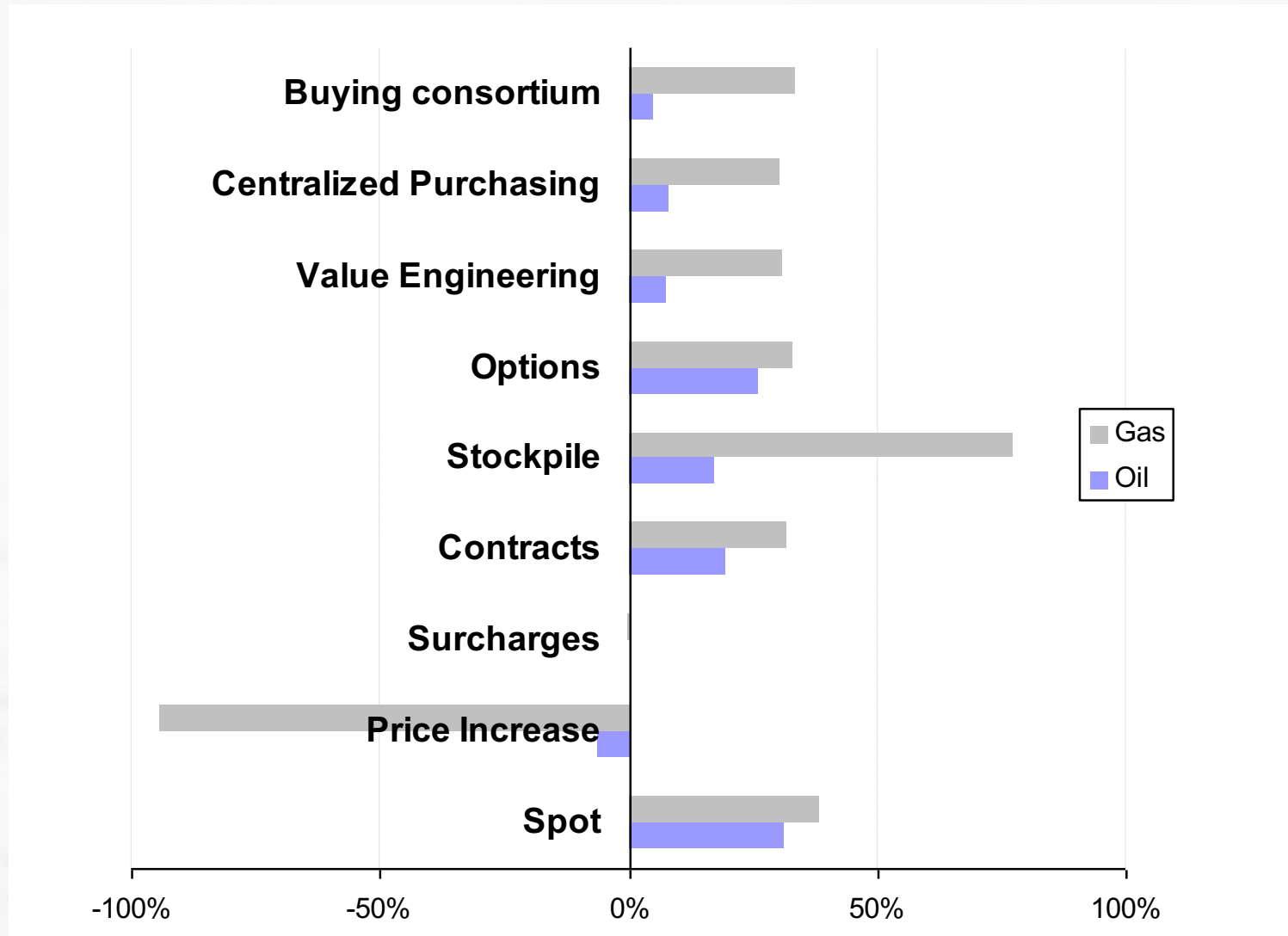
7. Pass costs on via a floating surcharge
8. Pass costs on and embed in the product price

Overall strategy performance

Cumulative Cost of Each Strategy, October 2005-October 2006

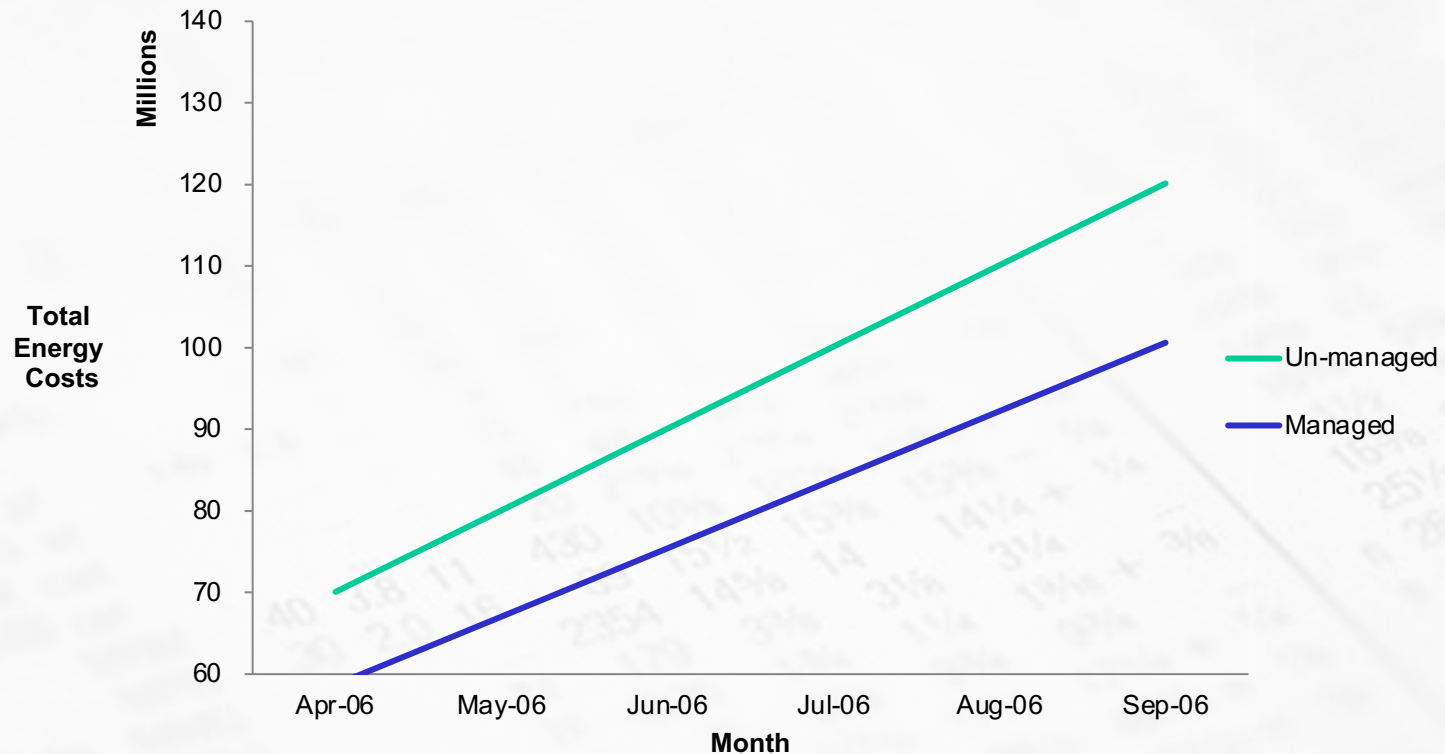


The best strategies



Hybrid strategy saves significantly

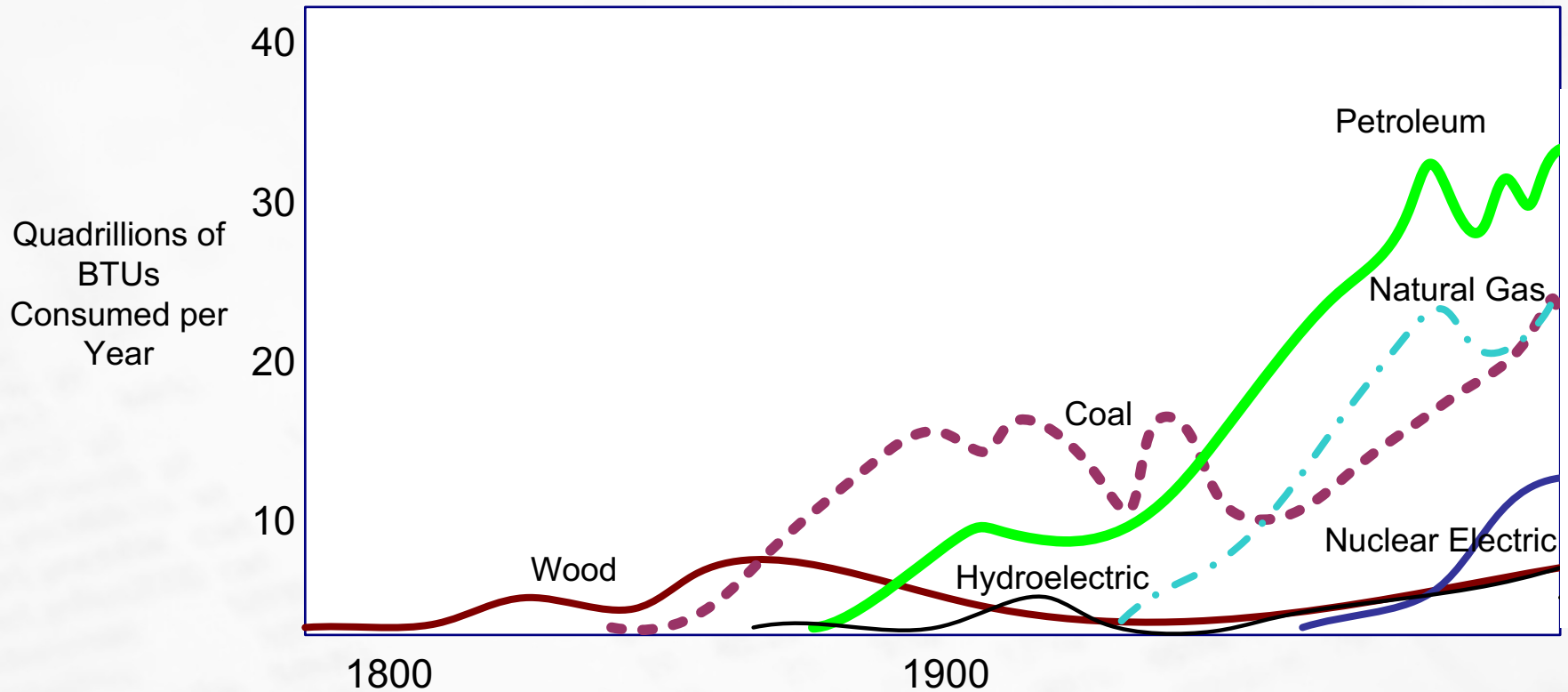
Cumulative Difference Between Managed and Unmanaged Approaches



The Bottom Line

Keeping perspective: the long view

Evolution of U.S. Energy



Manufacturers: stay lean and manage the spend

- Don't reverse lean
 - Energy costs dwarf vs. benefits of being lean
- Establish a program to manage energy spend
 - Any strategy 10-100% better than none
- Re-assess mode, frequency quarterly
 - Unpredictable fuel prices and surcharges need alerts
- When off-shoring, consider whether a doubling of oil prices would change the decision
 - Dual sourcing may become necessary at higher oil prices

Realign budgets more than once a year

- 83% have a yearly planning horizon



Advice for carriers

- Don't rush to develop alternative fuel vehicles.
 - Most AFV technologies are in their infancies and many companies cannot justify investing in them at present.
- Actively manage fuel spend.
 - Carriers, especially airlines and ocean shipping lines, that proactively manage fuel expenditures, save 10-15% on fuel.
- Reduce dependence on petroleum.
 - Airports and airlines can cost-effectively modify or replace ground handling equipment to operate on LPG, ethanol, or electricity.
- Assess routes and services for profitability.
 - Carriers should analyze the profitability of routes and services to determine when, where, and how much to refuel based on regional fuel cost advantages.

Advice for policy makers

- Consider supply chain costs and benefits when setting policy for infrastructure and alternate fuel technology.
 - Policy affects, and could reduce, the efficiency, speed, and convenience of supply chains, engendering an unforeseen economic cost.
- Don't jeopardize infrastructure programs to fund alternative fuels.
 - Currently, US tax breaks for ethanol are funded at the expense of the Federal Highway Trust Fund, while highway infrastructure gaps cause increasing congestion.

Control your destiny!

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Boston Logistics Group helps supply chain executives make critical supply chain decisions that involve investment and risk by forecasting the evolution of supply markets and technologies. Our mission is to help our clients develop globally competitive supply networks that maximize Supply Chain Value.™ Our products and services include:

- **Research** that help investors and policy makers quantify the benefit of emerging technologies and decide whether or not to invest in them
- **Forecasts** that help purchasing managers decide how, where, and when to buy critical externally-purchased materials and services
- **Consulting** that supports high-stakes decisions such as acquisitions, outsourcing, off-shoring, and make-or-buy

Industries Served:

- Discrete Manufacturing: Machinery, Equipment, Vehicles, Parts, Mechanical and Electrical Devices
- Process Manufacturing and Conversion: Paper, Pulp, Energy, Packaging, Processed Minerals/ Aggregates, Plastics, Metals, Chemicals
- Transportation: Railroads, Ocean Shipping Lines, Airlines, Trucking Companies, Package Delivery, Intermodal
- Logistics: Dedicated and Third Party Logistics, Ports, Stevedoring, Storage, Material Handling, Distribution, Maintenance, Retail