

Mohr Davidow Ventures



Will Coleman
Alternative Transportation Fuels
October 2007 (WGA)

Building Category Leading Companies

- Founded 1983 – eight funds raised
- \$1.4 B under management
- Early stage focus
- Investment sectors:
 - Energy & Materials (Cleantech)
 - Life Sciences
 - Internet/IT
- Significant technology expertise
- ~ 20 professionals including XIRs/EIRs with deep company building expertise



Sectors

- **Renewable power and fuels** - solar, biofuels, chemicals
- **Demand management** - smart grid, efficiency, storage
- **Air & Water** – ghg & emissions management, water treatment



ZeaChem



jadco
POWER

RECURRENT
ENERGY

Sectors

- Personalized Medicine
- Research tools and platforms
- Molecular Diagnostics
- Online Health & Medical Devices

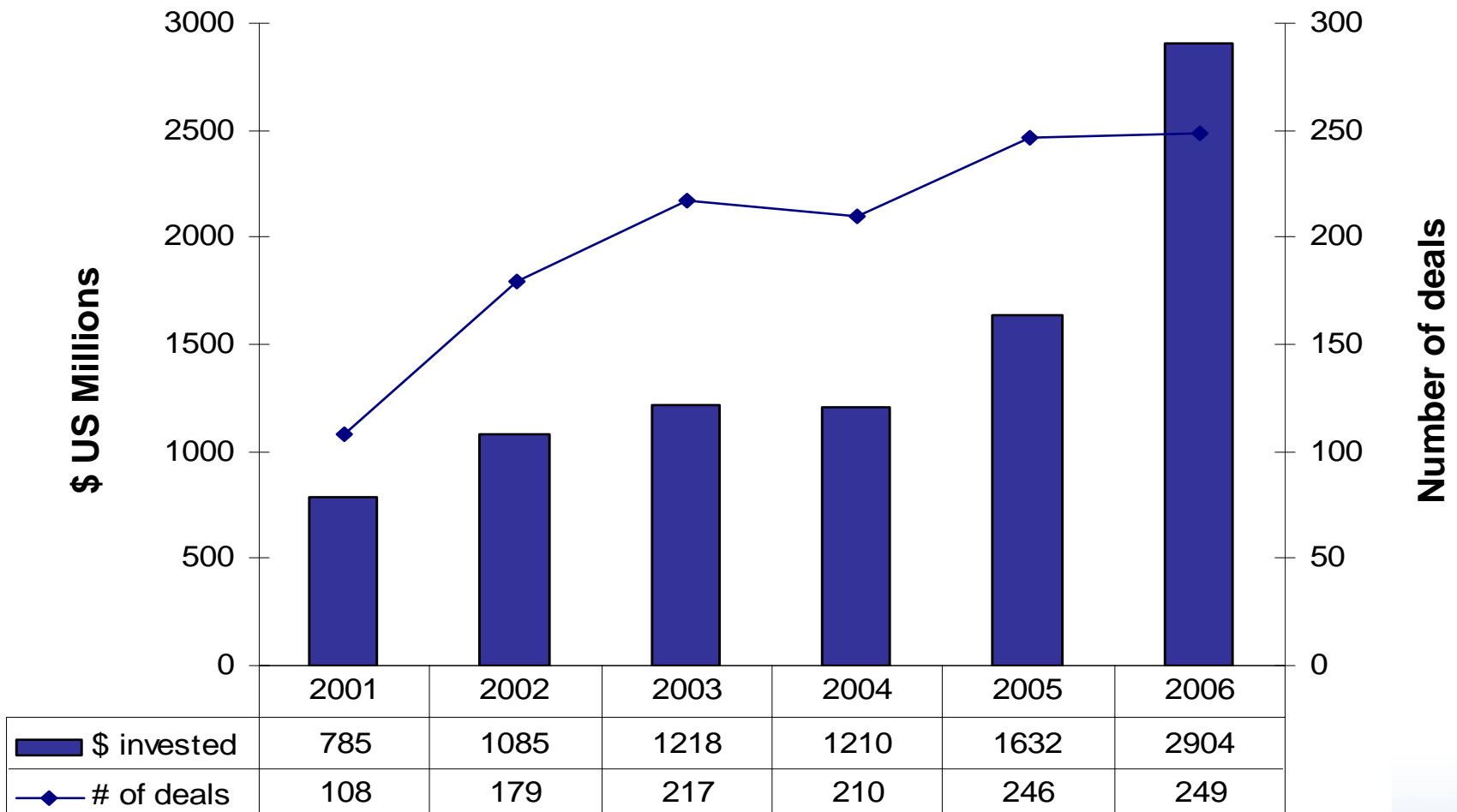


Sectors

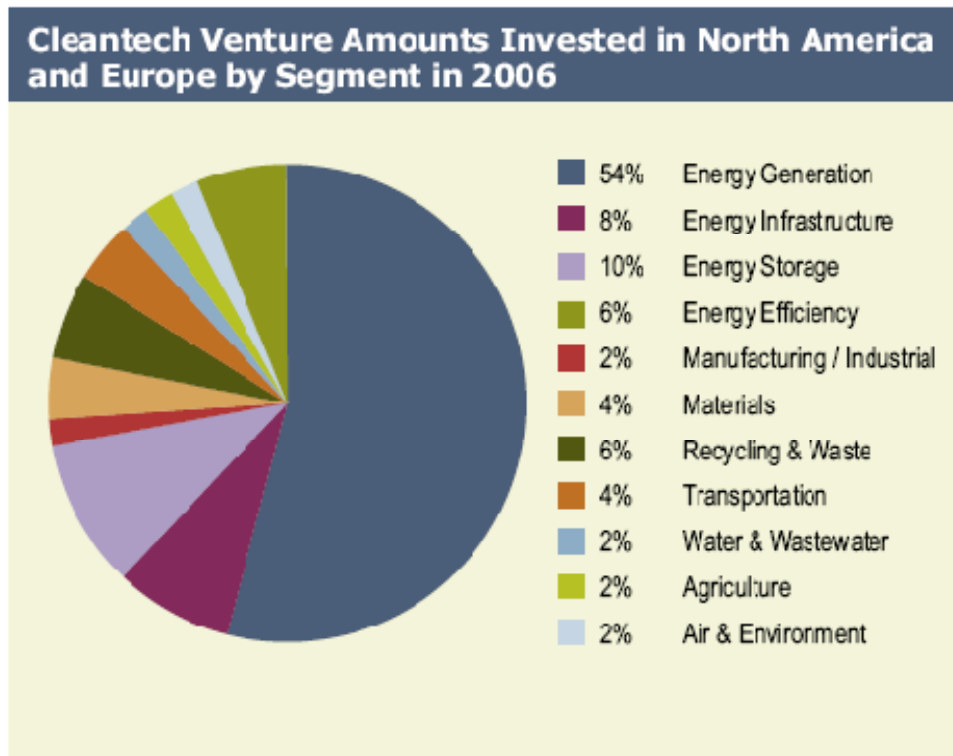
- **Business** - enterprise, networked, distributed
- **Infrastructure** - communications and networking systems
- **Consumer** - digital/social media, communication, infrastructure



VC Cleantech Investment Is Soaring (US)

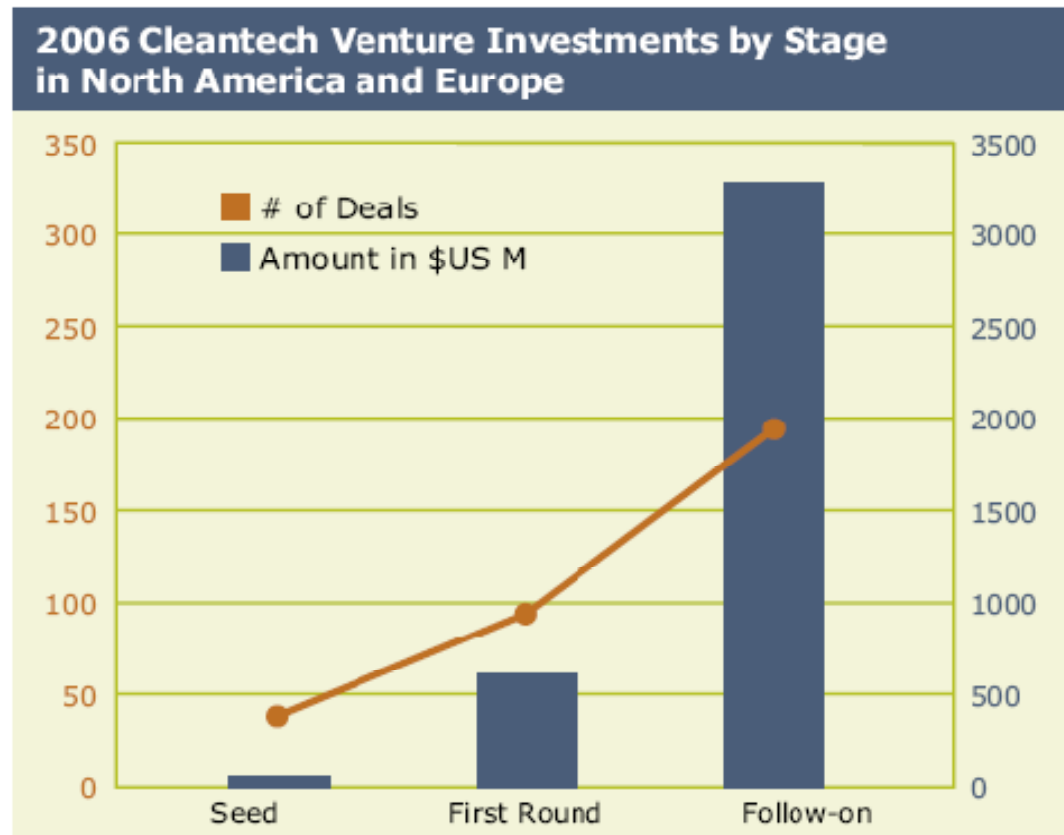


Venture dollars focused on energy



Source: *Cleantech Network*TM

Larger capital required as ventures mature



Source: Cleantech Network™

Chronology of a Start-up

Deliverables

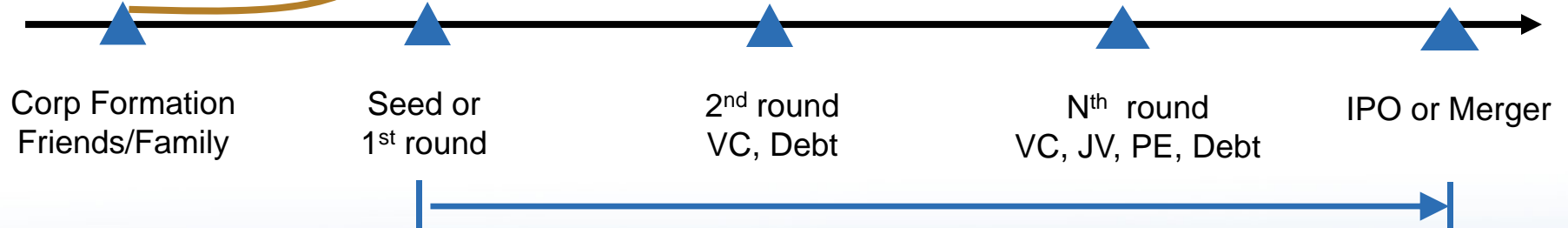
- Idea or business model
- Invention disclosure
- Patent Filings
- Recruit Entrepreneur
- Build team
- Develop product
- Additional Patents
- other milestones
- Commence revenues
- Achieve 6-10 milestones
- Build revenues to \$10-50m per quarter
- Achieve 6-10 milestones

Project 1-n

Demo

Pilot

Lab



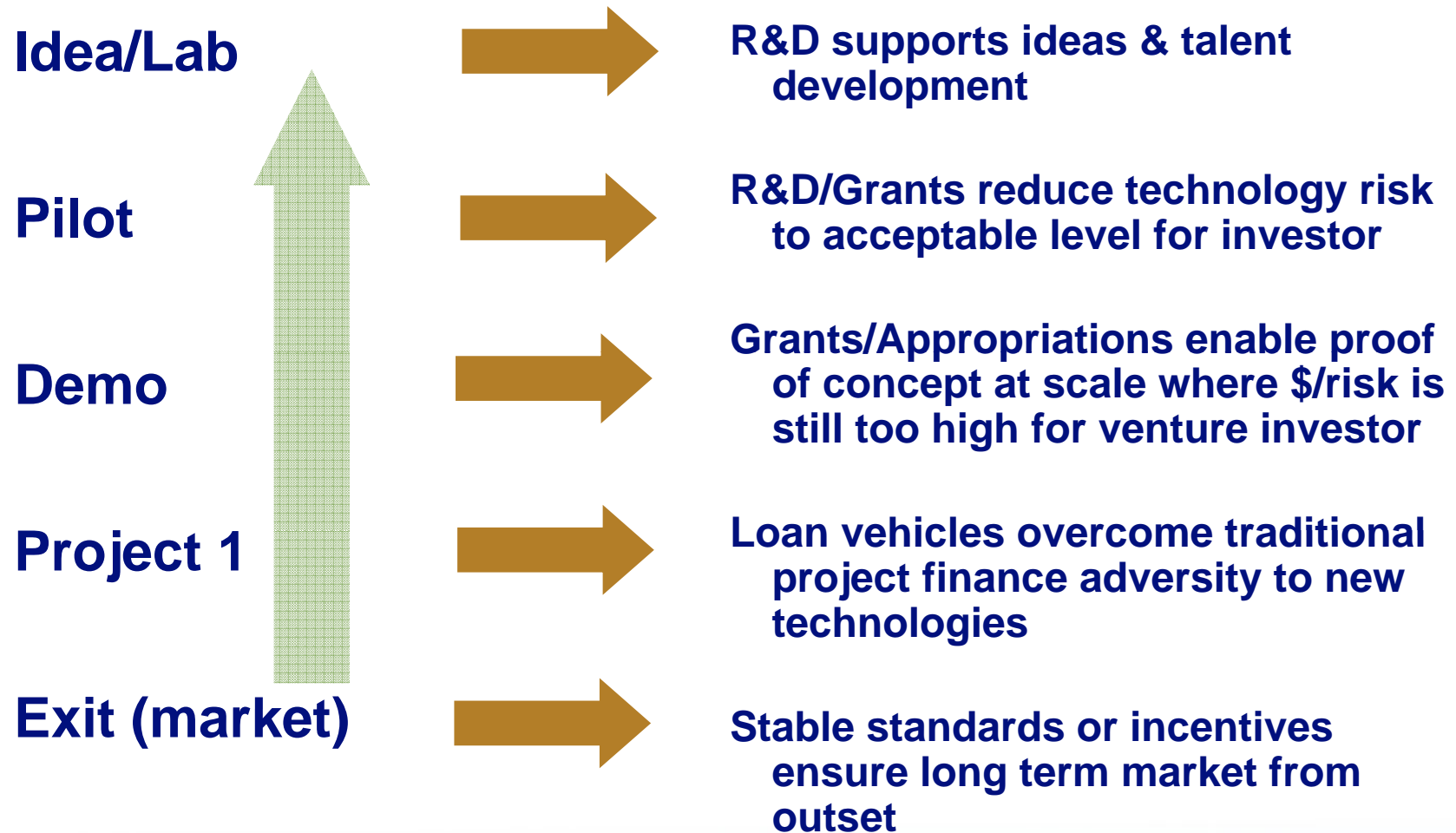
Financing

5-7 years

Chronology highlights key challenges

- 1. Energy is a capital intensive industry that will require multiple investor classes**
 - VC, Private Equity, Corporate, Debt, Public
- 2. Appropriate government support should be tuned to the stage of technology and market**
 - R&D, Grants, Appropriations, Loan Vehicles
- 3. For the private model to work risks must be eliminated at every stage**
 - **Market**, Technology, Team, Scale

Government can impact each stage

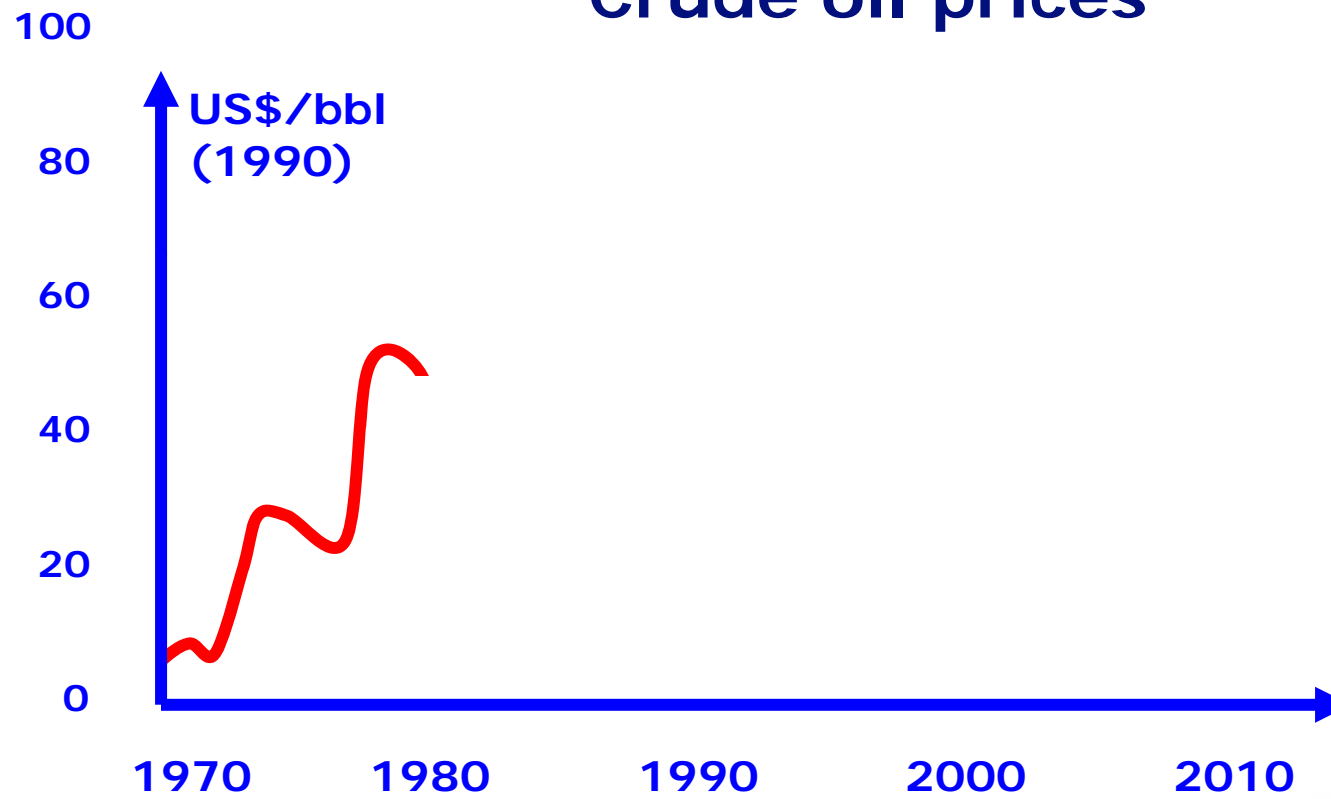


Petroleum prices dictate demand for alternatives

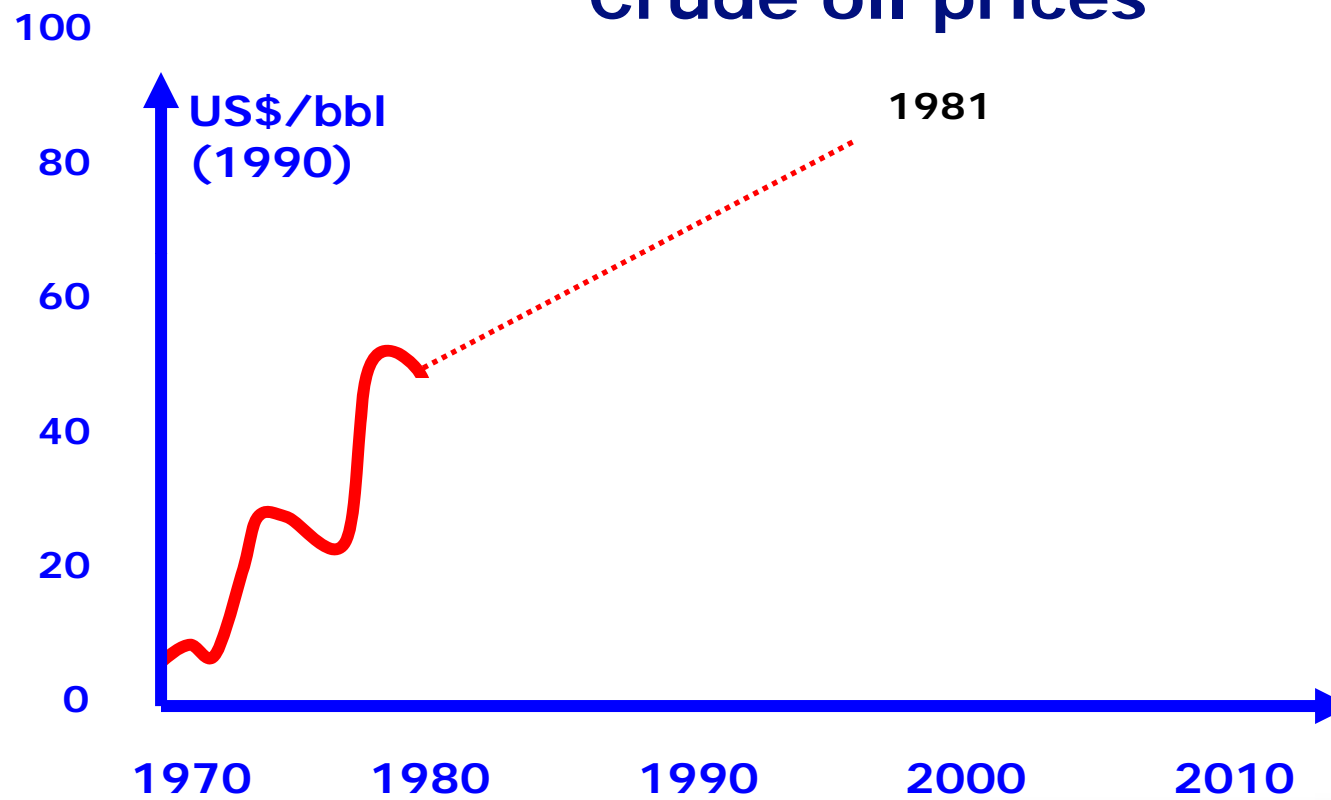
Crude oil prices (\$/b)



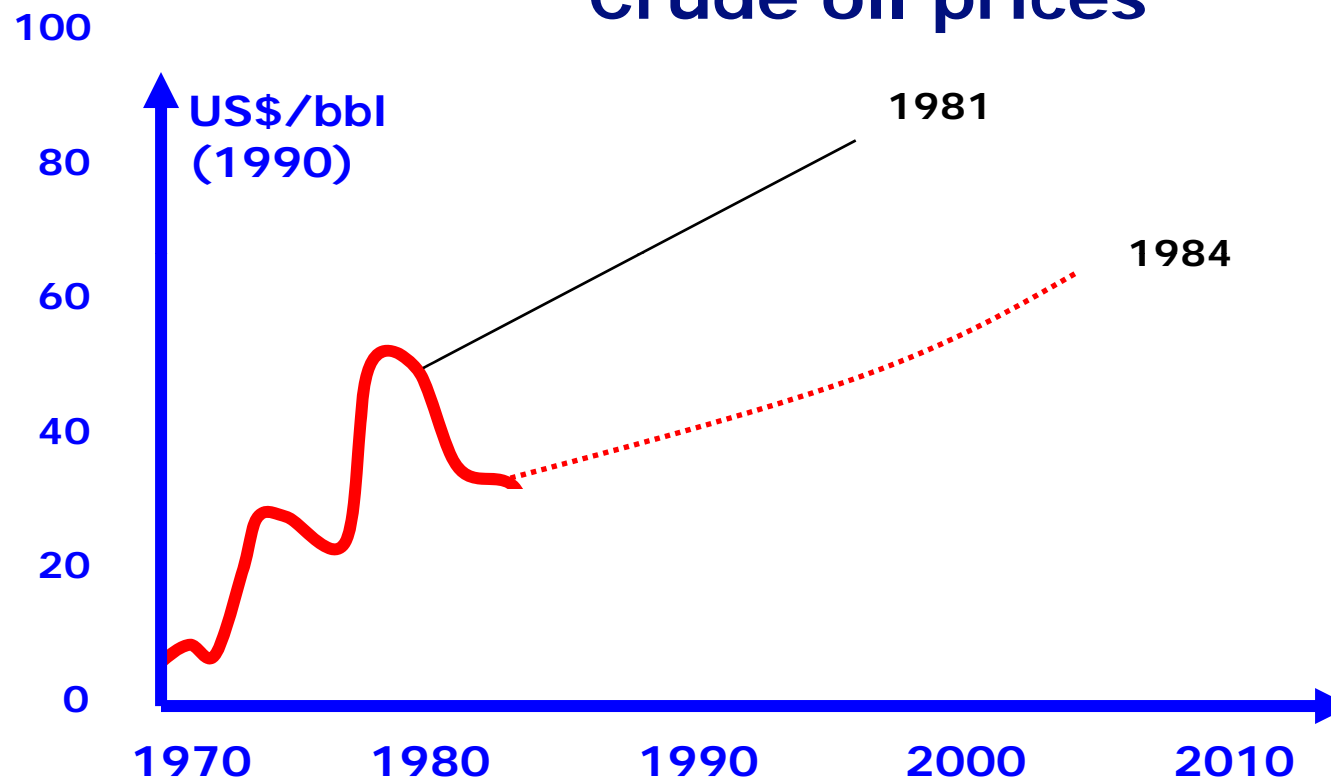
Crude oil prices



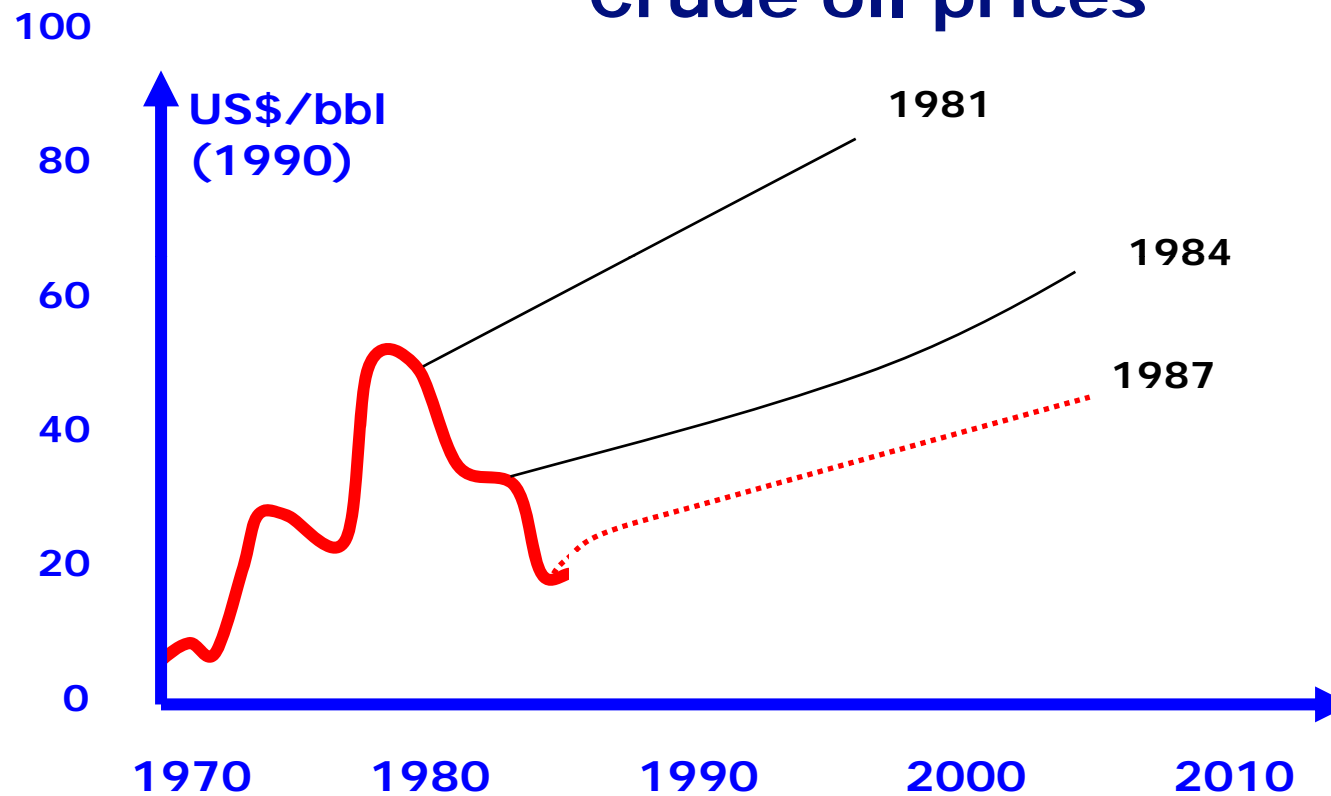
Crude oil prices



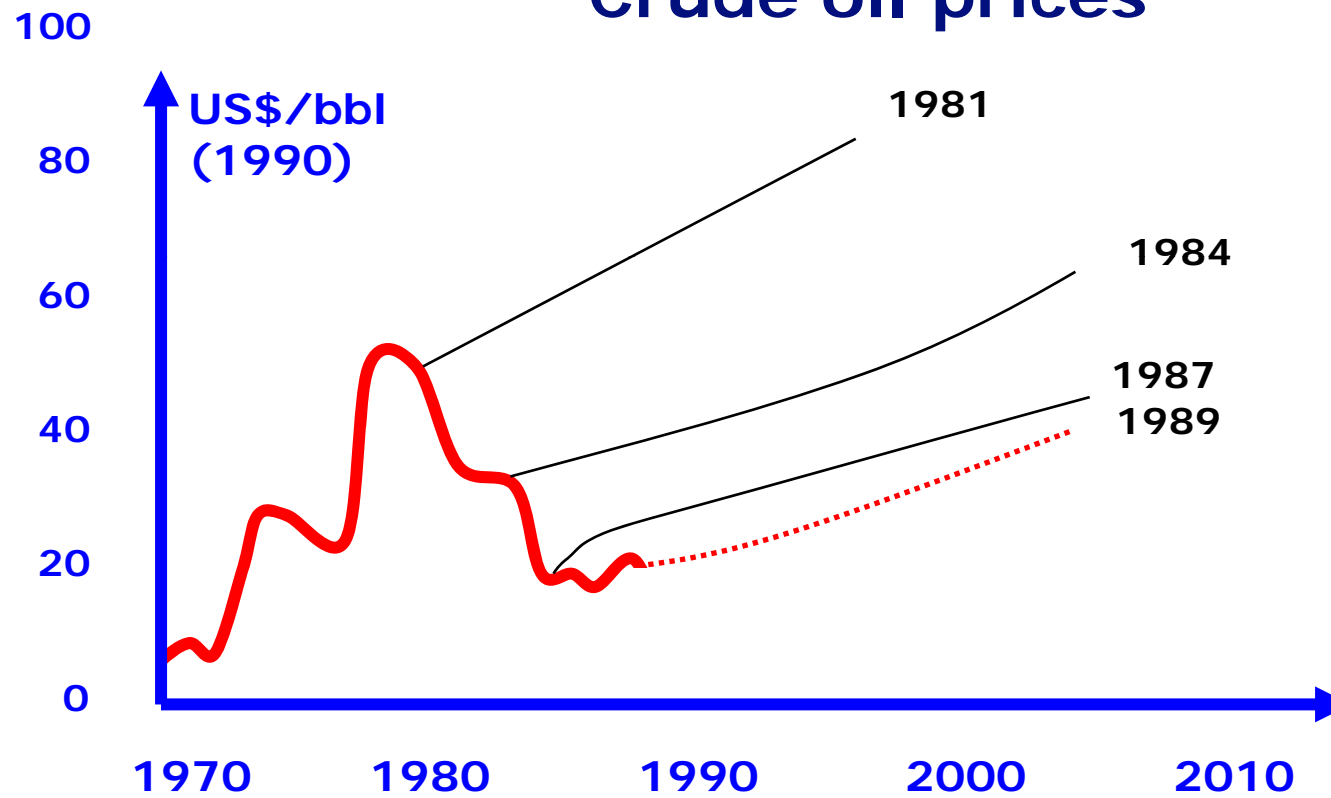
Crude oil prices



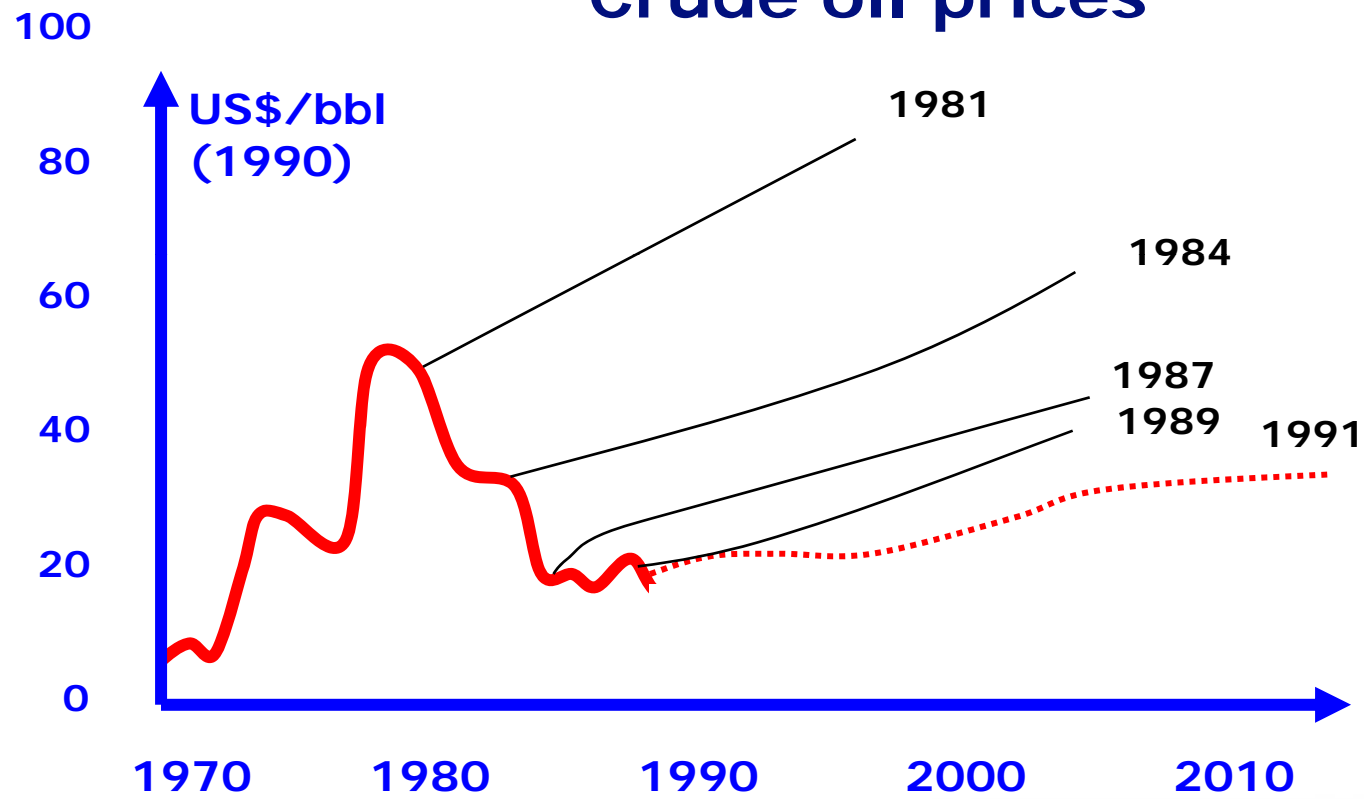
Crude oil prices



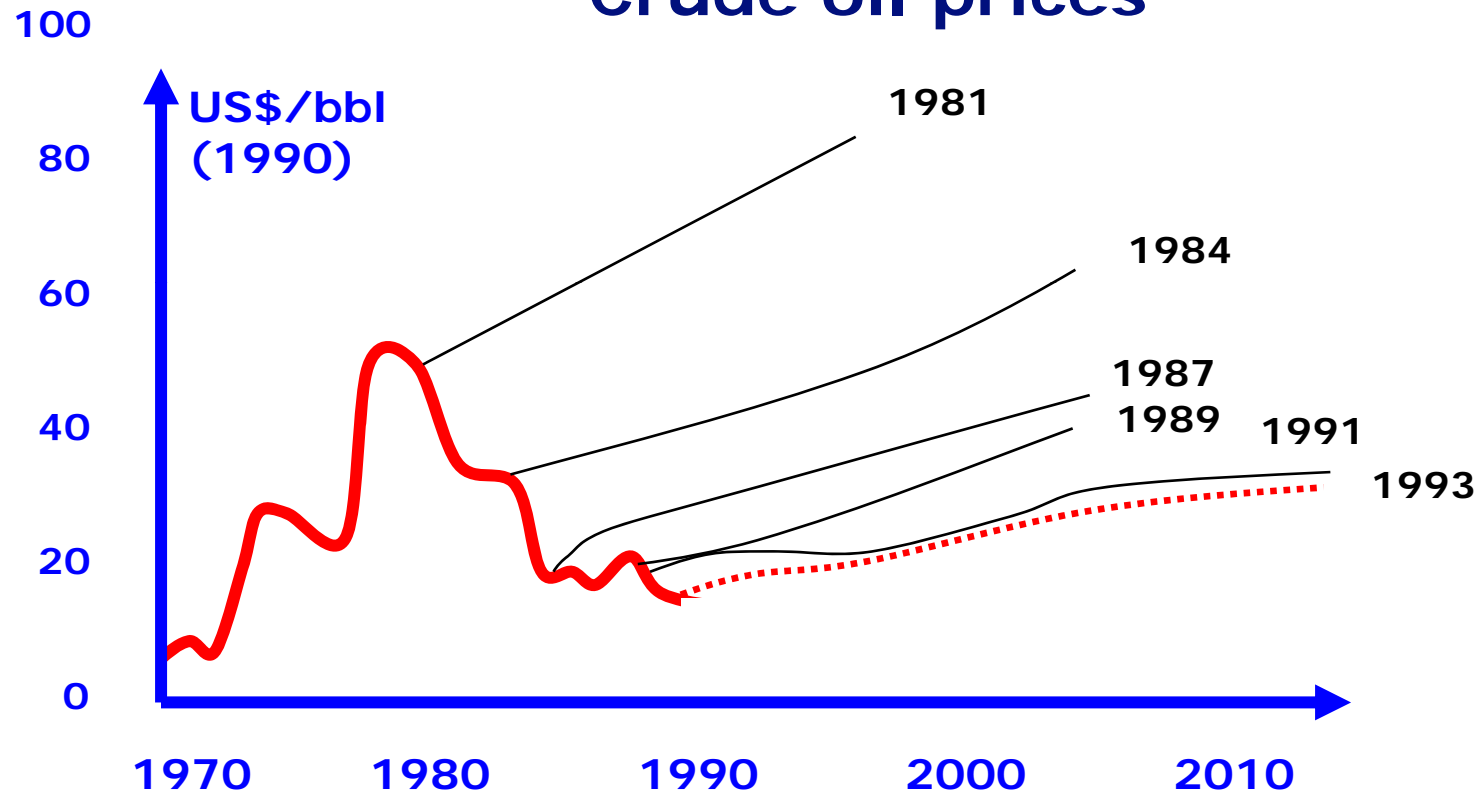
Crude oil prices



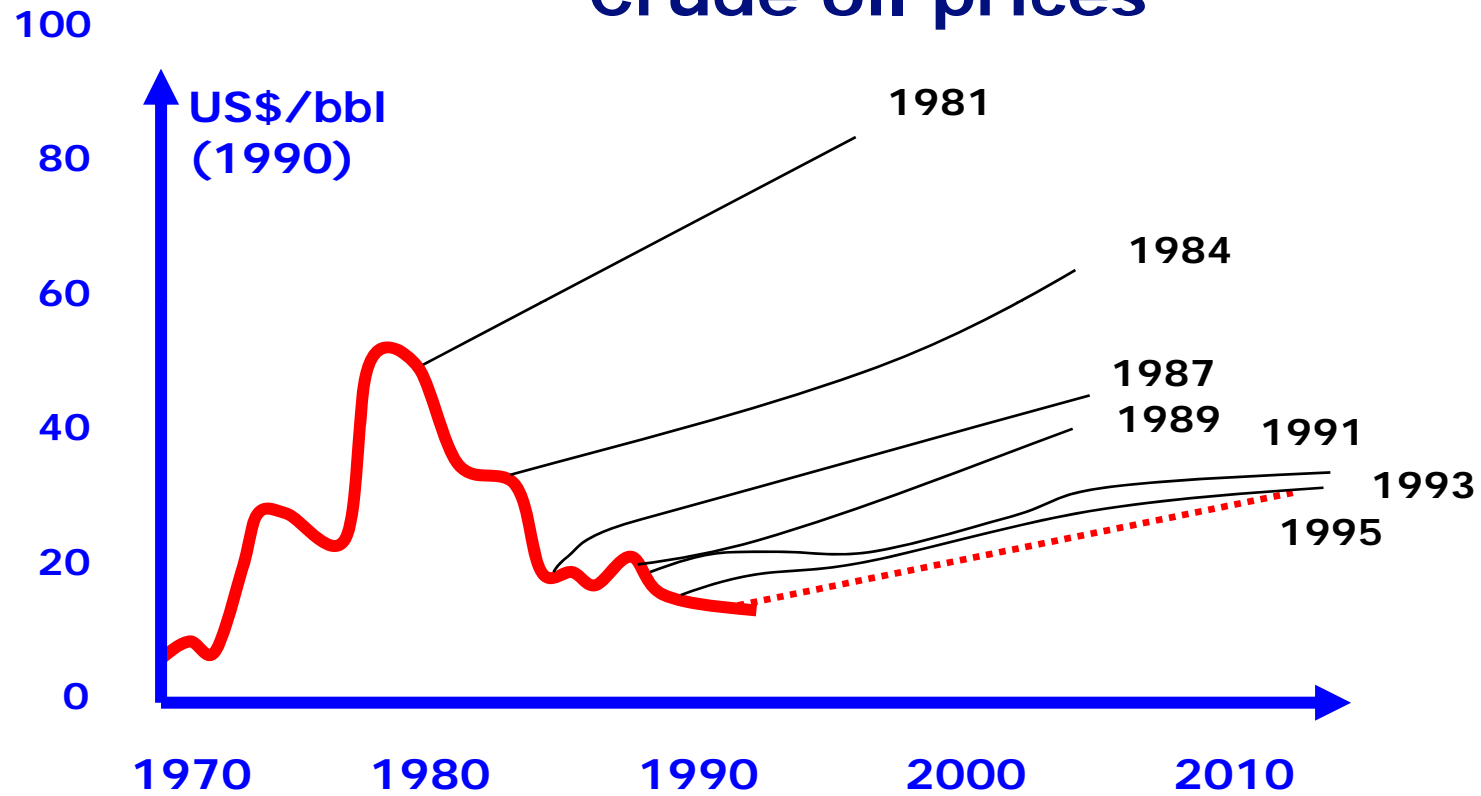
Crude oil prices



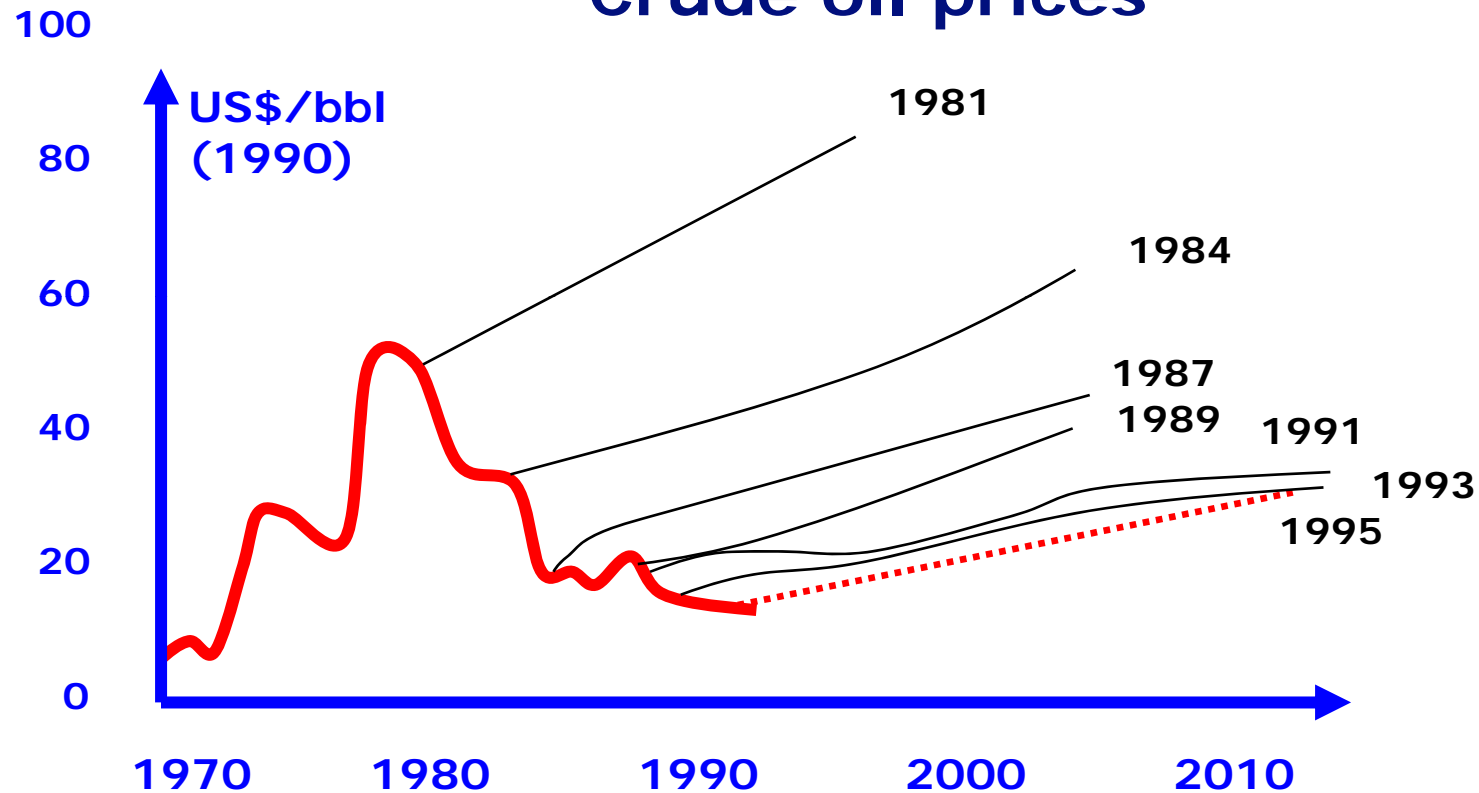
Crude oil prices



Crude oil prices



Crude oil prices



\$300 billion in shareholder wealth was eliminated 1980 - 1993 by mis-estimating future developments and investing in high cost oil. (McKinsey)

Where are prices headed next?

Crude oil prices (\$/b)



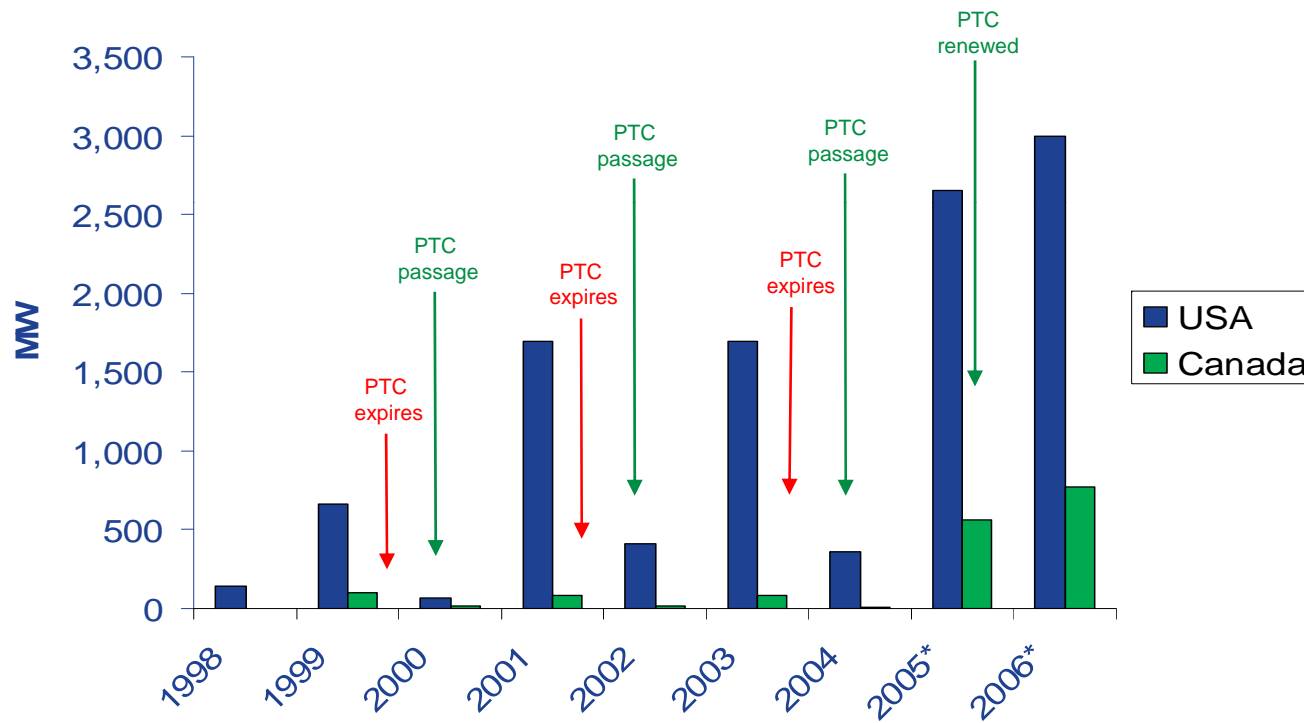
- 1. Growing stable markets**
- 2. Supporting continued technology development**
- 3. Overcoming resource availability & integration issues**

Investors need long term confidence in market

- **Regulatory certainty over long periods to drive demand**
- **Coordinated supports for supply to maintain price stability**
- **Mistimed incentives or imbalances between supply/demand can undermine growth**

Wind: On-off nature of PTC limits investment

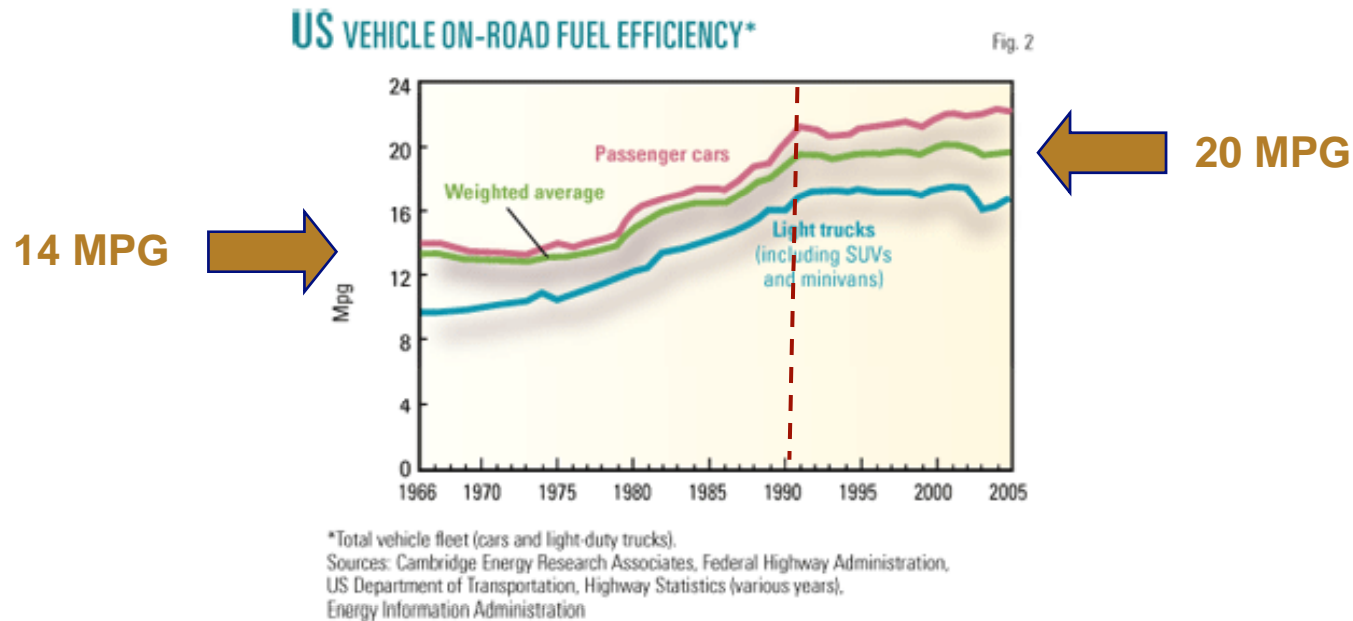
North America Installations & Forecast



Tendency is toward a leave no tech behind approach

- **Regulatory soup of incentives**
- **Ignores priorities that require the transition in the first place**
- **Tends to lead to stranded capital and wasted \$ when performance doesn't meet expectations (hydrogen)**
- **Solutions need to be either dictated by economics or performance criteria that are transparent (standards)**

CAFÉ is a good (and bad) example



Mandates can drive change

- Value in having stair step approach to markets (learning)
- Single dimension requirements may fail to achieve objectives
- Limited by arbitrary ceilings

- **Tendency toward mandates**
 - RFS, Fleet Requirements, etc
 - Cyclical attacks on “solution” (ex. Ethanol)
- **Regulatory incentive imbalances**
 - Supply incentives out of line with demand side
 - Undermine growth and investment
- **Opportunity to align objectives with performance standard (LCFS)**
 - Standards open door to competing solutions
 - Allow market to decide (to a degree)

Alt fuels - multiple risks must be considered

- **Feedstock**

- availability and competition for resources

- **Distribution**

- will incumbents accept a better solution

- **Tradeoffs**

- food (corn), rainforests (biodiesel), etc

- **Price/performance**

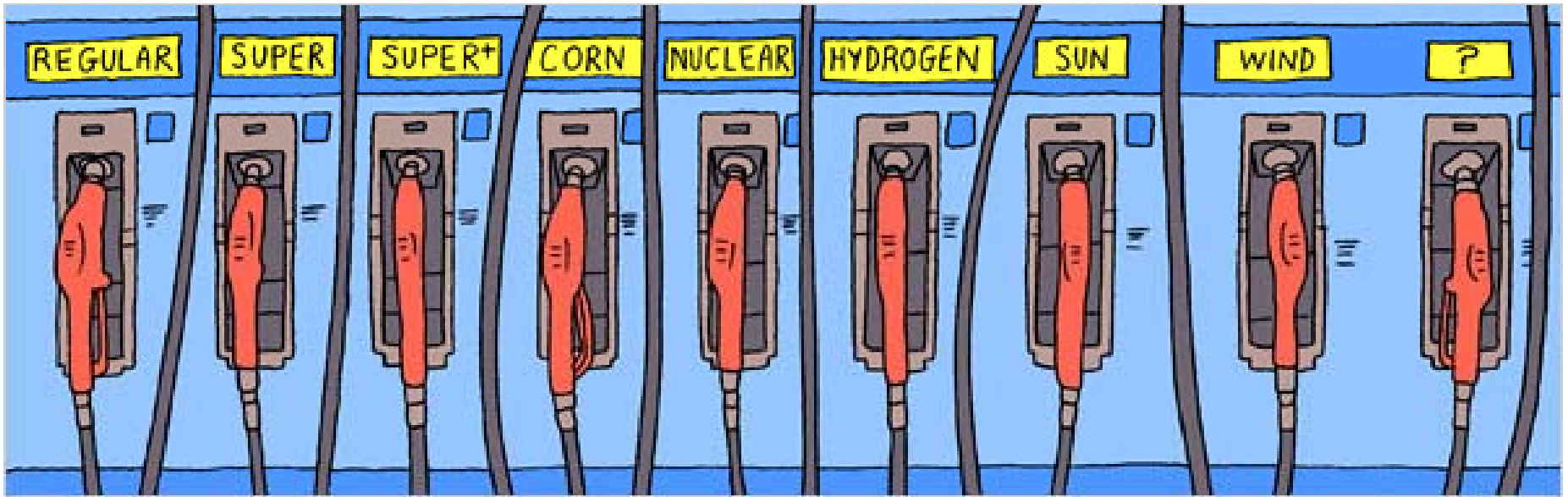
- Who values environmental performance

- **Scale and infrastructure requirements**

- Can the system handle changes (btu/volume)

- **Unknown regulatory bottlenecks**

- Predictive model, Hazardous materials, etc

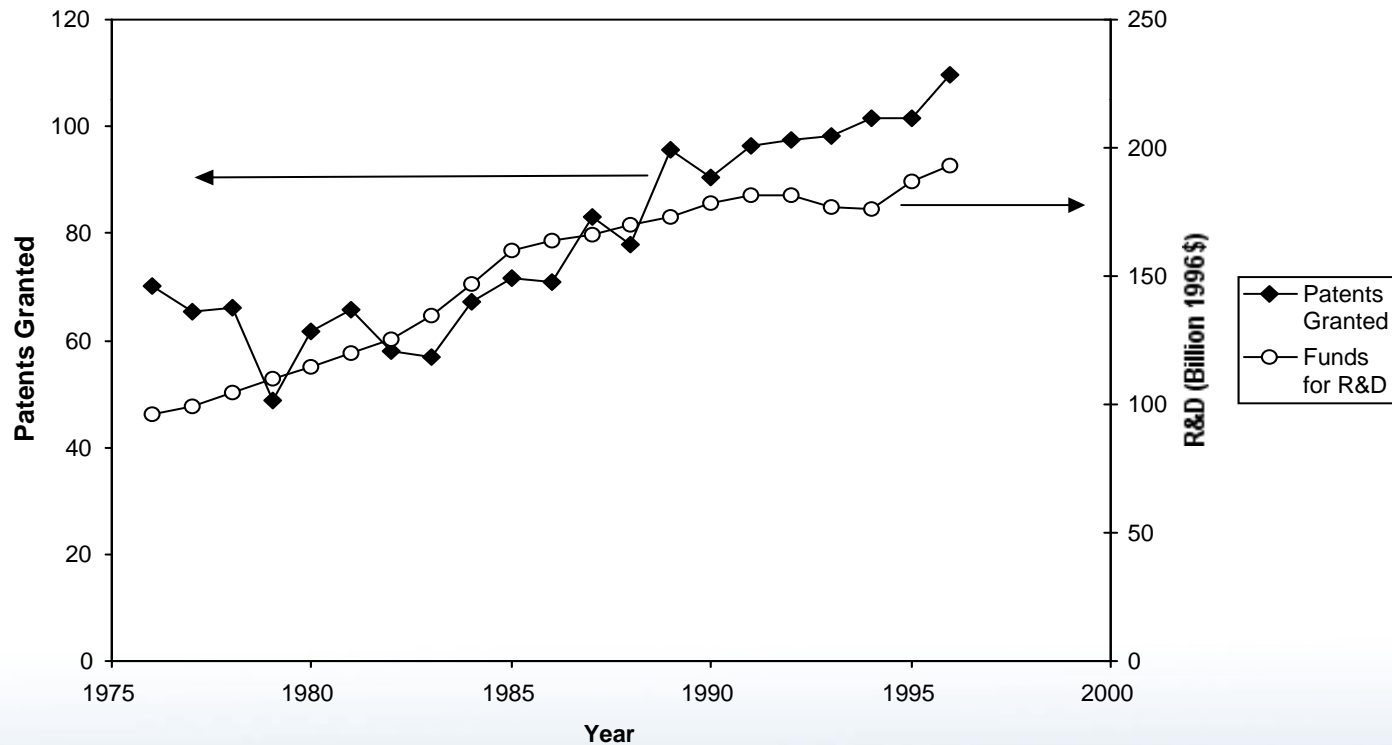


Every solution has tradeoffs in both technical and non-technical dimensions

- Must do our best to align priorities with objectives
- Translate objectives into standards that enable market to pick winners

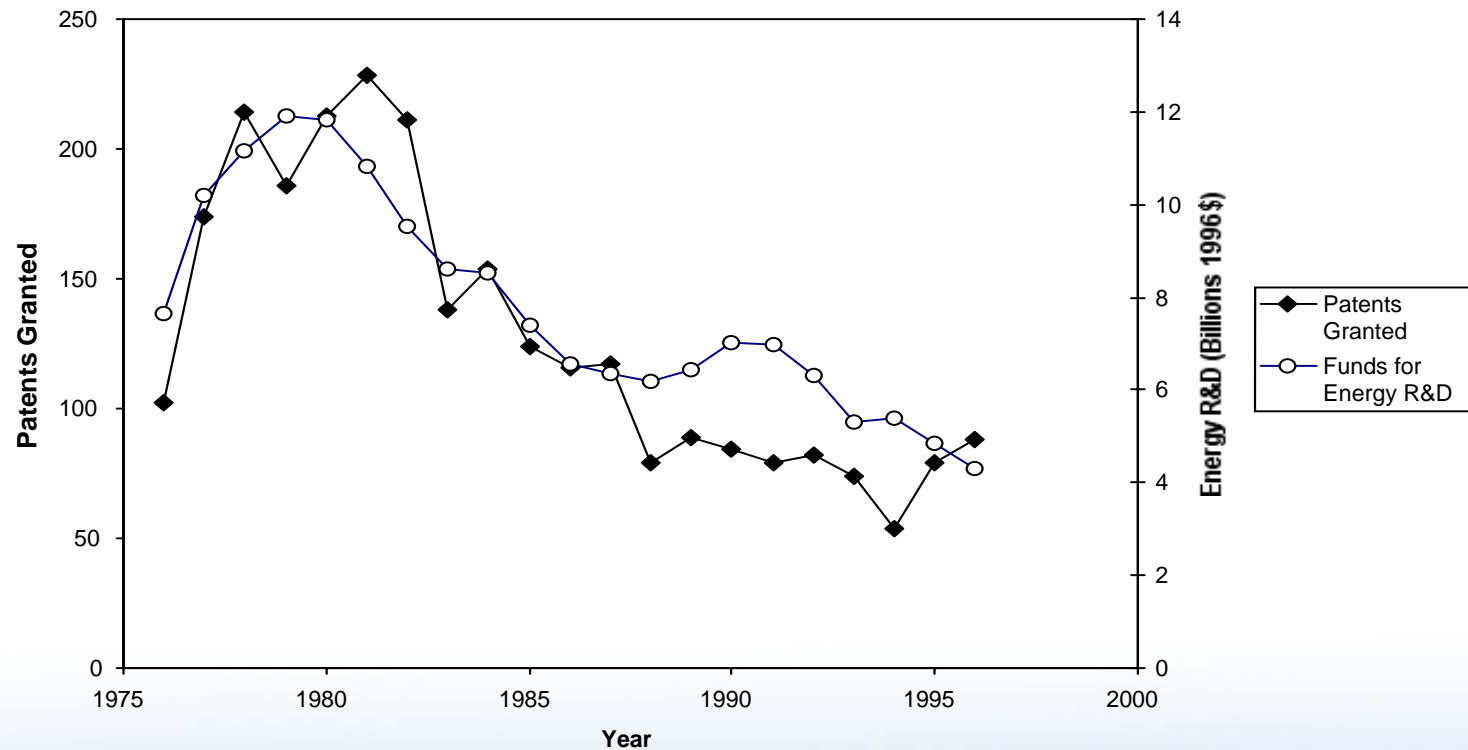
R&D drives long term innovation

Total U.S. Patents granted and total U.S. investments in R&D (1975-1996)



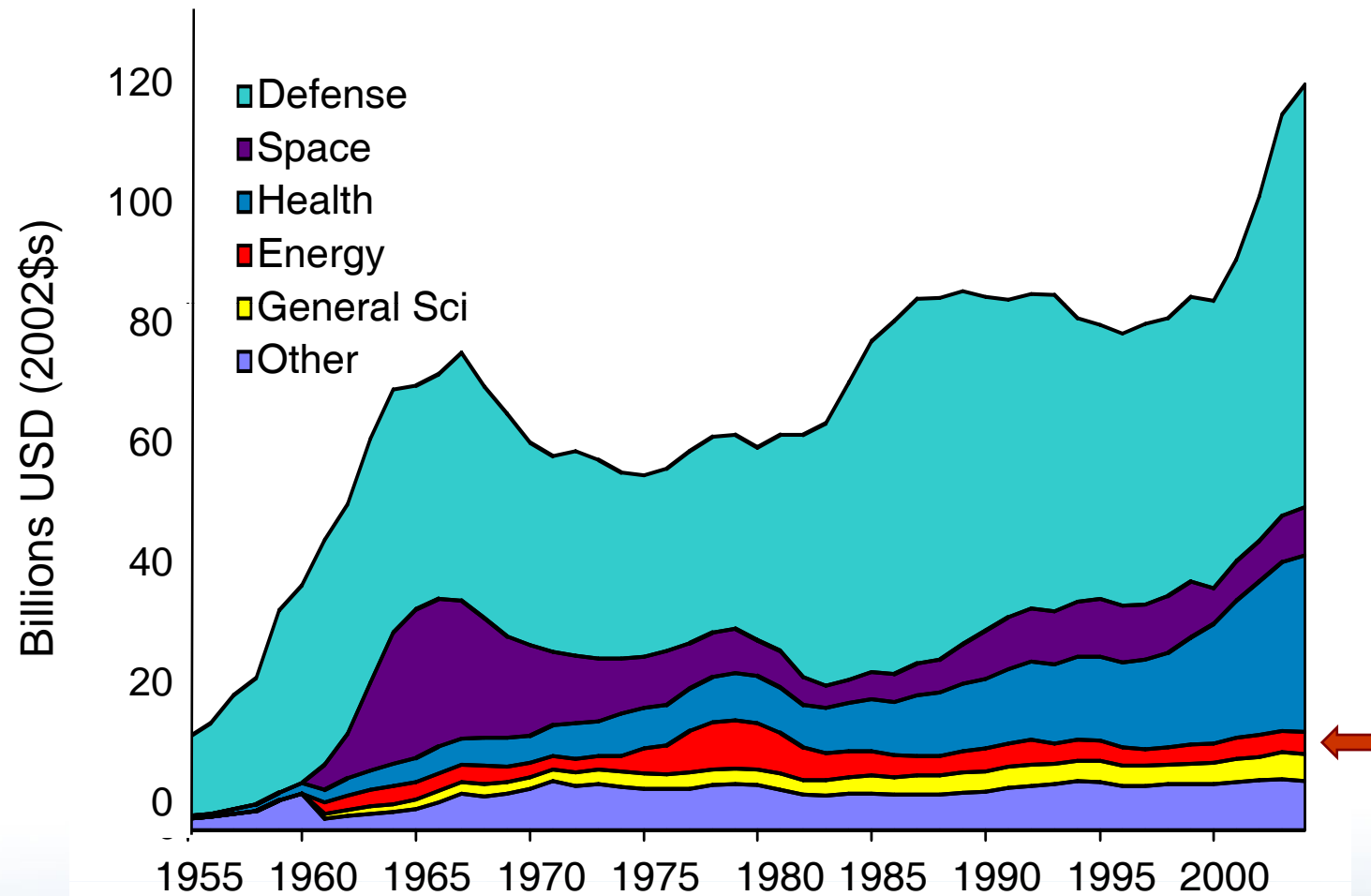
R&D for Energy has been limited

U.S. Energy technology patents and total U.S. Energy R&D (1975-1996)



Historical R&D in Energy lags others

U.S R&D investment since 1955



Summary: Ideal world is driven by standards

- Public priorities captured as performance standards
- R&D and supply supports evaluated on same metrics
- R&D stimulates new innovations & talent
- Stable markets drive investment
- Private investment powers commercialization



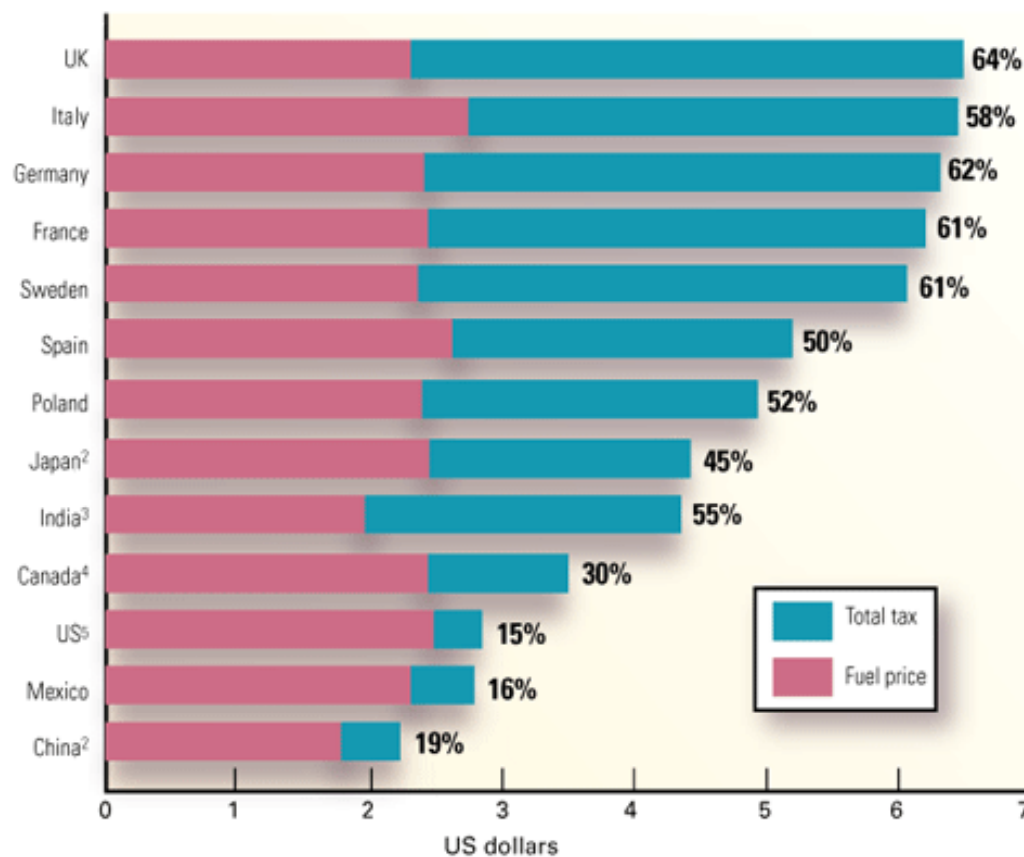
Thank You

**For more information
visit www.mdv.com**

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2006 GASOLINE PRICES,¹ TAXES IN SELECTED COUNTRIES

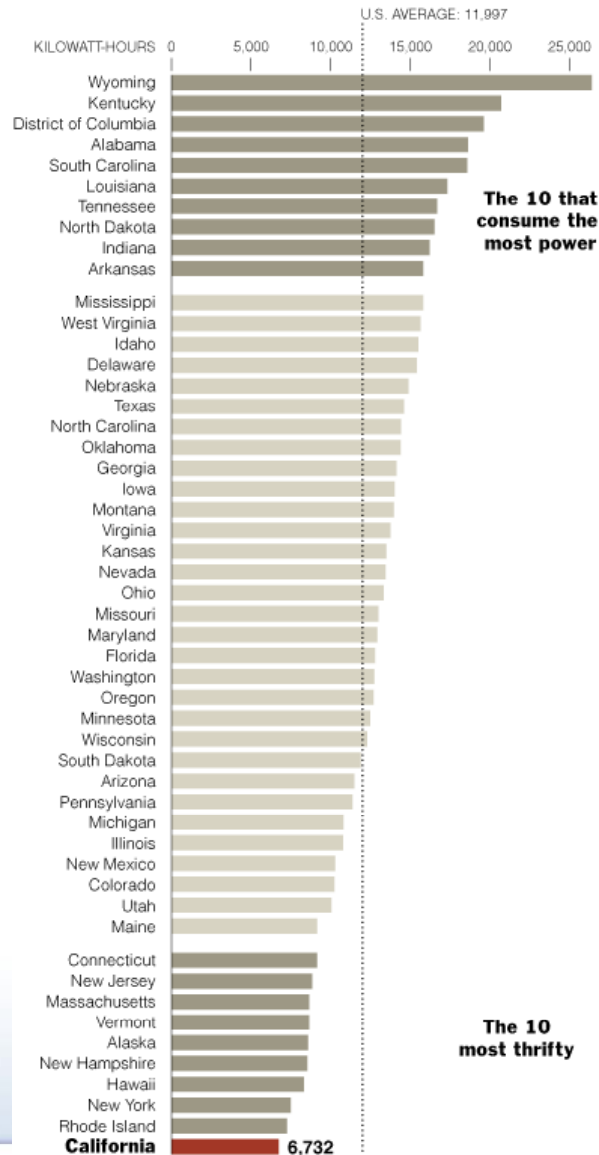
Fig. 3



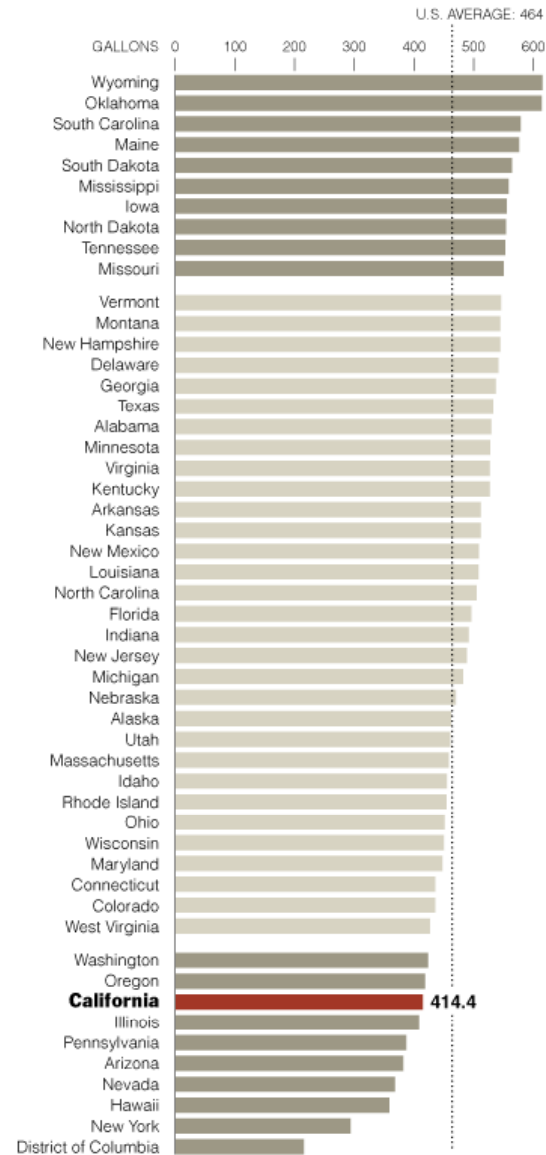
¹Retail premium unleaded (95 RON). Data are third quarter 2006 averages, as available. ²Japan and China prices are for 91 RON unleaded. ³India price is for 91 RON leaded. ⁴Canada price is for 92 RON unleaded. ⁵US price is for 87 octane, (R+M)/2 basis. Sources: Cambridge Energy Research Associates, International Energy Agency, Energy Prices and Taxes

Per capita electricity and gasoline use

Statewide electricity use in 2003, per capita

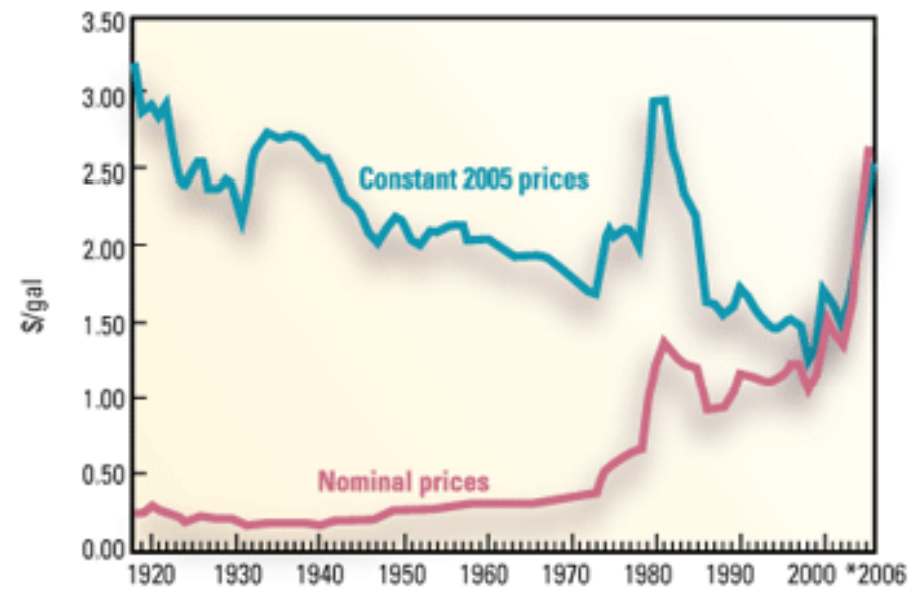


Gasoline use in 2004, per capita



US AVERAGE GASOLINE PRICES, 1918-2006*

Fig. 1



*Through November 2006.

Sources: Cambridge Energy Research Associates, American Petroleum Institute, US Department of Energy