EPA Regulations – Higher Costs and Uncertainty on Manufacturing Competitiveness and Jobs

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Summary

- EPA regulations significantly raise costs and uncertainty – **prevents investment in existing and new facilities**
- EPA regulations drive fuel switching from coal to natural gas – **raising consumer concern of higher electricity and natural gas costs and reliability issues**
- Manufacturing jobs depends upon **globally competitive energy and electricity prices**

Mfg'ing - Confronted with unprecedented regulatory costs

- EPA Industrial Boiler MACT (Maximum Achievable Control Technology)
- EPA GHG Tailoring rule (MACT)
- EPA new SOx and NOx NAAQS
- EPA reconsideration of 2008 Ozone NAAQS
- EPA reconsideration of 2007 PM NAAQS
- EPA Clean Air Act regulations on electric power generators

All regulations are on fossil fuel combustion facilities…

BUT… MANUFACTURING MUST BE GLOBALLY COMPETITIVE TO GROW!

EPA Industrial Boiler MACT

As proposed:

- High capital costs of compliance – No ROI
- Increased annual operating costs
- Increased energy consumption
- Compliance drives fuel switching from coal to natural gas – Loss of existing investment in coal burning facilities
- Threatens shut down of cogeneration facilities

Real Examples: Capital costs

- Food processer: $7.5 million cost: will shut down co-gen unit.
- Chemical company: $600 million cost
- Paper company: $48.5 million
- Food processor: $41 million
- Chemical company: $97 million
- Paper Company: $100 million

EPA GHG Tailoring Rule

Results in:

- Fear of triggering PSD means mfg'ing will not invest in new facilities
- Requires MACT on energy efficiency on "entire" facility (not just the new unit).
- Concern that it will "limit" manufacturing product production rates…

What is at Stake?

ECONOMIC GROWTH!

The Importance of Energy Price Sensitive Industries

Industries	Convert to	Commercial & Consumer Products
Chemicals	→	Detergents
Plastics	→	Automobiles
Fertilizer	→	Computers
Glass / ceramics	→	Construction
Brick	→	Medical Supplies
Steel	→	Paint
Aluminum	→	Pharmaceuticals
Pulp and Paper	→	Cosmetics
Cement	→	Telecommunication
Food Processing	→	Food Production

Industrial Products are Essential to Economic Growth

- The aerospace/defense industry uses steel, aluminum, plastics and chemicals.
- The air transport industry uses steel, aluminum, plastics and chemicals.
- The auto and truck industries use steel, aluminum, plastics, chemicals.
- The beverage industry uses aluminum, steel, paper, glass and plastic.
- The biotechnology industry uses chemicals.
- The commercial and home building construction industry uses brick, steel, aluminum, wood, cement and glass.
- The oil and gas industry uses steel, chemicals, cement.
- The chemical industry uses chemicals, steel, cement and glass.
- The computer industry uses plastics, chemicals, and glass.
- The electrical equipment industry uses steel.
- The electric and gas utility sector uses steel and cement.
- The food industry uses fertilizer, chemicals, plastics and paper.

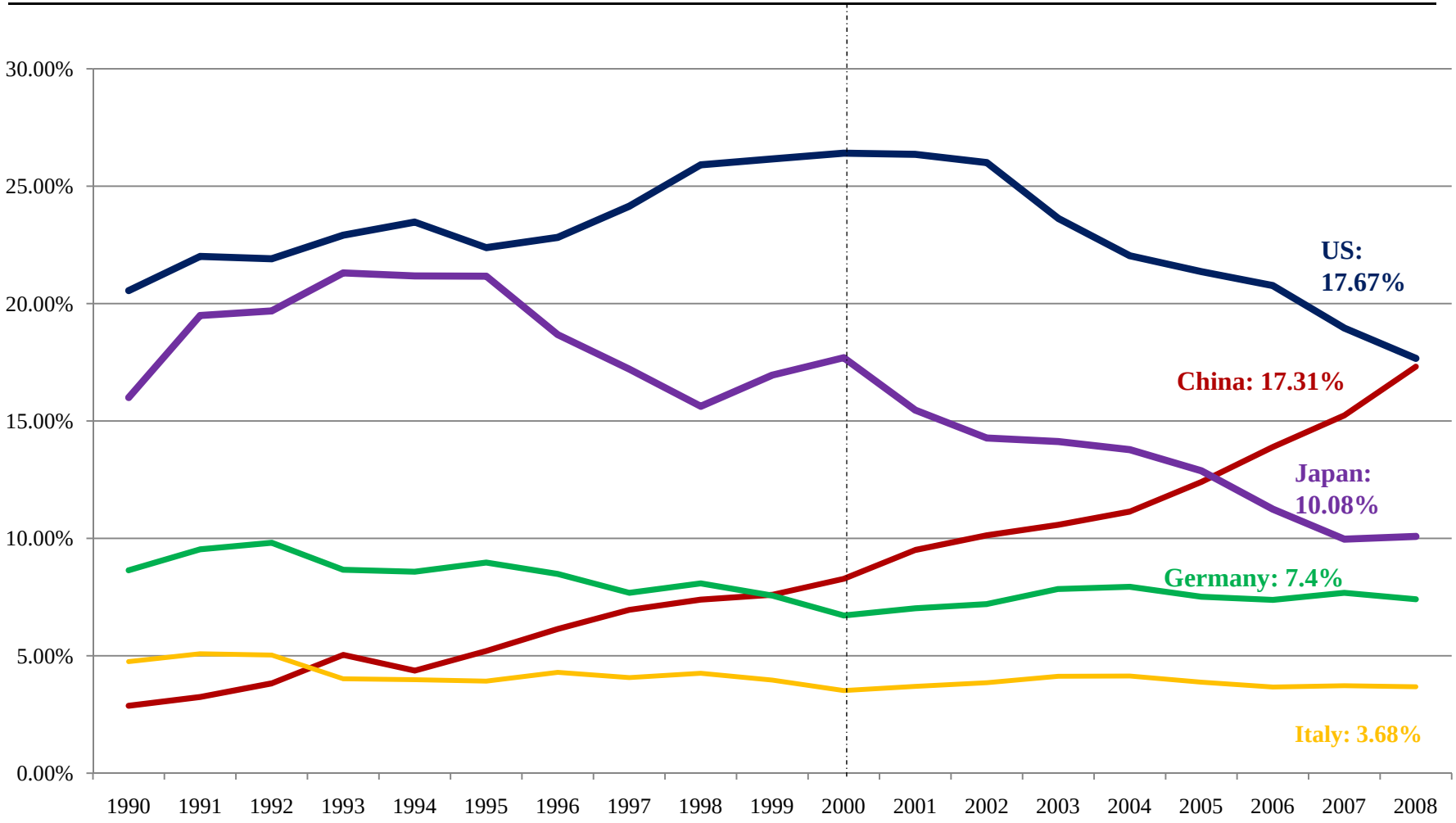
Industrial Products are Essential to Economic Growth

- The home furnishing industry uses wood, glass, chemicals.
- The heavy construction industry uses steel and rubber.
- The home appliance industry uses steel, aluminum, glass and wood.
- The household products industry uses chemicals, plastic; paper, glass.
- The machinery industry uses steel, chemicals and plastics.
- The maritime industry uses steel.
- The packaging industry uses plastics, paper, aluminum and steel.
- The paper / forest products industry uses steel and chemicals.
- The refining industry uses steel, chemicals and cement.
- The pharmaceutical industry uses chemicals, glass and steel.
- Railroads use steel.
- The toiletries/cosmetics industry uses chemicals, plastics, paper, and glass.

Since 2000, mfg’ing sector has been in decline…

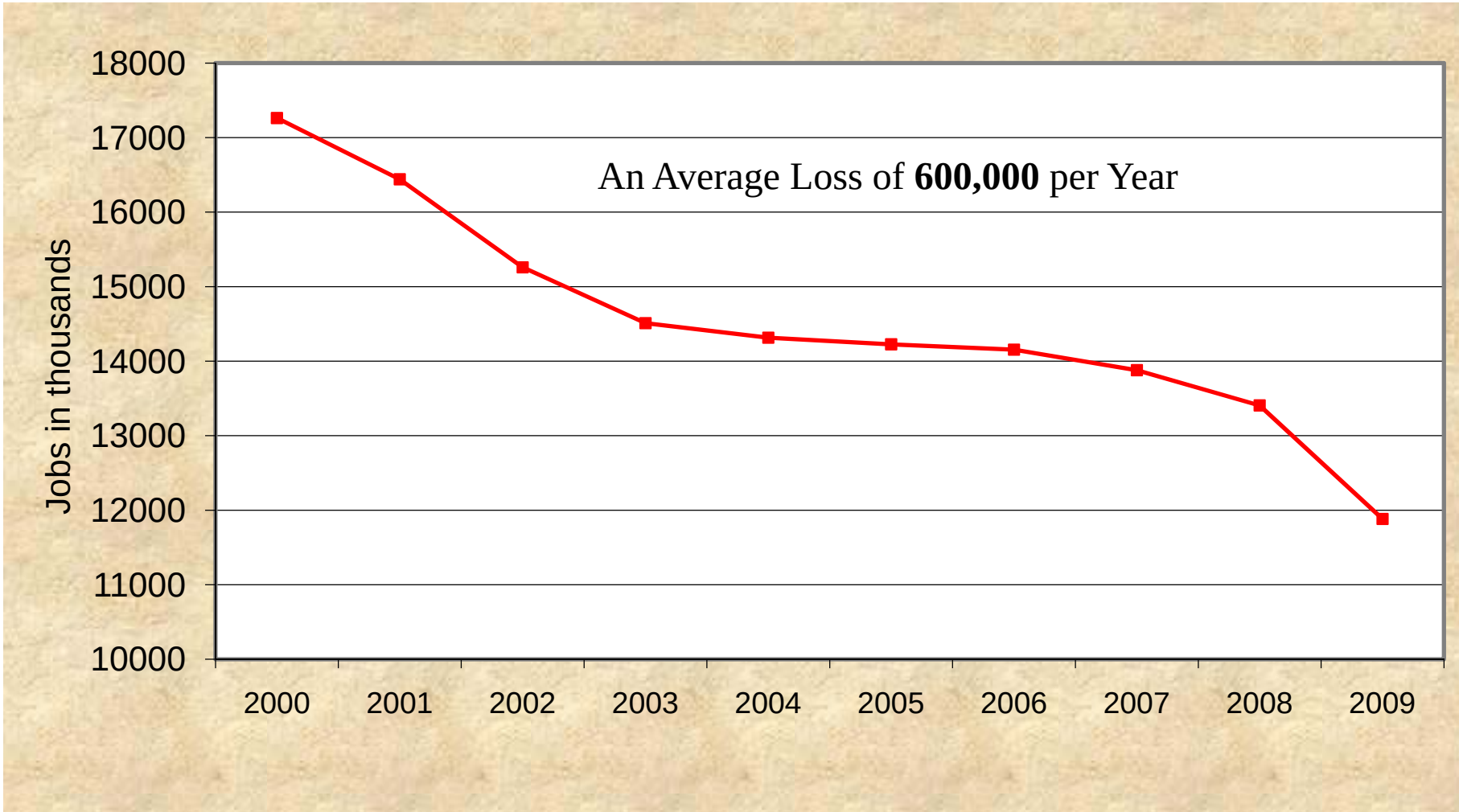
The United States ~~is~~ was the World's Largest Manufacturer

(Top 5 Manufacturing nations made up 55 % of Manufacturing Value)



Source: United Nations, IECA Calculations

5.4 Million Manufacturing Jobs (31%) Lost



Source: Bureau of Labor Statistics

Each Manufacturing Job Creates Three Non-manufacturing Jobs

Mfg. Jobs lost last decade

5.4 Million

+

Non-Mfg. Jobs lost

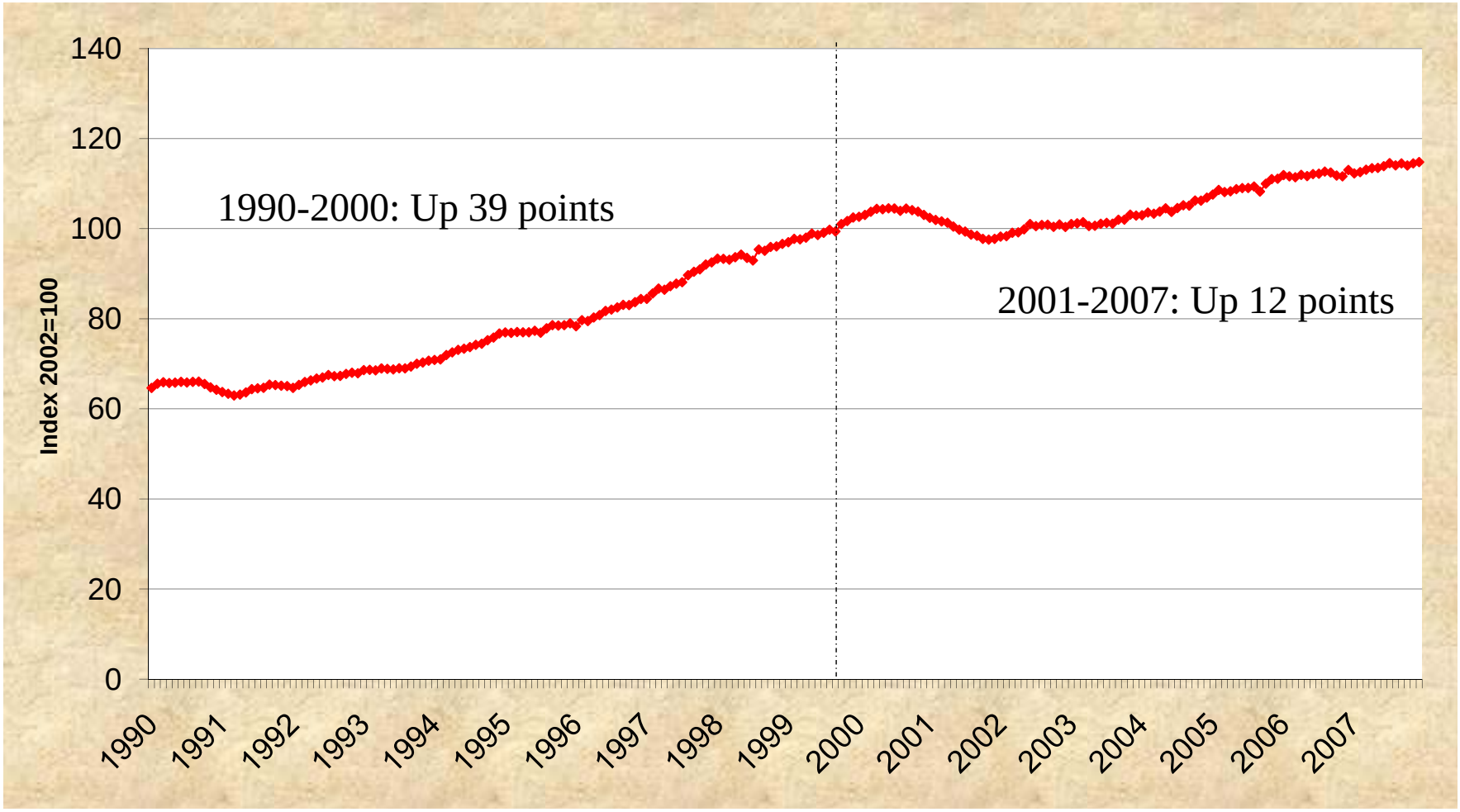
16.2 Million

=

Total Jobs Lost

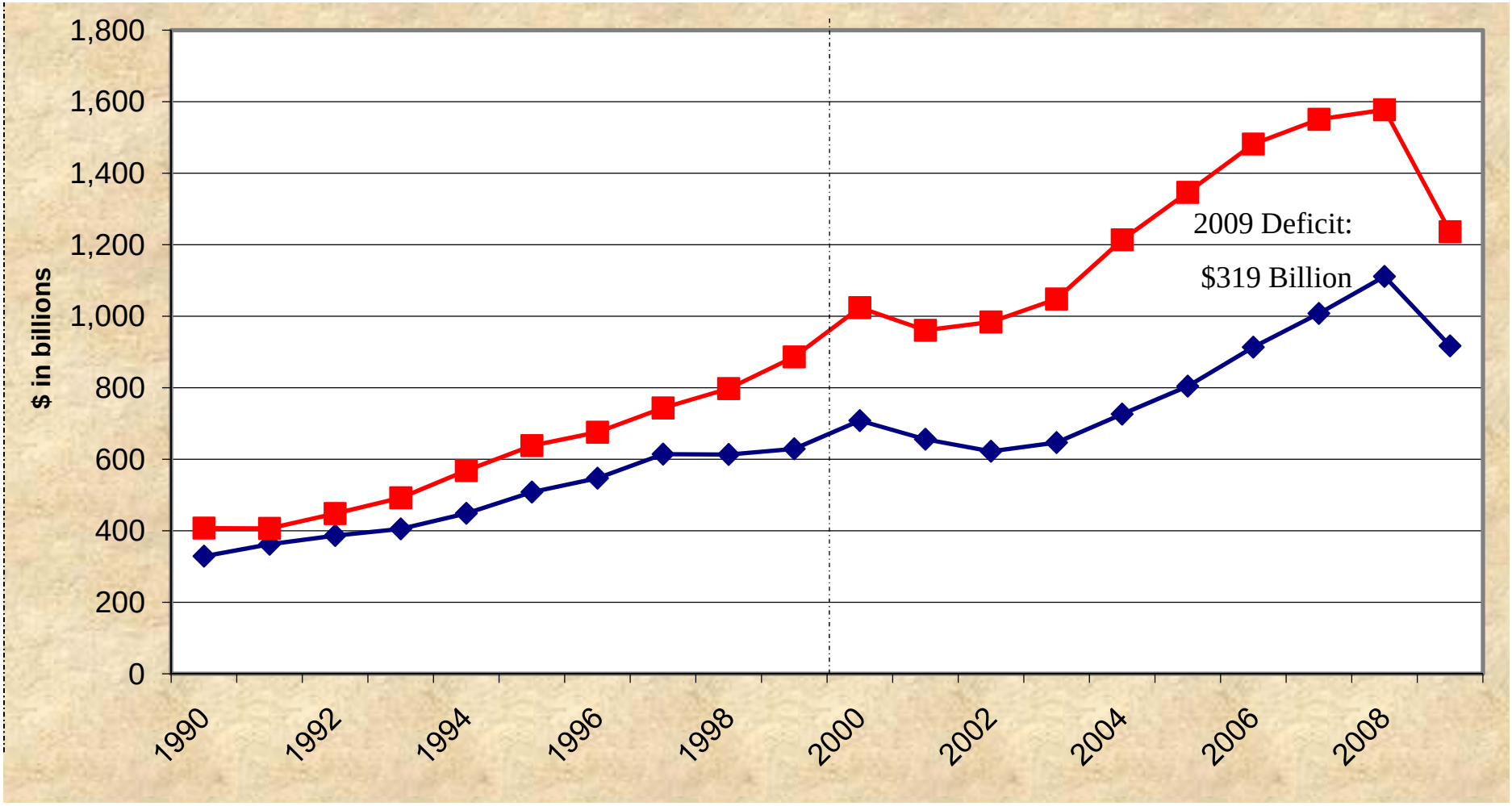
21.6 Million

Pre-Crisis Real Industrial Output Growth Rate Slowed 68% Since 2000



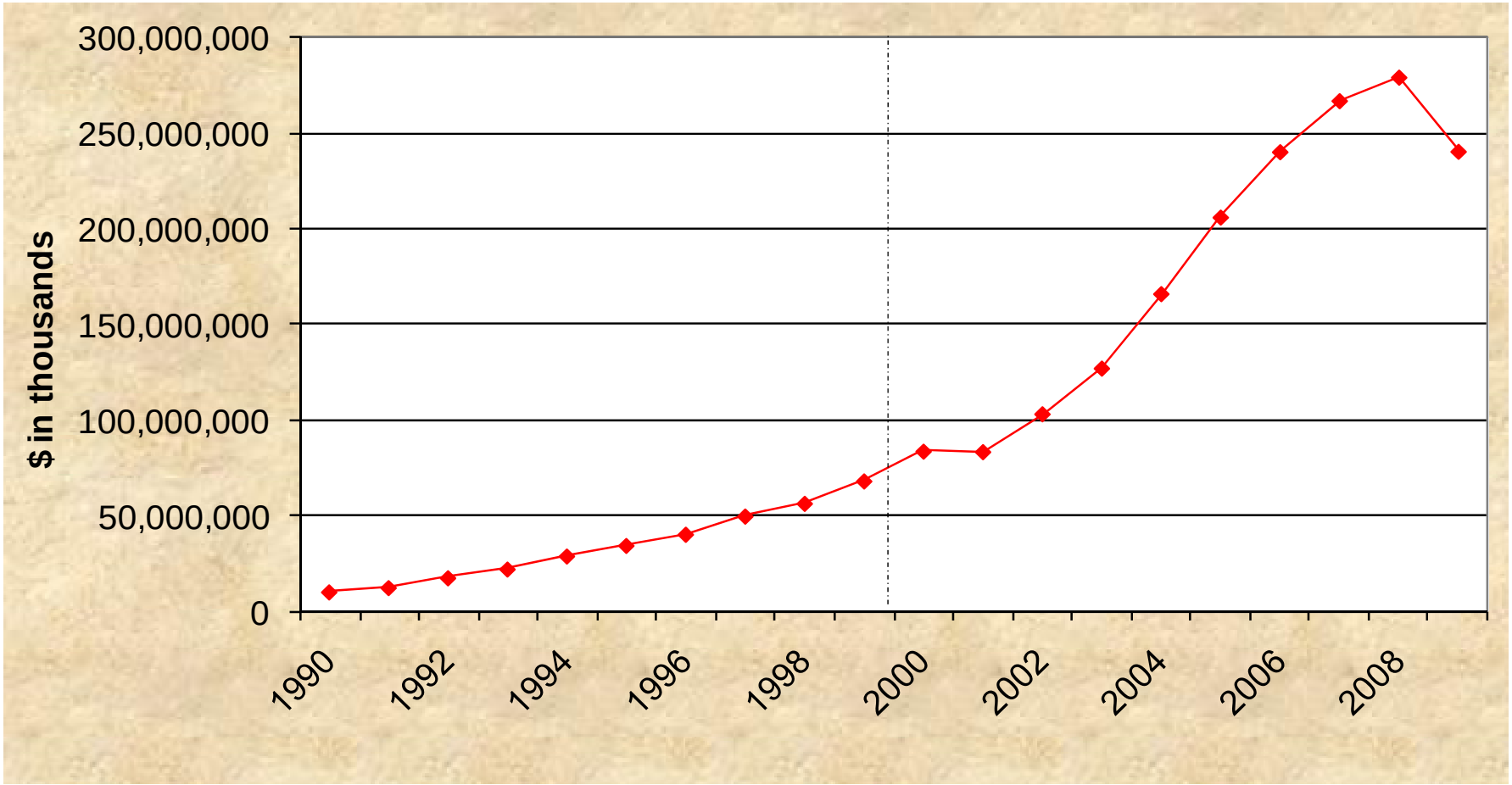
Source: Bureau of Economic Analyses

Imports Exceeded Exports by an Average of 53% 2000-2009



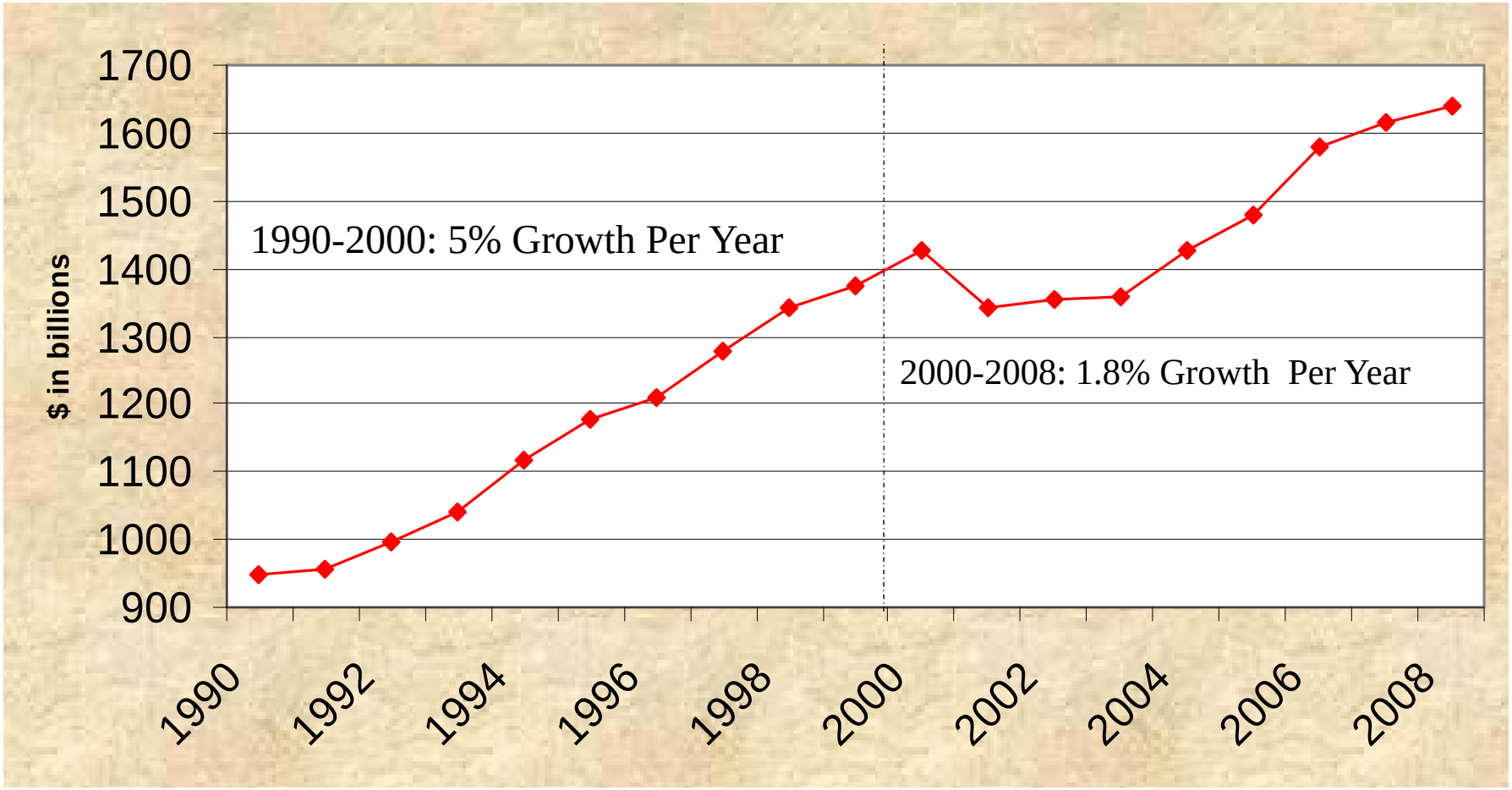
Source: Department of Commerce

Cumulative U.S.- China Manufacturing Trade Deficit – $1.8 Trillion Since 2000



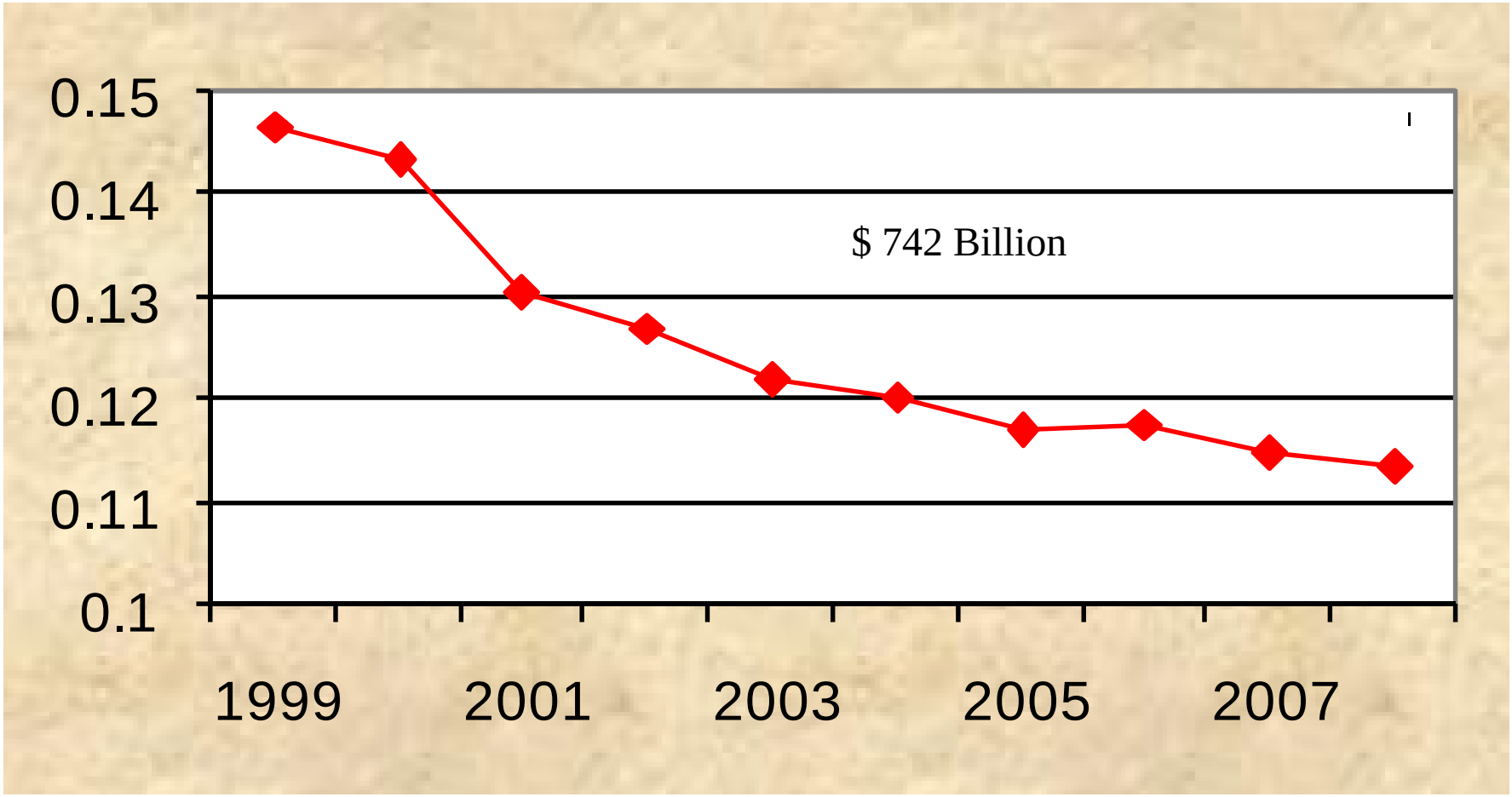
Source: Department of Commerce

Manufacturing Value Added Contributions Have Slowed By 64%



Source: Bureau of Economic Analysis

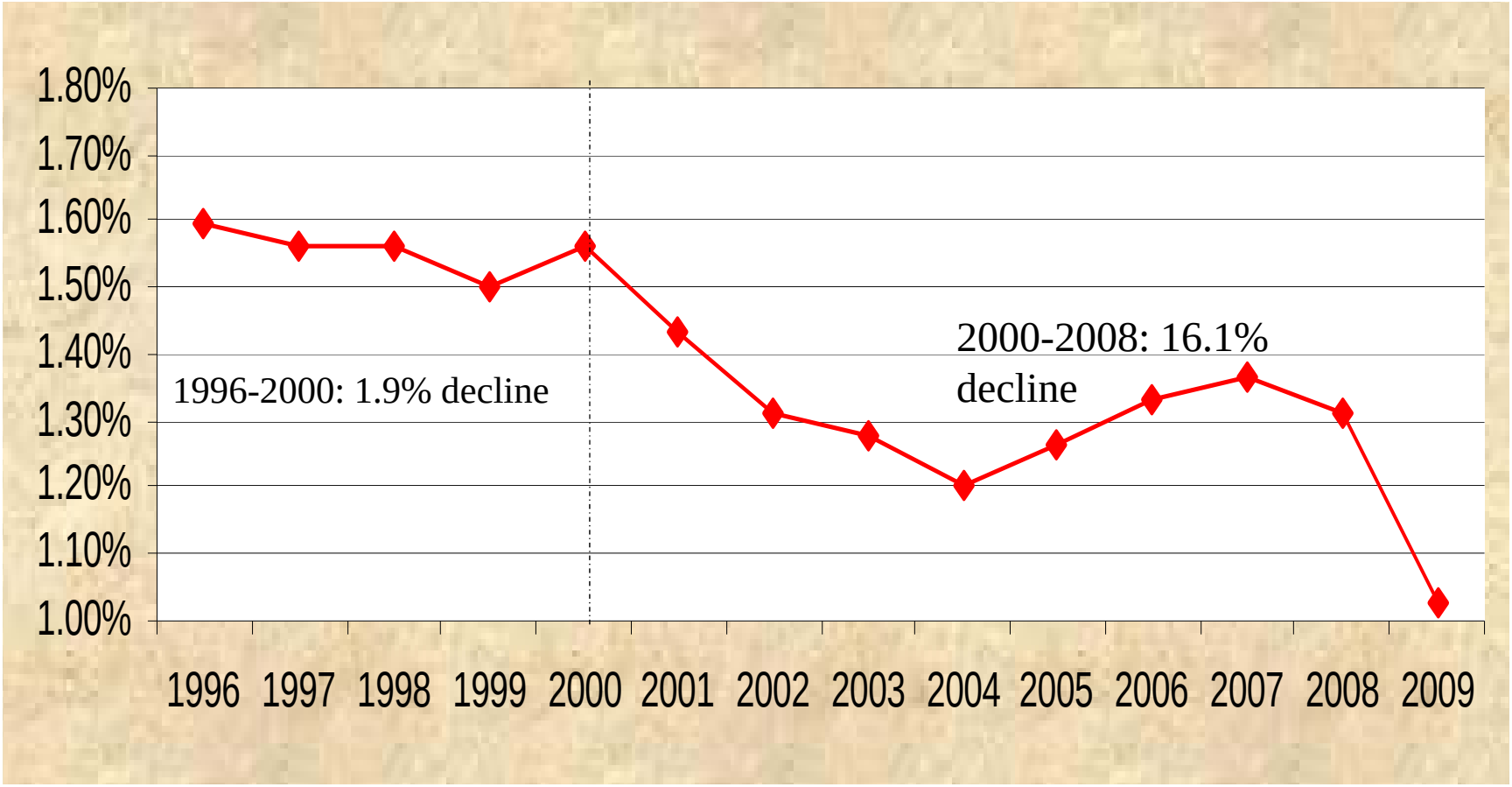
Manufacturing Value Added as a Percentage of GDP Fell By $742 Billion



Source: Bureau of Economic Analysis

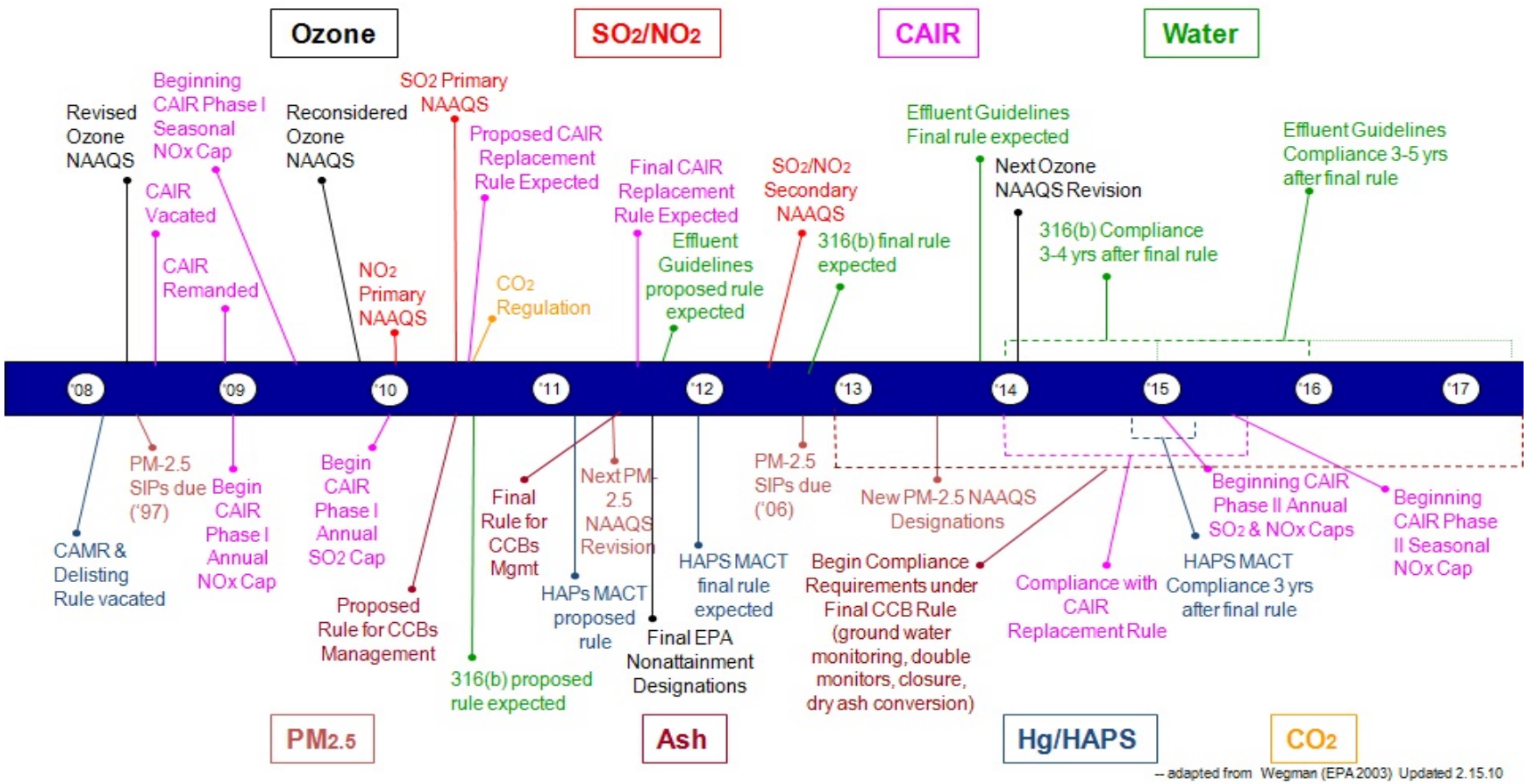
Investment in Industrial Equipment as Share of Real GDP Fell by 18% and is Accelerating

(Chained 2005 Dollars)



Source: Bureau of Economic Analysis

Many EPA Rules Driving Utilities to Fuel Switch to Natural Gas for Baseload Power



Source: APPA

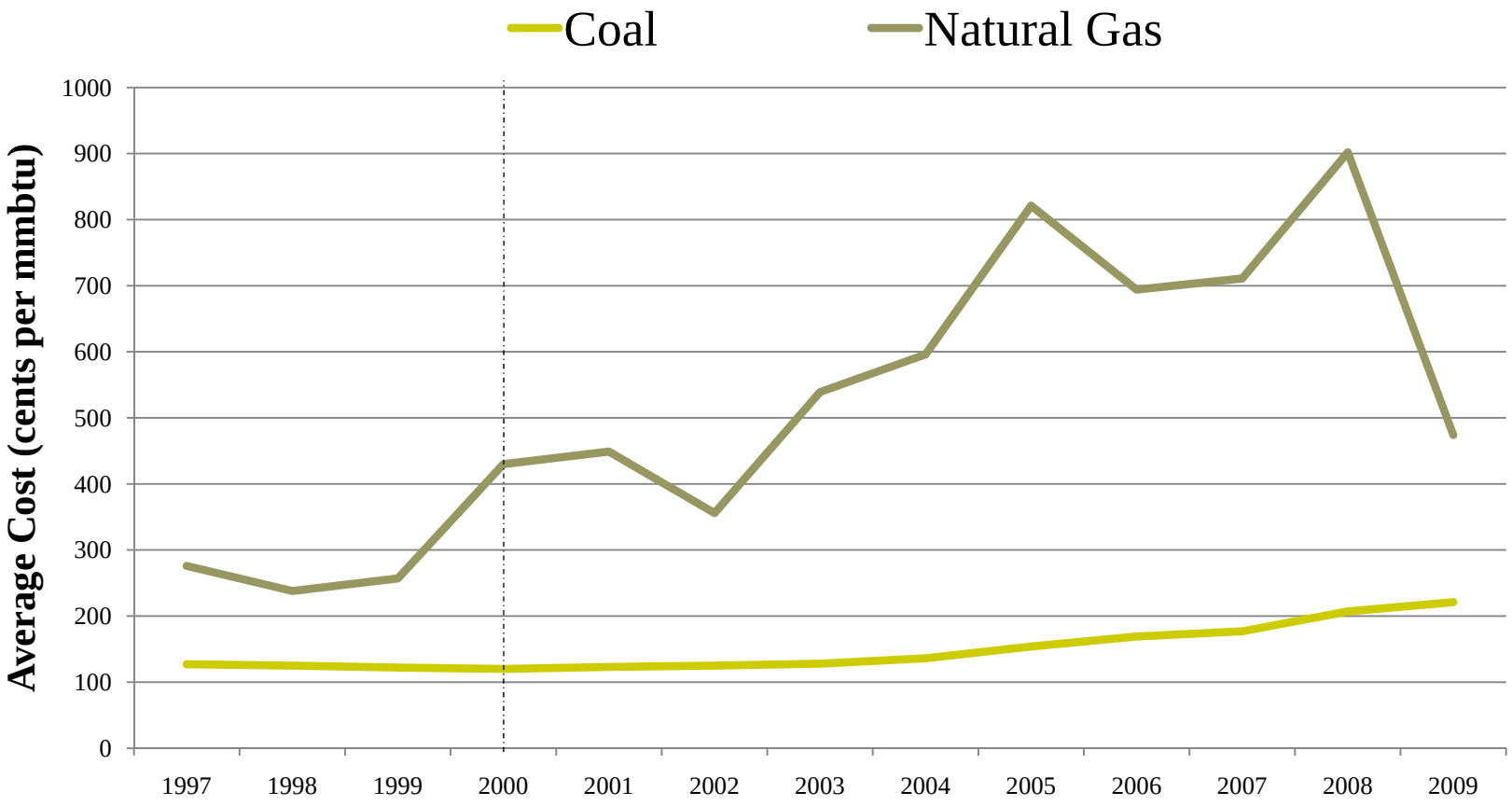
EPA CAA regulations on power plants…

“ALL COSTS ARE PASSED ONTO THE CONSUMER.”

EPA CAA Regulations

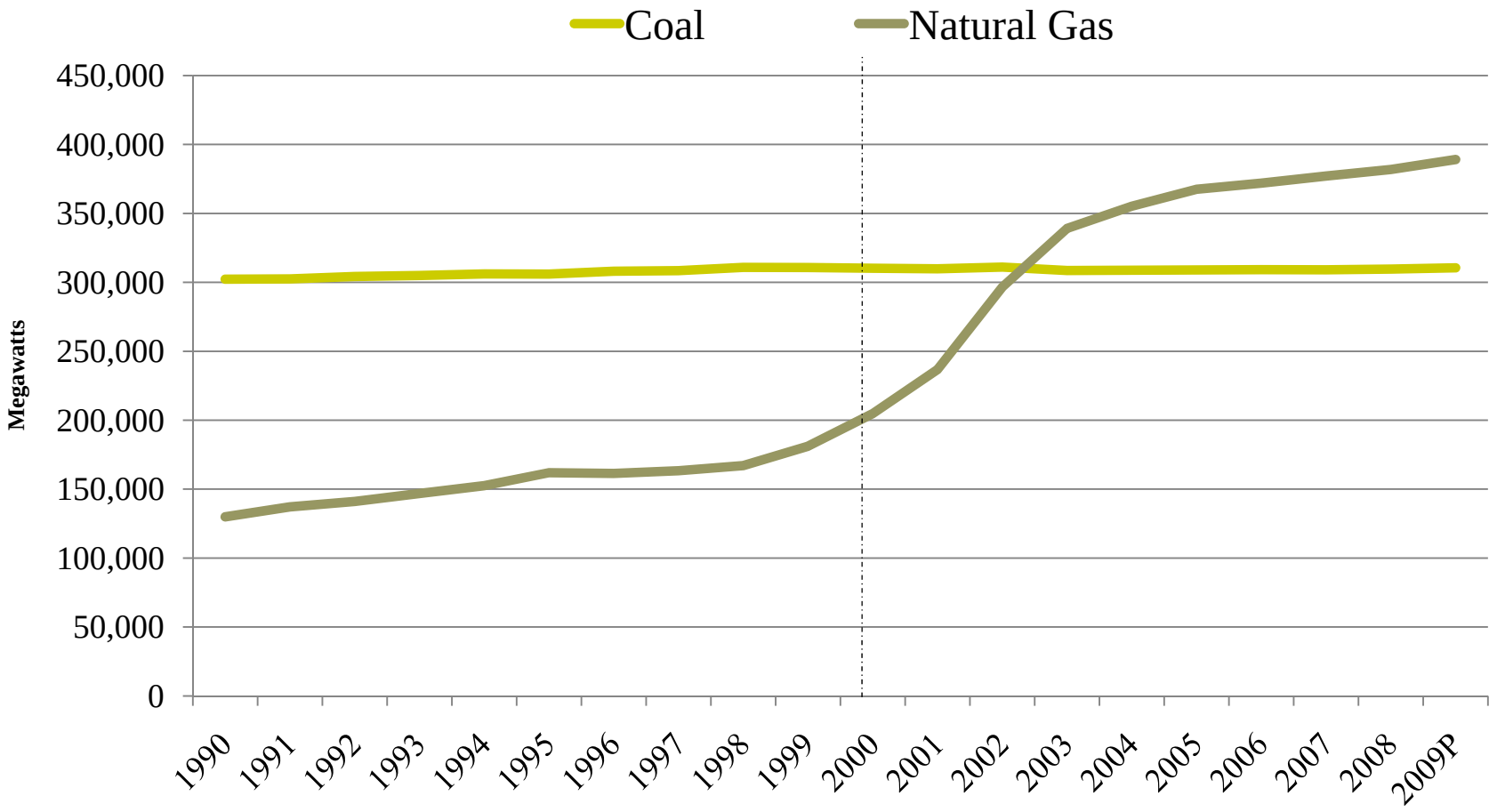
- Increased regulatory costs put existing low cost older coal-fired units in jeopardy and prevents new builds
- Results in escalating increases in demand for natural gas
- In a growing portion of US, **natural gas fired power generation sets the marginal price of electricity. If natural gas prices rise…so does the price of electricity**

Cost of Fuels to Electric Power Sector



Source: Energy Information Administration

Electric Net Summer Capacity: Electric Power Sector, 1990-2009



Source: Energy Information Administration

Natural Gas Consumption by End Use (trillion cubic feet)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	Difference
Total Consumption	**22.2**	**23.0**	**22.4**	**22**	**22.2**	**21.7**	**23**	**23.2**	**22.8**	2.7%
Residential	**4.8**	**4.9**	**5.1**	**4.9**	**4.8**	**4.4**	**4.7**	**4.9**	**4.8**	-2%
Commercial	**3.0**	**3.1**	**3.2**	**3.1**	**3.0**	**2.8**	**3.0**	**3.1**	**3.1**	0%
Industrial	**7.3**	**7.5**	**7.2**	**7.2**	**6.6**	**6.6**	**6.6**	**6.6**	**6.1**	-16.4%
Electric Power	**5.3**	**5.7**	**5.1**	**5.5**	**5.9**	**6.2**	**6.8**	**6.6**	**6.8**	28%

Source: Energy Information Administration

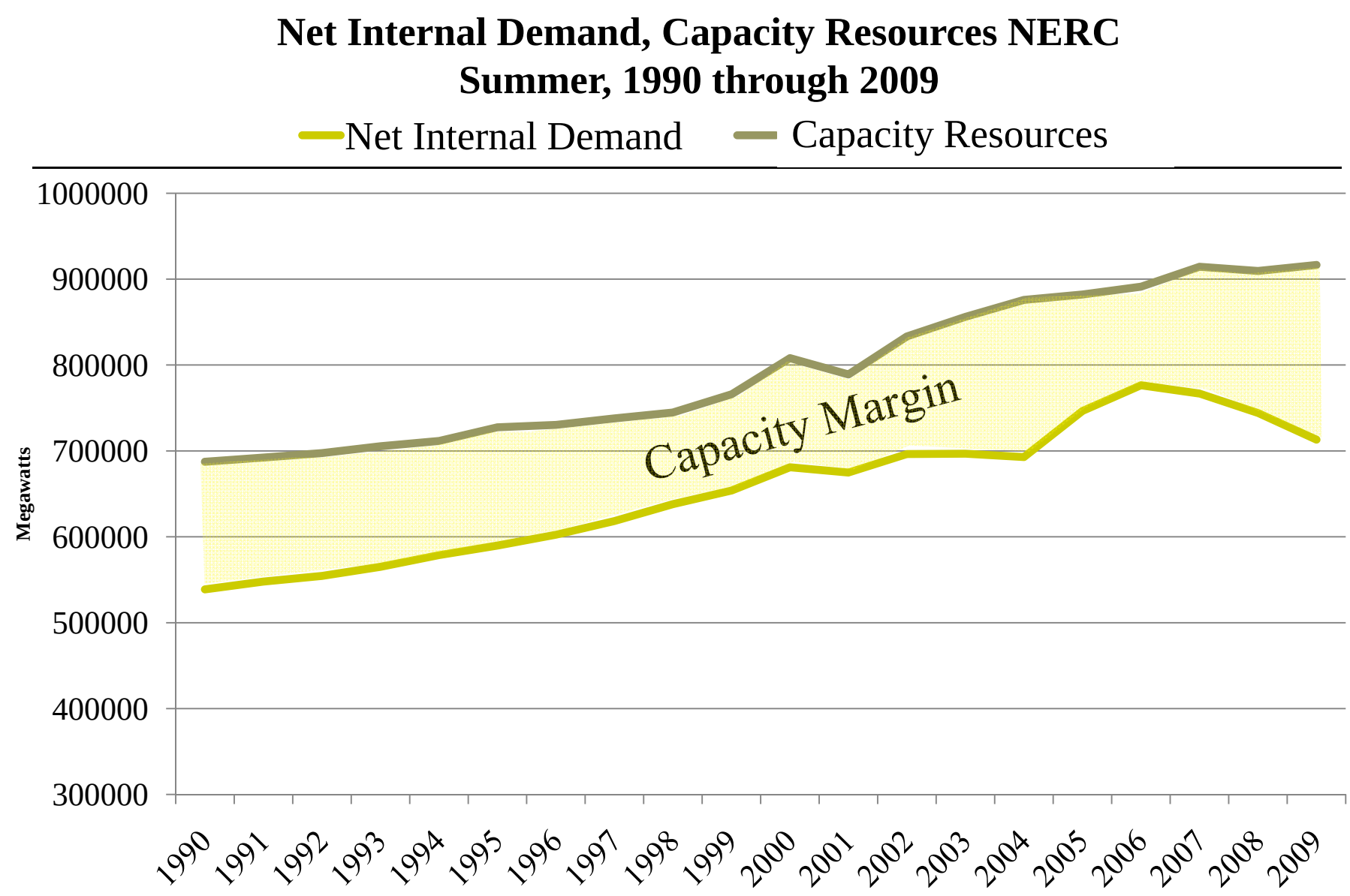
Reliability Issue: North America Electric Reliability Corporation

- Mission – to ensure reliability of the bulk power system

- October, 2010 – “Resource Adequacy Impacts of Potential U.S. Environmental Regulations”

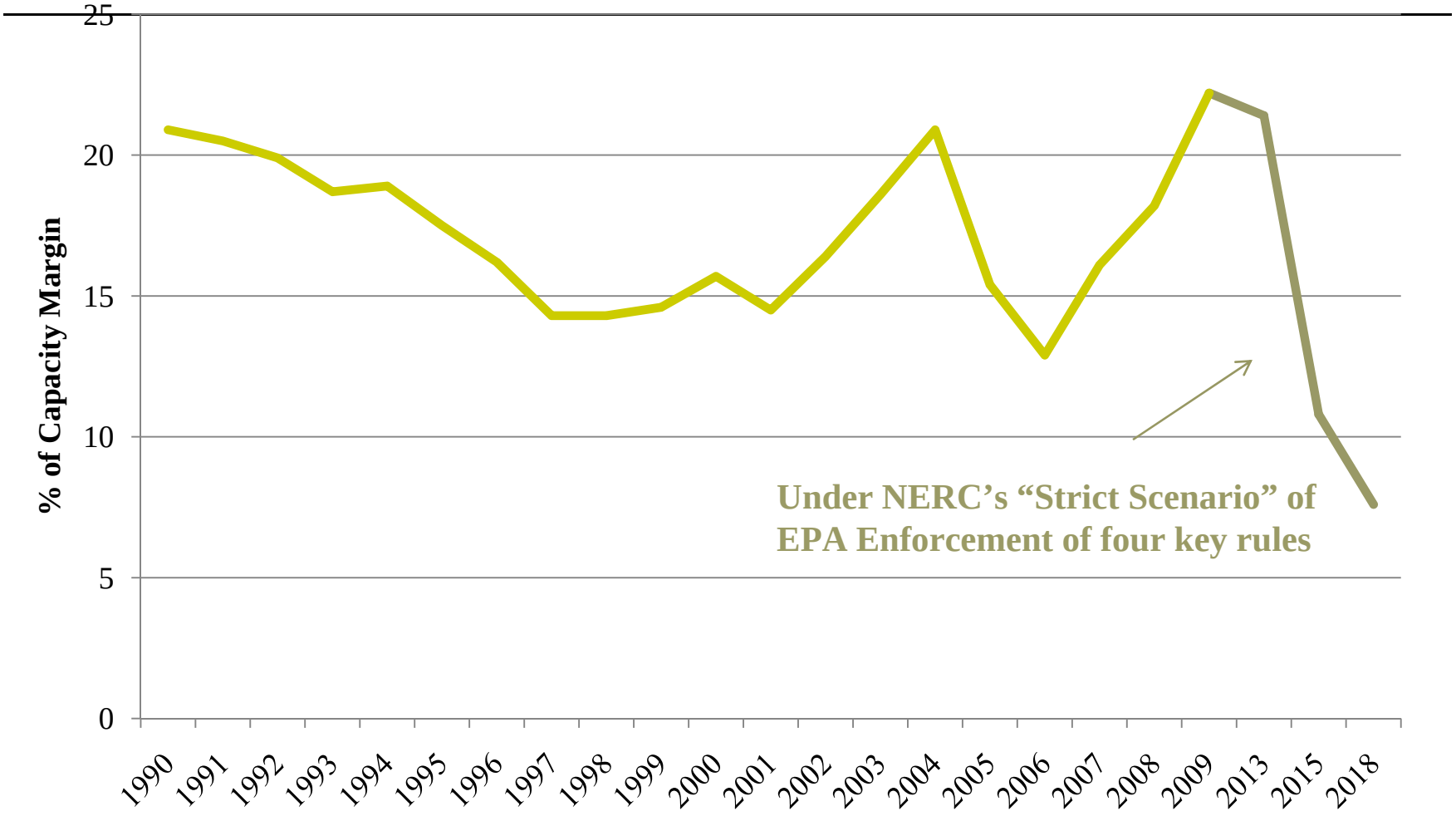
Reliability: NERC Study Results…

- "Assessment show a significant potential impact to reliability should the four EPA rules be implemented as proposed."
- "Reduced Planning Reserve Margins are a result of a loss of up to 19 percent of fossil fuel-fired steam capacity in the United States by 2018."


Net Internal Demand, Capacity Resources NERC
Summer, 1990 through 2009
Net Internal Demand
Capacity Resources
Capacity Margin
Megawatts
1000000
900000
800000
700000
600000
500000
400000
300000
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009

Source: EIA

Capacity Margins by NERC
Summer, 1990 through 2018



Source: EIA, NERC

Thank you