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National Energy Policy for the 20st Century -

Does the 2005 Energy Policy Act Get Us Where We Need to Go?

Susan Tierney

25th Annual North American Conference of the USAEE/IAEE
Denver – September 2005

Overview of remarks

Looking at National Energy Policy through Two Lenses

- **Energy Analyst:**
  The National Energy Policy Act:
  Where Does it Take Us?
- **Commissioner, Nat'l Commission on Energy Policy:**
  Where Do We Need to Go?
  Does The Act Get Us There?
  What's Missing in the Act That's Still Needed?

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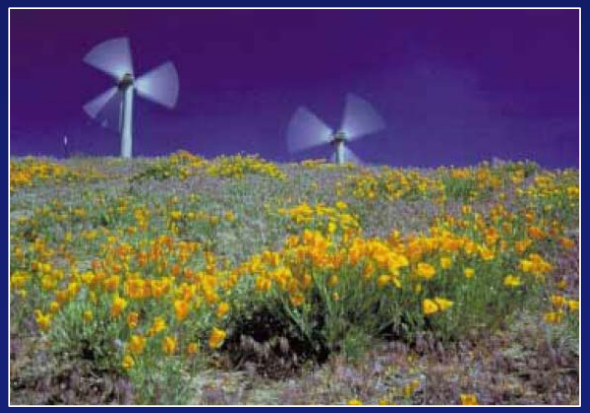
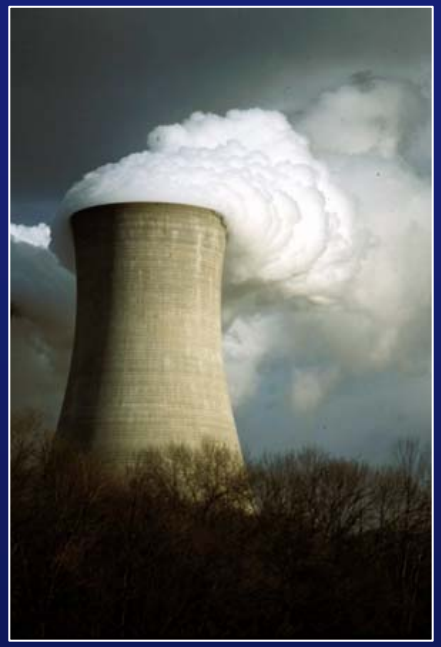
The 2005 Energy Policy Act – Observations of an energy analyst

The New Energy Policy Act – An Energy Stimulus Package

- Incentives for investment:
  - Tax incentives
  - Royalty relief
  - Risk mitigation
  - Federal funding authorization
  - Purchase requirements





The Energy Policy Act: Tax code provisions

$14.6 billion

Oil & Gas Production/Refining/Delivery		**$ 2.64**
Gas distribution lines: shorter depreciation	$1.02	
Geo expenses: shortened amortization	$0.97	
Refinery investments: expensing, and other credits, ded	$0.65	
Electricity Reliability		**$ 1.32**
Transmission property: shorter depreciation	$1.24	
Electric Transmission: other tax provisions	$0.08	
Electric Supply		**$ 7.96**
Nuclear decommissioning: modifications to funds	$1.29	
Nuclear power: production tax credit	$0.28	
Renewable: extends production tax credit to 12-07	$2.75	
Clean coal technology: 3 new investment tax credits	$1.61	
Coal pollution control equipment: longer recovery	$1.15	
Other tax credits	$0.88	
Energy Efficiency		**$ 1.35**
tax credits (homes - weatherization, PV, solar)	$0.62	
tax credits (business – micro-turbines, fuel cells, HVAC	$0.47	
tax credits (appliance manufacturers) + other	$0.27	
Transportation		**$ 1.32**
alternative fuel vehicles: tax credits for purchases	$0.87	
bio-diesel, ethanol, other alt fuels: tax credit	$0.45	

Changes depreciation or amortization,

Allowed expensing,

Tax credits for investments and output,

Tax credits for purchase (consumer, producer)

The Energy Policy Act – An Energy Stimulus Package

- **Incentives for investment:**
  - **Royalty relief** for oil and gas drilling production on federal lands (shallow-water and deepwater wells in Gulf of Mexico)

The Energy Policy Act – An Energy Stimulus Package

- **Incentives for investment:**
  - **<u>Risk mitigation, e.g.,</u>**
    - nuclear liability insurance – extension of Price Anderson Act to 2025, increased indemnity limits ($500 m))
    - Insurance to cover permitting/ construction delays for first 6 new nuclear power plants built (up to $2 b)
    - wetland impact funds for coastal states (drilling impacts)
    - SPR filling
    - Eligibility for loan guarantees for "innovative technologies" with no/low GHG

The Energy Policy Act: Removal of barriers to entry for development

- **Lack of information: Oil/gas in Outer Continental Shelf**
- **Permitting issues:**
  - **Streamlining permitting for drilling on federal lands**
  - **Clarifying and/or consolidating jurisdiction**
    - Federal v. state (e.g., FERC authority re: LNG
    - Agency v. agency (e.g., FERC hydrolicensing)
    - court venues (e.g., DC circuit court review)
  - **Prioritizing "critical national" corridors and facilities**
    - Electric transmission
    - gas & oil pipelines
    - renewable projects

The Energy Policy Act: "Proof of Concept" for Advanced Energy Technologies

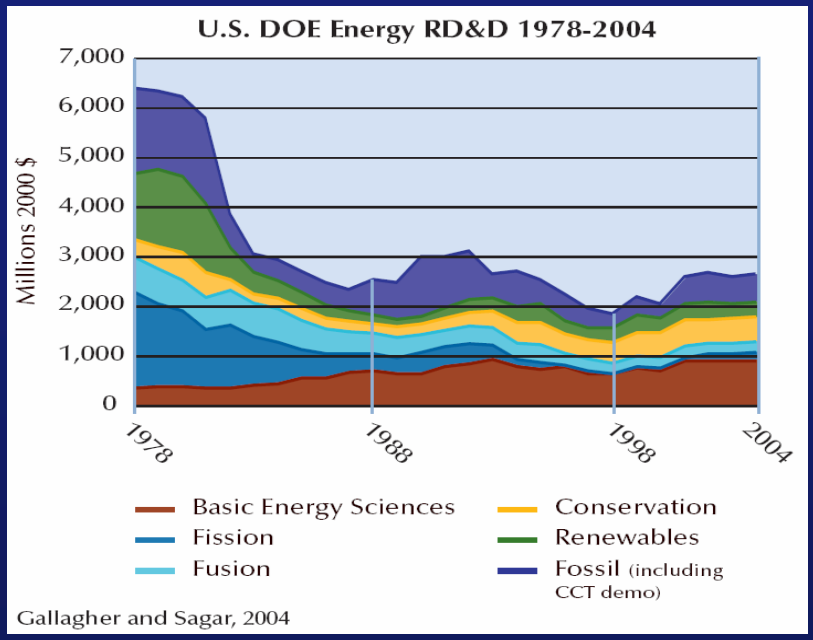
- **<u>Funding/financing support for initial projects of next-generation technologies</u>.**
  - IGCC – coal (loan guarantees, R&D $)
  - Advanced nuclear (risk insurance, production tax credit)
  - Renewable fuels & technologies (production tax credit, innovative technology R&D)

The Energy Policy Act: Purchase requirements and standards

- Renewable motor vehicle fuel
  - RPS (biofuels) – 7.5 billion gallons/year by 2012
- Federal agency renewable electric standard
  - RPS (wind, biomass, solar)
- Appliance efficiency standards
  - (15 appliances)

The Energy Policy Act: Federal energy R&D authorizations

- DOE authorized $1.25 billion to build a "next generation" nuclear reactor to generate power & hydrogen
- Advanced Fuel Cycle Initiative authorized
- Coal R&D: 3 years of funds authorized
- Carbon capture R&D: 3 years authorized
- Low/No Carbon technologies: Efficiency and renewables



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National Commission on Energy Policy, 2004. Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges.

Recall re: federal funding

- **Remember the difference between:**
  - **Appropriations** (discretionary budget funding decisions to allow spending)
  - **Authorizations** (approval of possible spending but still require appropriation action in later years)
  - **Direct spending programs** ("automatic" expenditures under certain statutory provisions)
  - **Tax provisions** (allow action by eligible entities, with impact on revenues to federal treasury)

The Energy Policy Act: Electric supply provisions

- New reliability standards: new Electric Reliability Organization
- New "national interest T corridors," FERC siting back stop
- Requires FERC to establish incentives for T investment.
- Authorizes participant funding and native load protections for transmission assets.
- Allows federal power authorities under FERC RTOs.
- Repeals PUHCA.
- Modifies PURPA.
- Forbids price manipulation.

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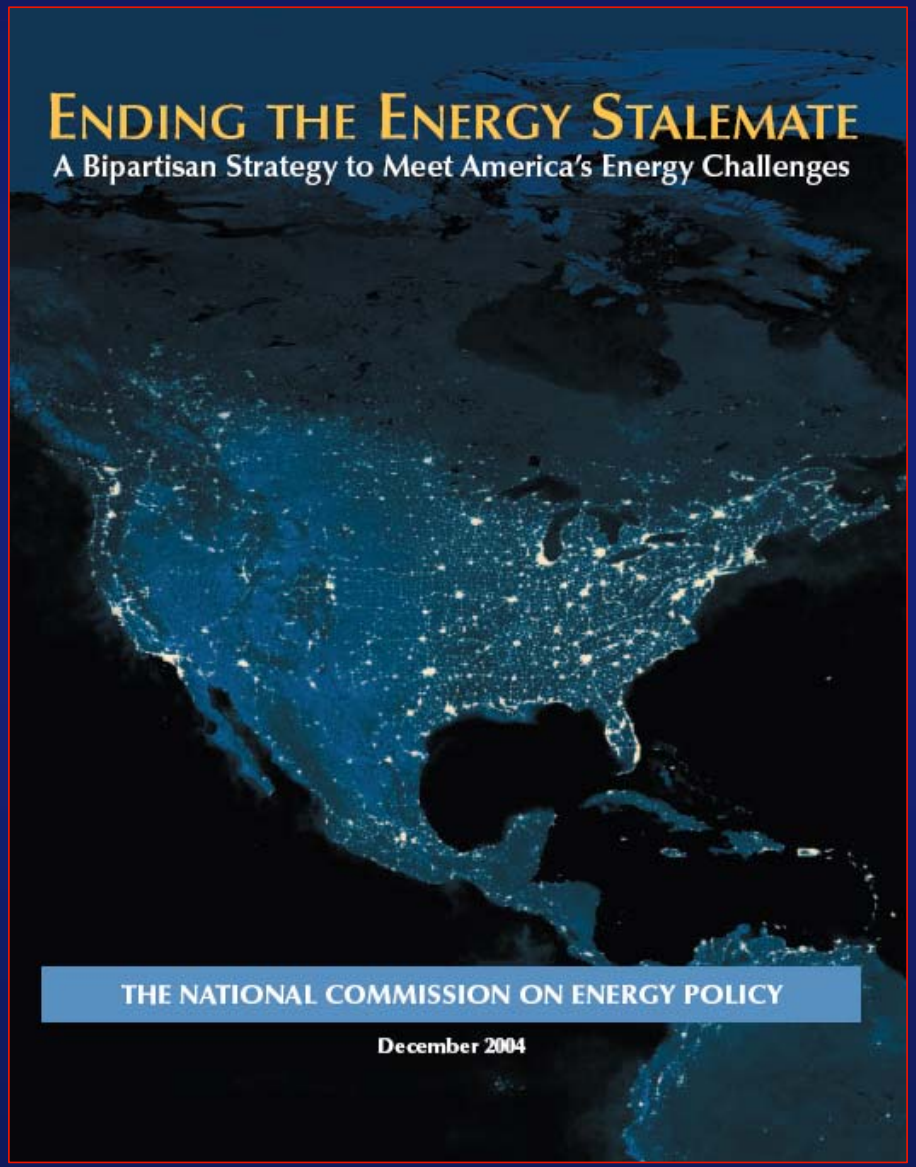
The 2005 Energy Policy Act –

Observations of an NCEP commissioner

National Commission on Energy Policy

- 3 year effort, during the "Stalemate"
- December '05 report
- Foundation funded
- Bipartisan commission, with goal of consensus
- Chairs (Reilly, Rowe, Holdren)
- 16 members from various regions, constituencies
- Focus on national policies
- Focus on long-term



National Commission on Energy Policy: Why?

- Long-term focus: ensuring ample, clean, reliable, and affordable energy for the 21st Century while responding to growing concerns about the nation's energy security and the risks of global climate change.
- Addressing the Energy Stalemate
  - Inability (as of 12/04) to pass bipartisan energy law.
  - Complex issues, difficult trade-offs.
  - Persistent "myths" – on left and right – which contribute to paralysis.
  - Divisions about energy have always been as much regional as partisan.
  - Energy sector characterized by large investments, long-lived infrastructure – not easy to change.
  - Economic and environmental stakes are enormous.

NCEP: Central energy challenges

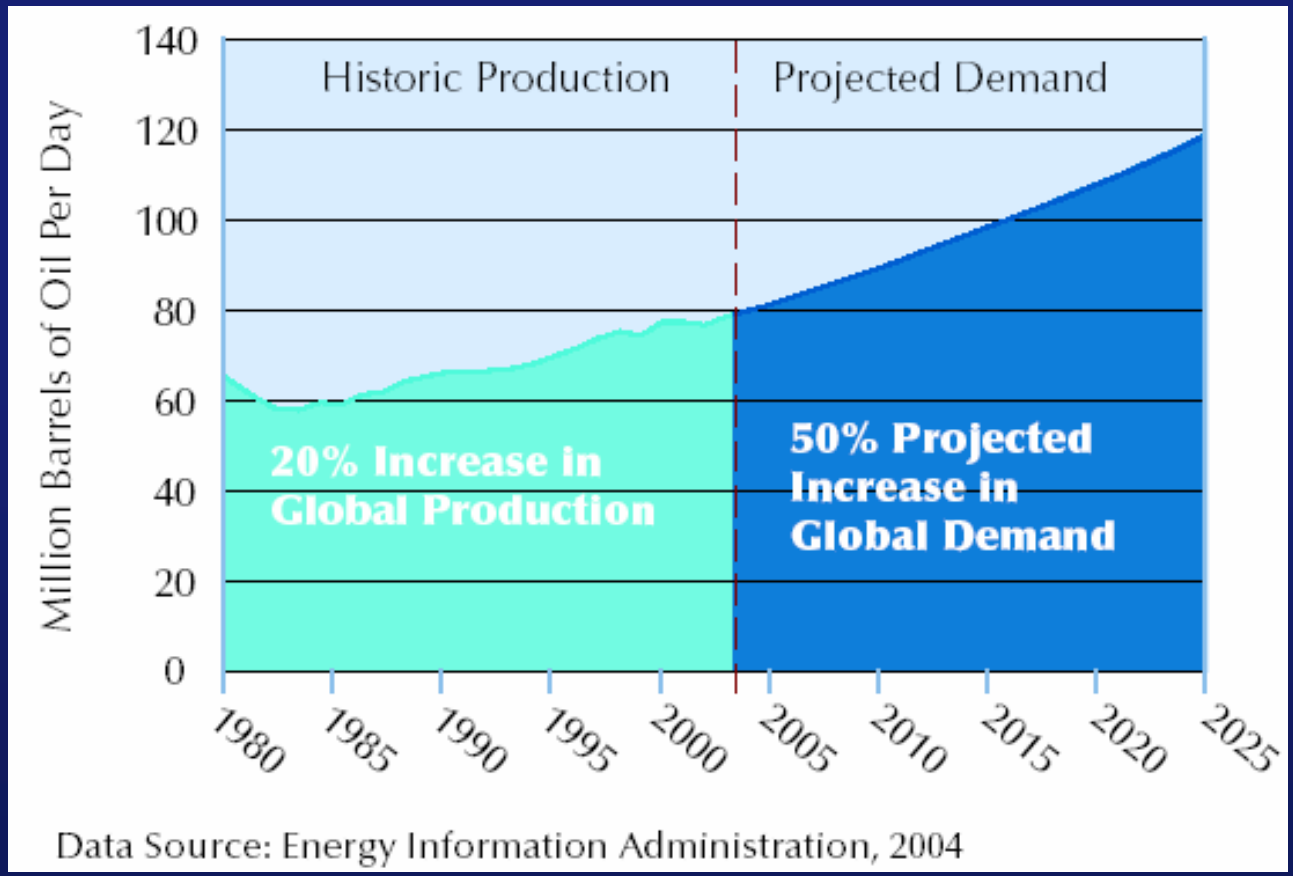
- Dependence of the economy on oil – especially in the transportation sector.
- Dependence on combustion of fossil fuels, which contribute to global warming – especially in the power and transportation sectors.
- Disconnection between
  - the beneficial uses of energy
  - the external consequences (for oil security and climate change) of the ways we produce, deliver, price, site energy.
- Cannot address the nation's core energy challenges with addressing oil in the transportation sector and carbon content of energy

Addressing the Stalemate: The "Oil" Stakes are Enormous

By 2025, U.S. oil consumption will increase 43%.

Global oil consumption will grow by over 50%.

Mainly a transport issue.

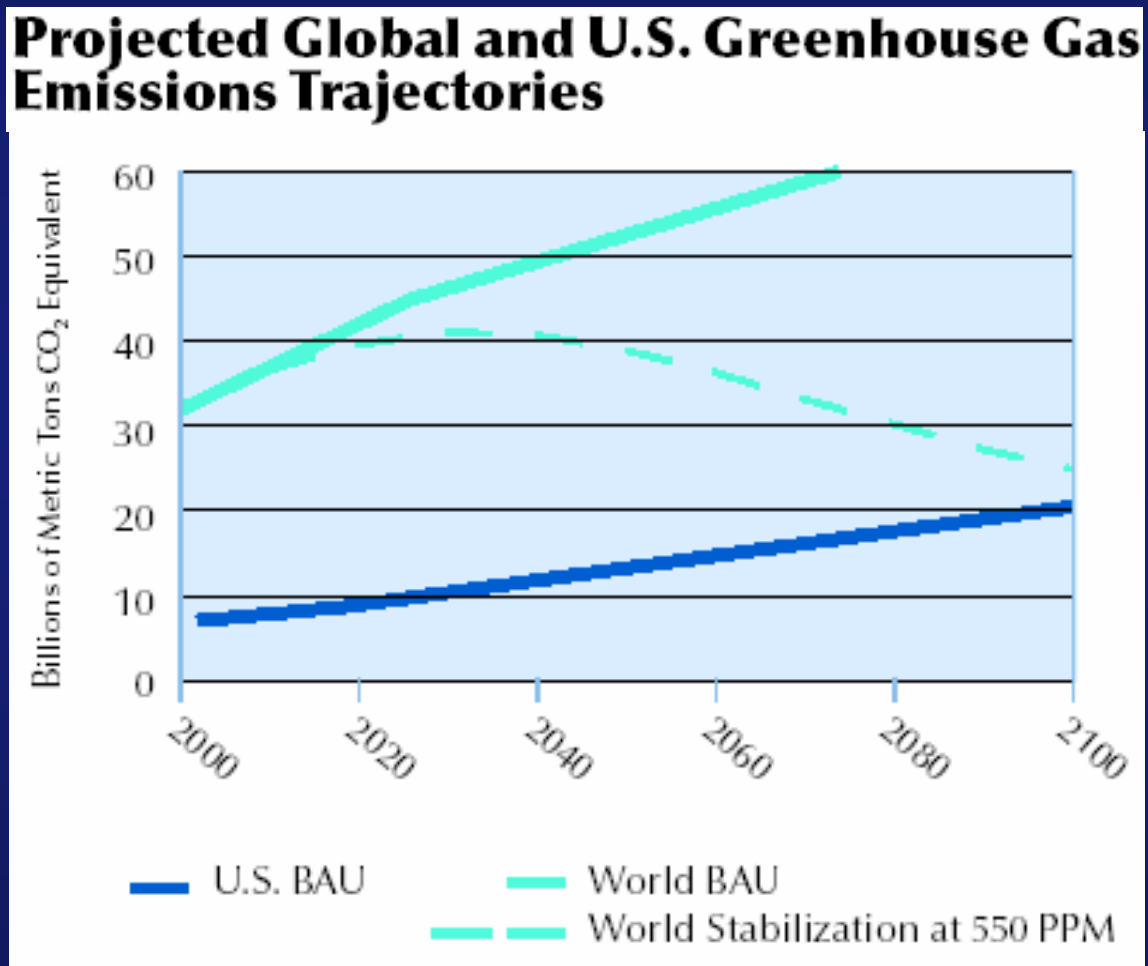


Addressing the Stalemate: "Global Warming" Stakes are Enormous

By 2025, U.S. GHG emissions could increase over 40%.

Globally, emissions could increase 55%.

Major sources: electric and transportation.



NCEP Climate Change proposal

Premise:

- Federal policy is needed to support development of and investment in diverse resources.
- Markets will make choices about which way to go.
- Balance environmental and economic impacts.
- Start with "architecture" with trajectory for emissions reductions.

Approach:

- Initiate in 2010 mandatory economy-wide cap-&-trade program to limit GHG emissions.

Four key features of NCEP Climate Proposal:

1. Cost Certainty

- Cap initial costs to the U.S. economy at $7 per metric ton of CO_2-equivalent via a "safety valve" mechanism.
- Gradually increase safety valve price 5% per year and # of permits auctioned per year (up to 10%).
- Uses intensity-based metric (GHG/GDP) to set emissions targets and allow growth.

2. Environmental Progress

- From 2010-2019, 2.4% per year decline in the emissions intensity.
- From 2020 on, accelerate decline to 2.8% per year.
- Environmental improvement - increase safety valve price 5%/year.

Four Key Features of NCEP Climate Proposal:

3. International Leadership

- **Move U.S. into global community addressing climate change.**
- **Link subsequent U.S. action (i.e., further ratchets of the cap) to comparable efforts by other developed and developing nations**

4. Technology Push

- **Gradually stronger market signal to reduce emissions over time.**
- **Auction of allowances provides $32 b. in funds.**
- **Revenues from the auction fund go to support advanced technology:**
  - **energy efficiency and renewables (including biomass)**
  - **fossil fuels (natural gas, IGCC)**
  - **advanced nuclear**
  - **Advanced motor vehicles**

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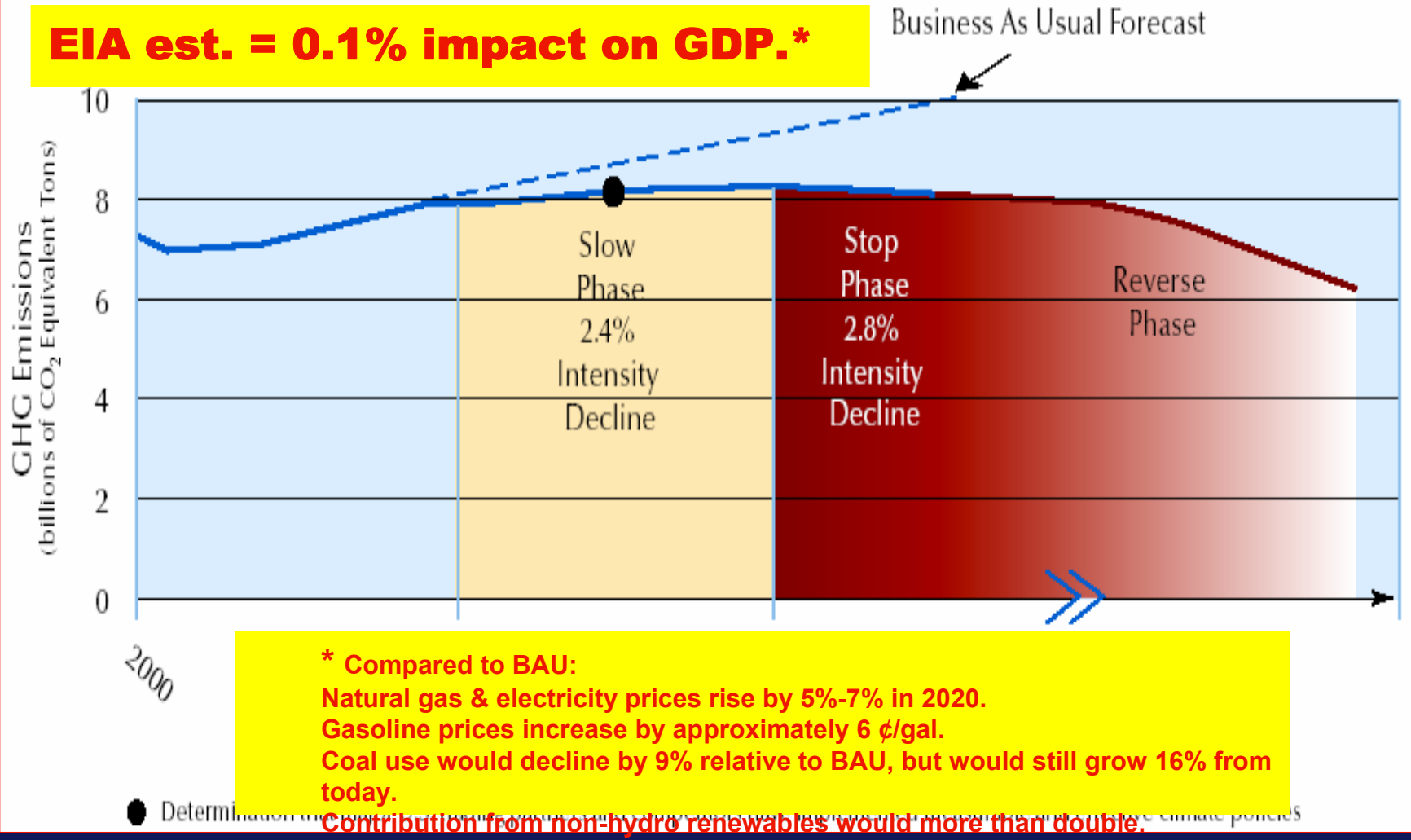
Estimated Impact of NCEP climate proposal

Recommendation: slow, stop, and eventually reverse U.S. greenhouse gas emissions.

EIA est. = 0.1% impact on GDP.*



* Compared to BAU:
Natural gas & electricity prices rise by 5%-7% in 2020.
Gasoline prices increase by approximately 6 ¢/gal.
Coal use would decline by 9% relative to BAU, but would still grow 16% from today.
Contribution from non-hydro renewables would more than double.

2nd core recommendation area: Enhancing Oil Security

Significantly strengthen federal fuel economy:

- **Tighten standards for cars and light trucks**
- **Reform CAFE program**
- **Provide manufacturer and consumer incentives to promote domestic production and increased use of highly efficient advanced diesel and hybrid-electric vehicles.**

Increase and diversify world production and strengthen global network of strategic reserves.

Develop non-petroleum transportation fuel alternatives, especially cellulosic ethanol & diesel from biomass.

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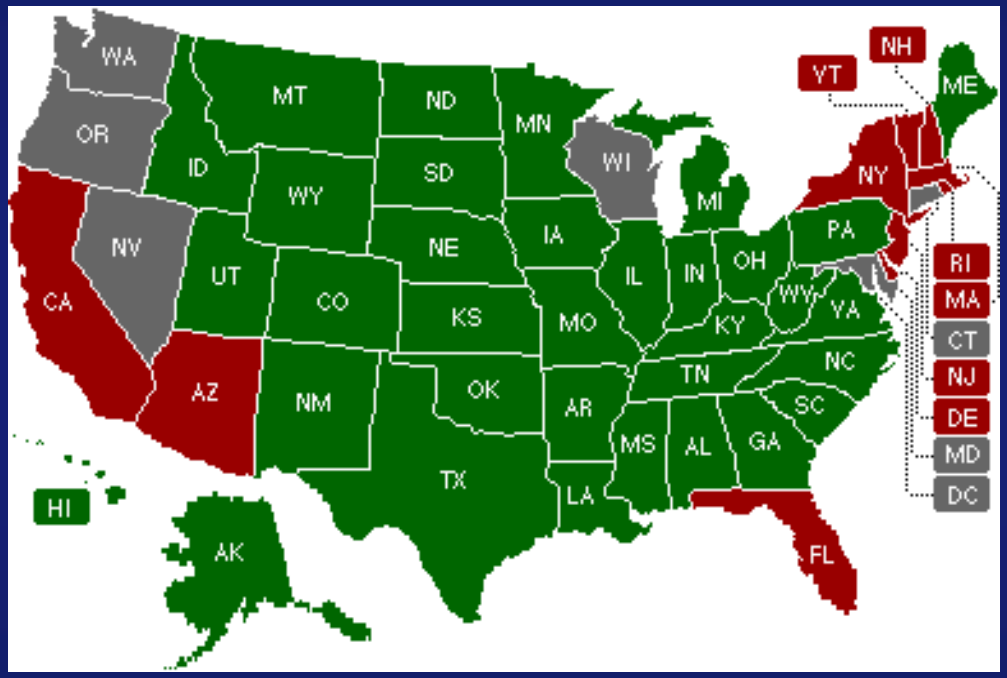
Rating the Energy Policy Act: Does it get us where we need to go?

Energy Policy Act - observations

- Congress gave the President got the Act he wanted – not a lot more or less
- The bill has elements for producers and consumers
- But there's not enough for the high-cost coasts
- Much of the program depend on the will to appropriate funds – making it too fragile



= Majority of state's delegation voted AGAINST

= Majority of state's delegation voted FOR

= Split delegation (equally # voted FOR and AGAINST)

http://www.congress.org/congressorg/issues/votes/?votenum=213&chamber=S&congress=1091

Energy Policy Act - Overview

- **What's not in it (recommended by NCEP)**
  - **No mandatory climate change control policy**
    - **Significant attempt by Domenici and Bingaman to adopt an NCEP-like mandatory program**
    - **Sense of the Senate resolution calls**

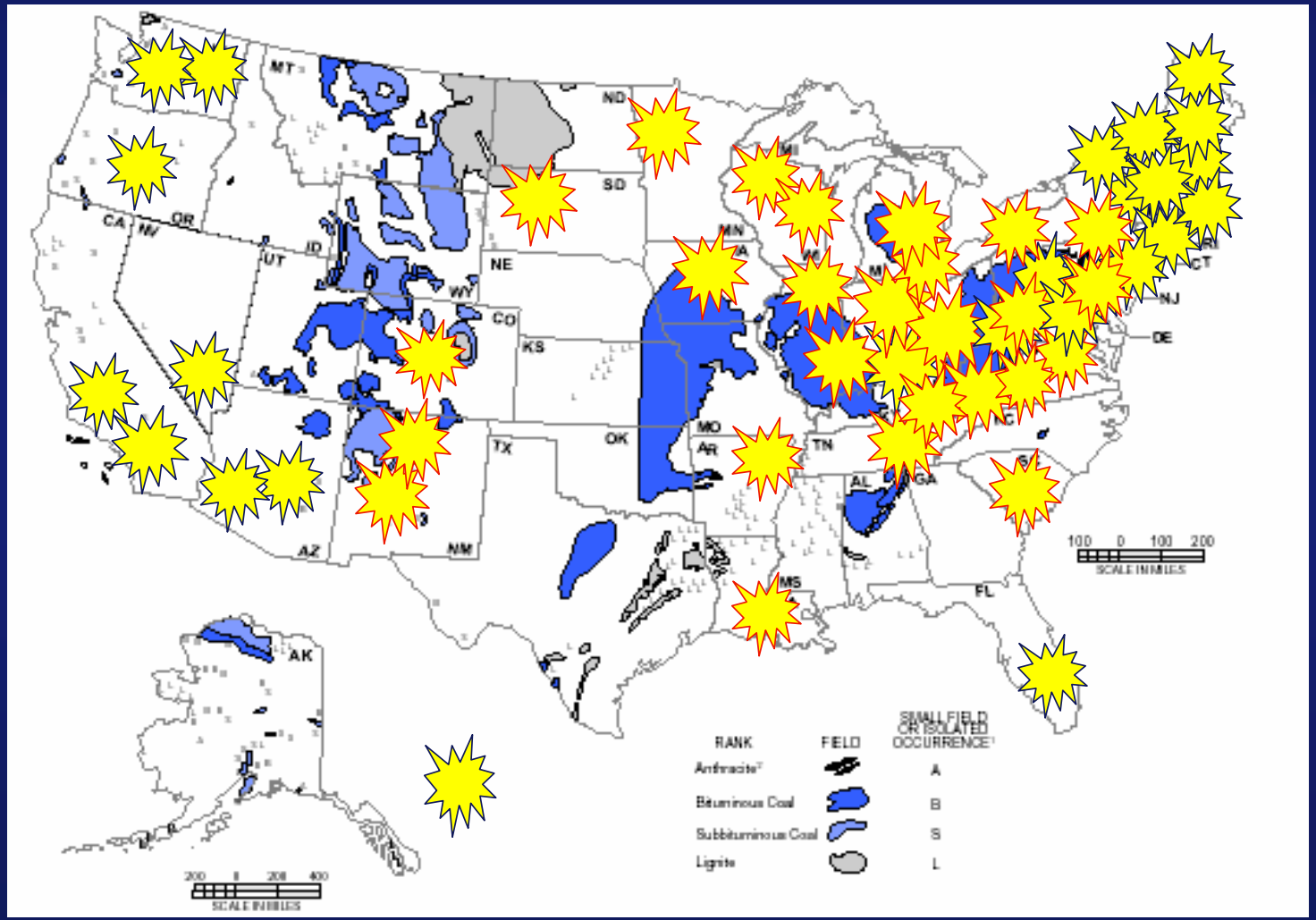
"It is the sense of the Senate that, before the end of the first session of the 109th Congress, Congress should enact a comprehensive and effective national program of mandatory, market-based limits on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a range and in a manner that -
(1) will not significantly harms the United States economy; and
(2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions."

Surprising votes on the Sense of Senate Climate Change Resolution

Supporting: 53

Opposing: 44

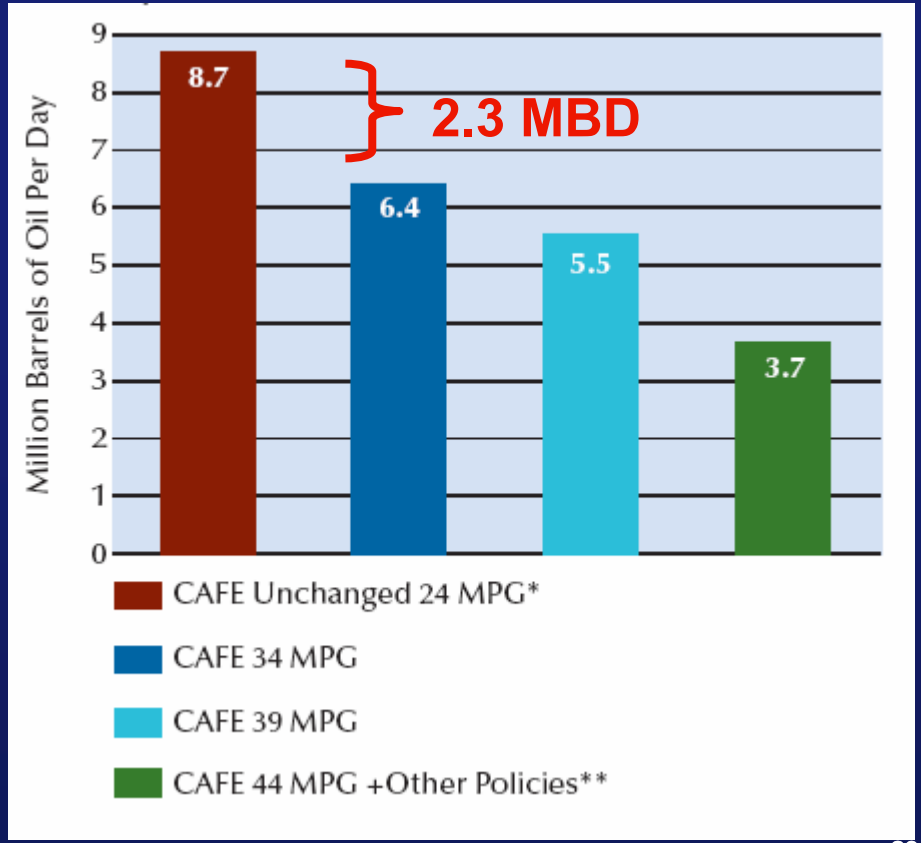
Not voting: 3



EIA, US Coal Reserves – 1997 Update, 1999

Energy Policy Act - Overview

- What's not in it (recommended by NCEP)
  - Inadequate attention to reducing oil use in motor vehicles
    - Ethanol RPS is in
    - But no change in CAFÉ standards (same for decades)
    - Inadequate long-term support for renewable motor fuels (cellulosic biomass)

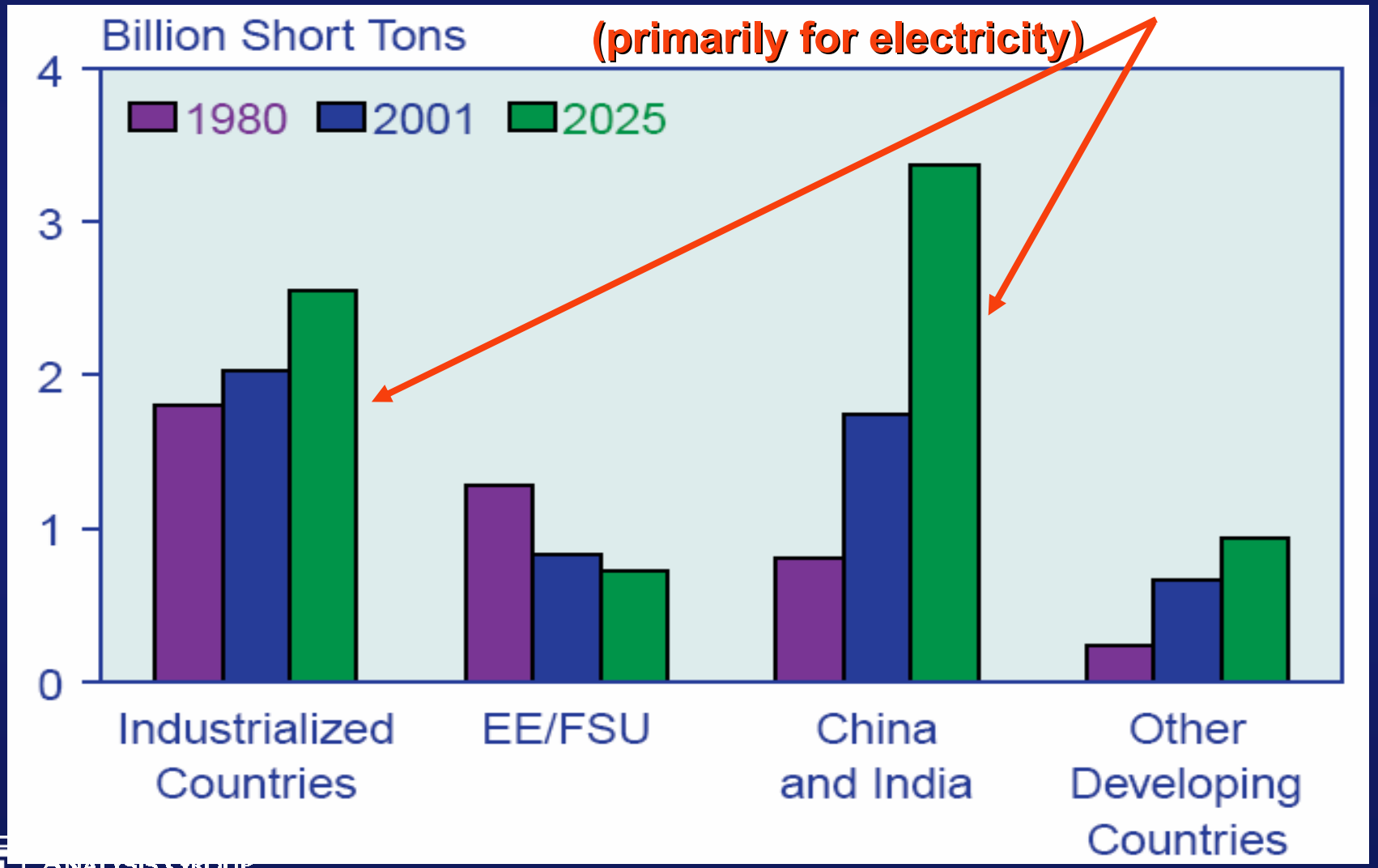


Note ANWR is not in Energy Policy Act – but is still in budget:

Peak Production from ANWR: 1.0-1.3 MBD*

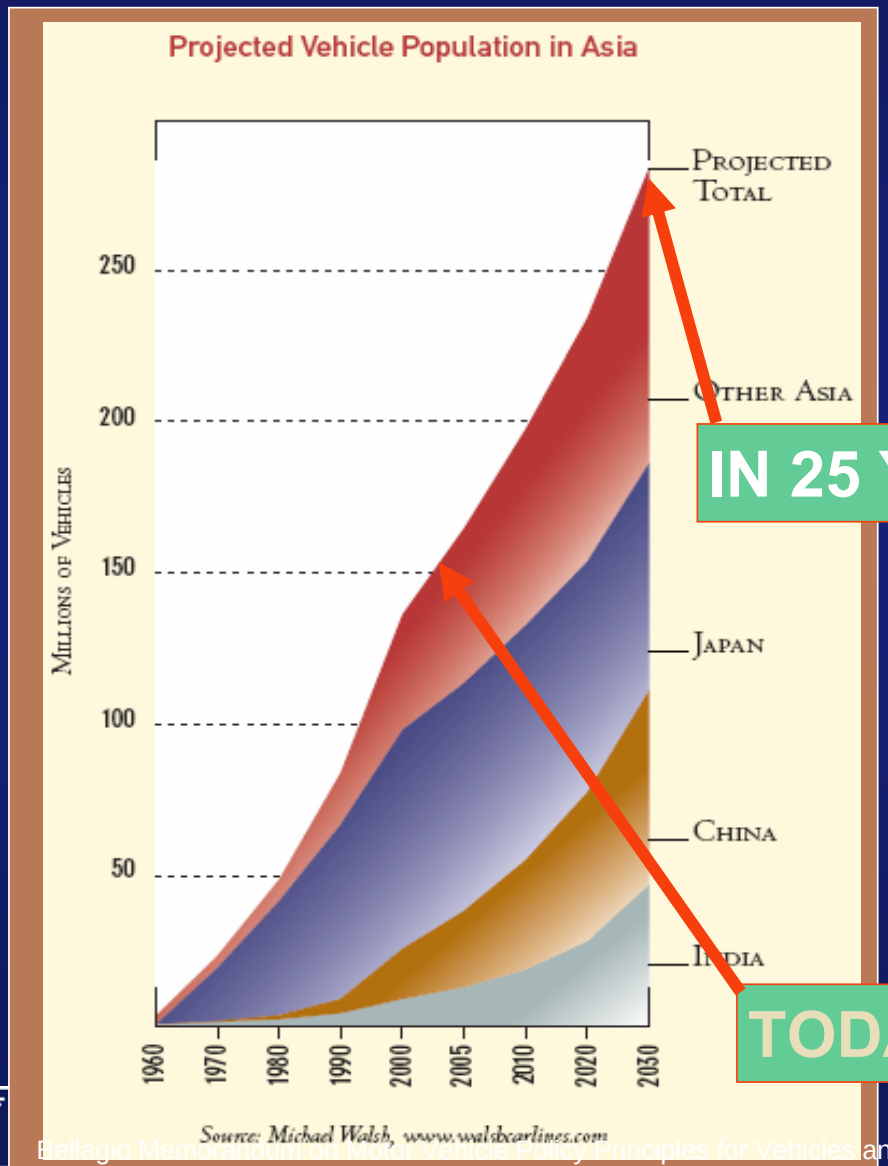
* Estimate quoted in Bush/Cheney *National Energy Policy*, 5/2001, p. 5-9.

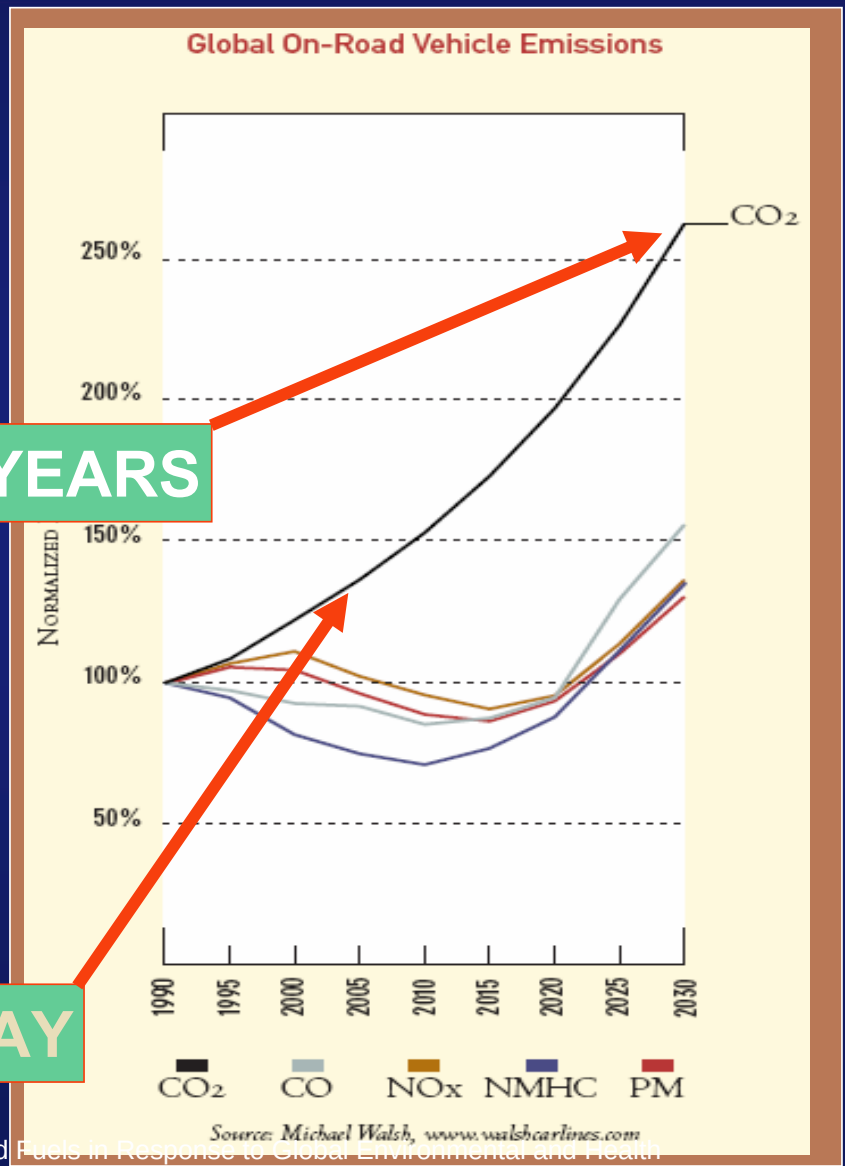
Why are mandatory climate change policy and technology push needed? COAL USE



U.S. Energy Information Administration, *International Energy Outlook* (2004).

Why BOTH fuel economy and climate are needed for the 21st century: ↑oil, ↑GHG

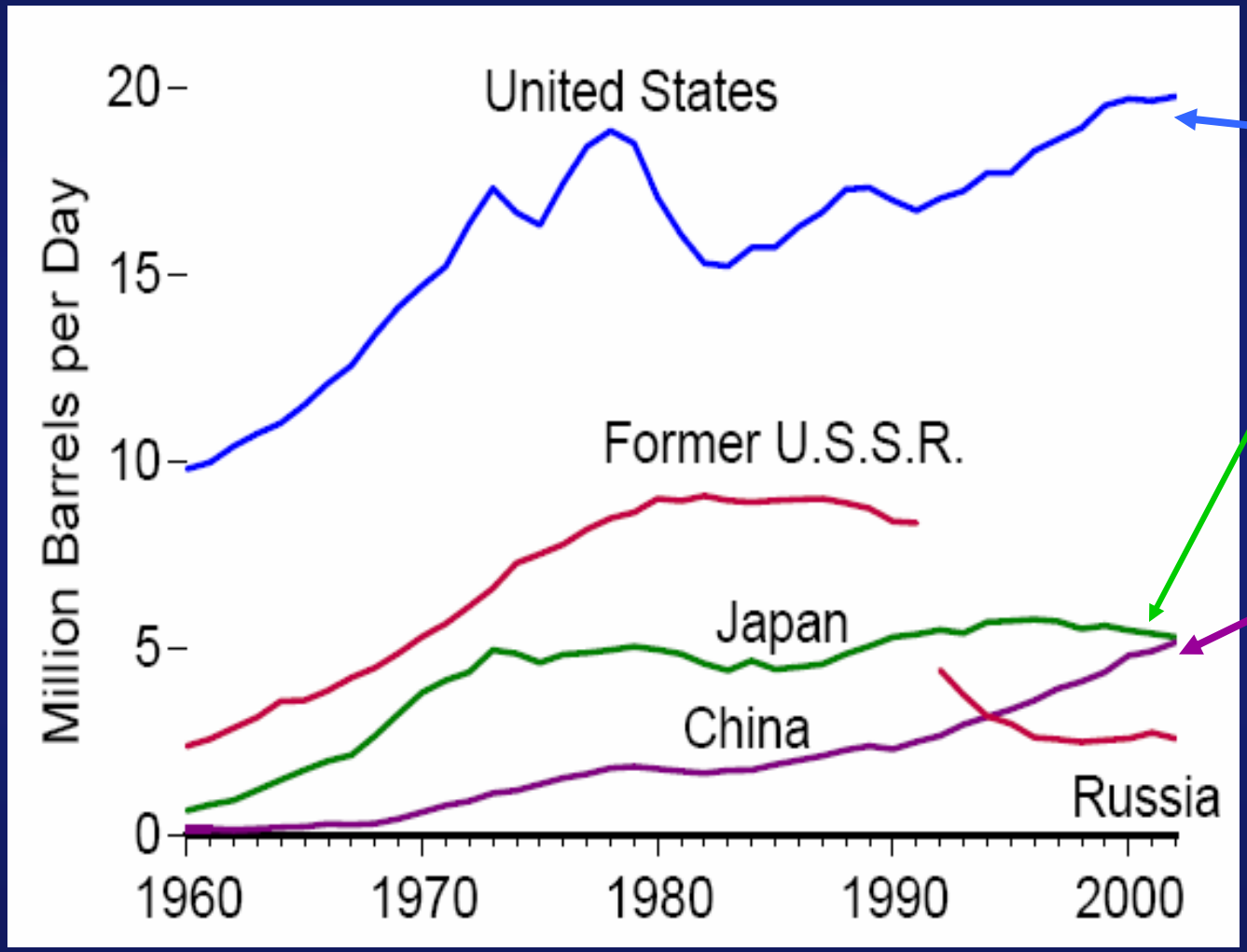




IN 25 YEARS

TODAY

US remains major oil user, with fast-growing demand from China & India



Δ '90-'00:

U.S. = 13.7 %
(25% of world)

Japan = 3%
(7% of world)

China = 52%
(6% of world)

[India = Δ 45%]

[OECD = Δ 13.0%]

[World = Δ 13.4%]

EIA, Annual Review of Energy, 2003, Figure 62, Leading Petroleum Consumers

Rating the Energy Act versus NCEP recommendations

What's similar:

Recognize: no silver bullets

Electricity – structure, reliability

Electric Technologies

- **Renewables – PTC too short, insufficient R&D – especially in transportation fuels**
- **Coal – IGCC support**
- **Nuclear - Provide $2 b for 1-2 new advanced plants.**
- **Efficiency – appliance standards, consumer incentives for purchasing**

Natural gas: LNG = key

What's missing & needed:

Climate Change = energy issue

Need mandatory Climate Change policy

Much tighter fuel economy for vehicles

Funding platform for technology

Electric technologies:

- **Stable Renewable PTC**
- **Nuclear – Act supports 6, rather than 2; Insufficient on international proliferation regime; finish Yucca Mtn.**
- **Coal – inadequate attention to carbon capture, sequestration**

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Susan F. Tierney, Ph.D.
Managing Principal

Analysis Group, Inc.
111 Huntington Ave., 10th Floor
Boston, MA 02199
ph: 617-425-8114
fax: 617-425-8001
stierney@analysisgroup.com

www.analysisgroup.com