

# Climate Actions in the U.S. States: Context & Challenges

Air Pollution as a Climate Forcing:  
A Second Workshop  
Honolulu, Hawaii  
6 April 2005

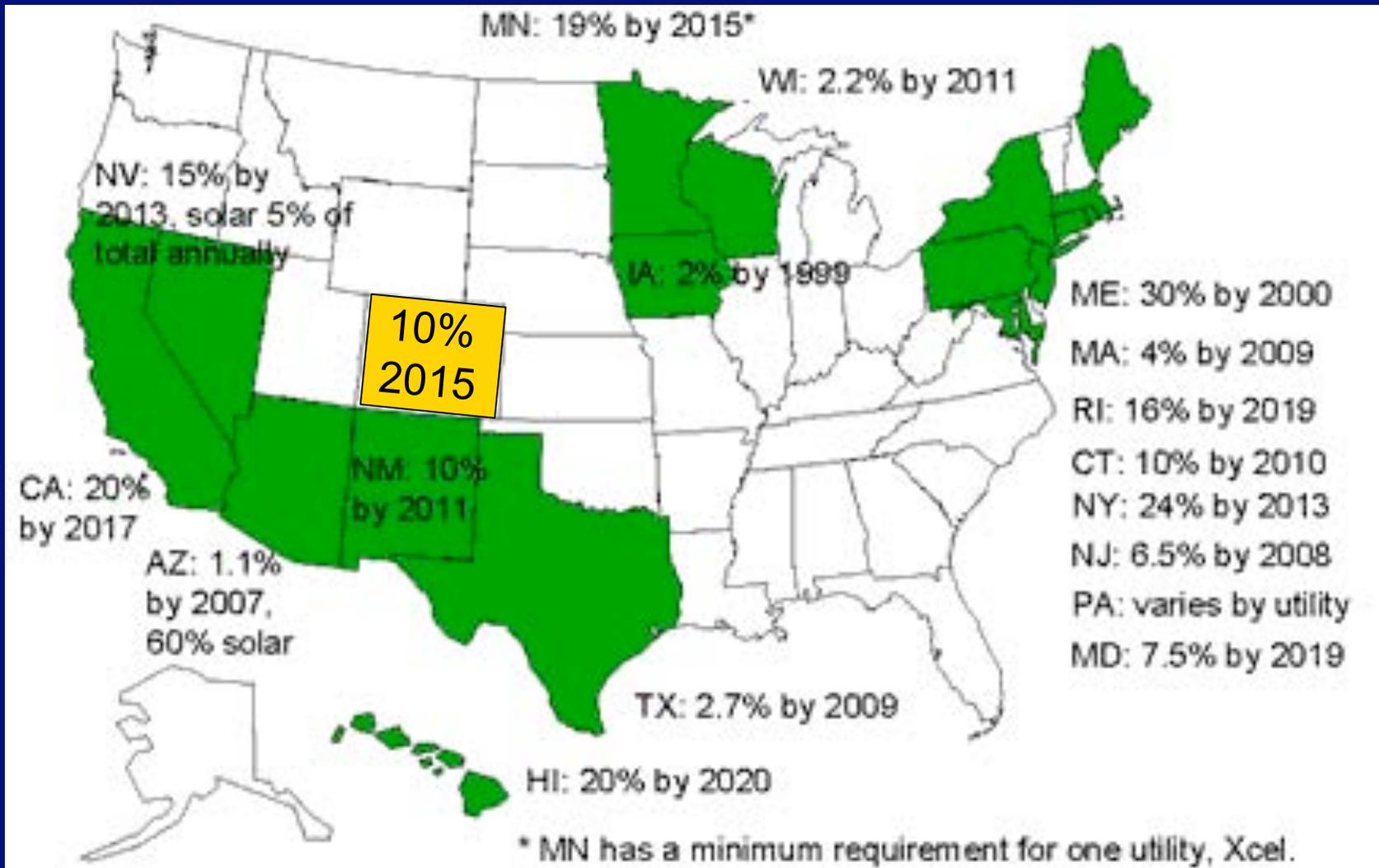


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# Overview

- U.S. Government position on climate change is not shared by all states
  - Many states are moving ahead on climate mitigation and adaptation
  - Individually and regionally
- Strengths, Weaknesses, Opportunities & Threats (SWOT)
- What would help policymakers most?

# State Climate Action: Renewable Energy Requirements



# State Climate Action: Reducing Power Sector GHG Emissions

- *1997 OR Legislation calling for newly built power plants to offset ~17% of CO<sub>2</sub> emissions.*
- *2001 MA 4P Regulation, include 10% CO<sub>2</sub> cut below 1997-99 baseline*
- *2002 NH 4P Legislation, required cuts CO<sub>2</sub> to 1990 levels by 2010*
- **2004 NJ** regulated CO<sub>2</sub> as an air contaminant
- **2004 CT** signed into law state goals (economy-wide reductions, appliance standards, registry)
- **2004 WA** bill requires 20% offset of emissions for new power plants over 25 MW

## State Climate Action: Reducing Motor Vehicle GHG Emissions

- California's "Pavley" law (A.B. 1493 2002) requires "maximum feasible and cost effective" CO<sub>2</sub> cuts from passenger cars & trucks
- Finalized 24 Sept 2004 for Model Year 2009
- GHG Reductions:                    **2012 - 22% - \$325**  
    *(Net cost savings!)*                **2016 - 30% - \$1050**
- Will also apply to 7 Northeast LEV states (~25% of U.S. market); WA/OR? Canada? EU?
- Manufacturers sued 7 Dec 2004...

## State Climate Action: Litigation

- In October 2003, 12 states and cities challenged EPA's assertion that it doesn't have **authority to regulate** CO<sub>2</sub> under the Clean Air Act.
- In July 2004, officials from eight states and New York City filed a lawsuit under **"nuisance" provisions** seeking to force five utilities to reduce carbon dioxide emissions.
- November 2004, NESCAUM filed **amicus briefs** for Midwest IGCCs.

## Regional Climate Action: NEG-ECP Climate Change Action Plan

- **Short-Term:**
  - Reduce GHG economy-wide to **1990 levels by 2010**
- **Mid-Term:**
  - Reduce at least **10% below 1990 levels by 2020**
  - Review every 5 years; adjust if necessary
- **Long-Term:**
  - Reduce GHG “sufficiently to eliminate any dangerous threat to the climate “
  - Expected to be “**75-85% below current levels**”
- *Reaffirmed* after 2002 elections...

## Regional Climate Action: Regional Greenhouse Gas Initiative (RGGI)

- Cap-and-Trade for power sector CO<sub>2</sub>
- Nine Participating States
  - CT, DE, MA, ME, NH, NJ, NY, RI, VT
  - 14% of U.S. GHG; 3.4% of World GHG
  - Others observing: MD, PA, DC, NC?,  
Canadian Provinces
- Schedule: Mid-2005
- See [www.rggi.org](http://www.rggi.org)

# Regional Climate Action: Regional Greenhouse Gas Initiative (RGGI)

- Next steps / remaining issues:
  - Determine cap level & mechanics, including state budgets, allocation methodologies (auction? generation? load?), etc.
  - Address “leakage”
  - Determine initial offsets policy
  - Do individual state implementation processes
- RGGI’s future?
  - Expand to other sectors? Gases? Offsets? States?
  - Integrate with EU ETS? Australia?

## Regional Climate Action: West Coast Governors' Global Warming Initiative

- CA, OR, WA Governors approved 36 staff recommendations on 18 November 2004, including:
  - New targets for reducing annual fleet GHGs
  - Collaborate on hybrid vehicle purchases
  - Goals/incentives to increase retail energy sales from renewables >1% per year through 2015
  - More stringent energy efficiency standards for products and state building codes
- Also, agreed to explore more measures, including:
  - Adopt state and regional goals
  - Adopt motor vehicle GHG emission standards (Pavley?)
  - Develop market-based carbon allowance program (RGGI 2?)
  - Expand markets for EE, RE, and alternative fuels

## Regional Climate Action: Western Governors' Association EE/RE

- April 2004, Gov. Arnold Schwarzenegger (R-CA) and Gov. Bill Richardson (D-NM) proposed a “Clean Energy Initiative” for the Western Governors Association (19 western states, 3 Pacific islands)
- Proposed developing 30,000 MW of “clean energy” in the West by 2015
- Called for increasing energy efficiency by 20% by 2020

# SWOT: Strengths States Acting Because...

- Significant Relative Impact
- Prior Success in “Leading by Example”
- Defense:
  - Protecting existing resource / recreation economies
- Offense:
  - Economic opportunity learning curve; early adopters secure competitive advantage
  - “Tuning the economy” to the future reality
  - Starting sooner => less difficulty, less risk

## SWOT: Weaknesses

- Goals more aspirational than analytical...
- Public health hasn't been a key driver to date
- Importance of non-CO<sub>2</sub> GHGs not well recognized
- Air pollution as a climate forcing not well recognized (political appointees, not scientists)
- Chemical & physical interplay & feedback not well recognized
- “Stovepipe” statutory authority common
- O<sub>3</sub> & PM<sub>2.5</sub> Implementation – SIPs, etc.
- Cornerstones change (e.g., elections/players)

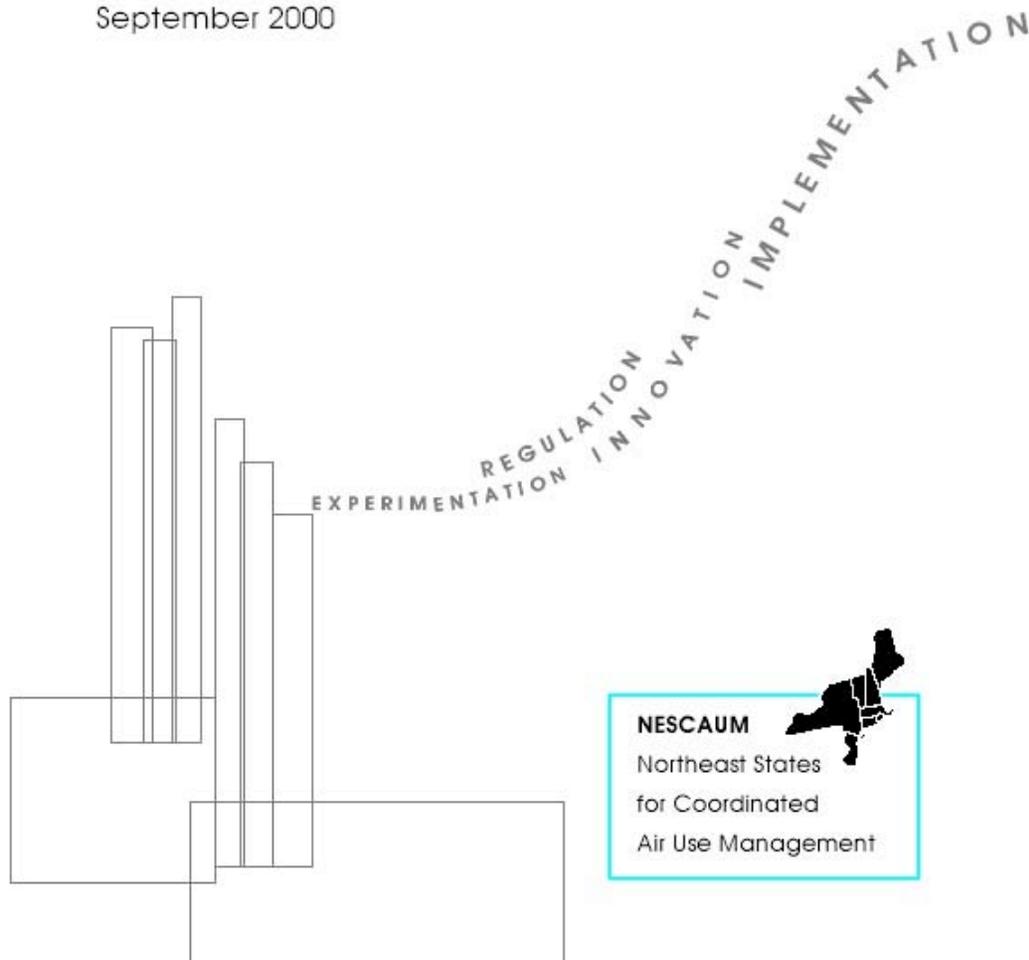
# SWOT: Opportunities

- Leverage public health and QOL concerns
- Leverage agricultural/forestry risks & opportunities
- Pick low-hanging and no-hanging fruit
  - Extend “recycling” to waste energy
  - Energy efficiency
- Highlight history re technology driver
- Highlight history re costs
- Better communication from scientific community

# Environmental Regulation and Technology Innovation:

## Controlling Mercury Emissions from Coal-Fired Boilers

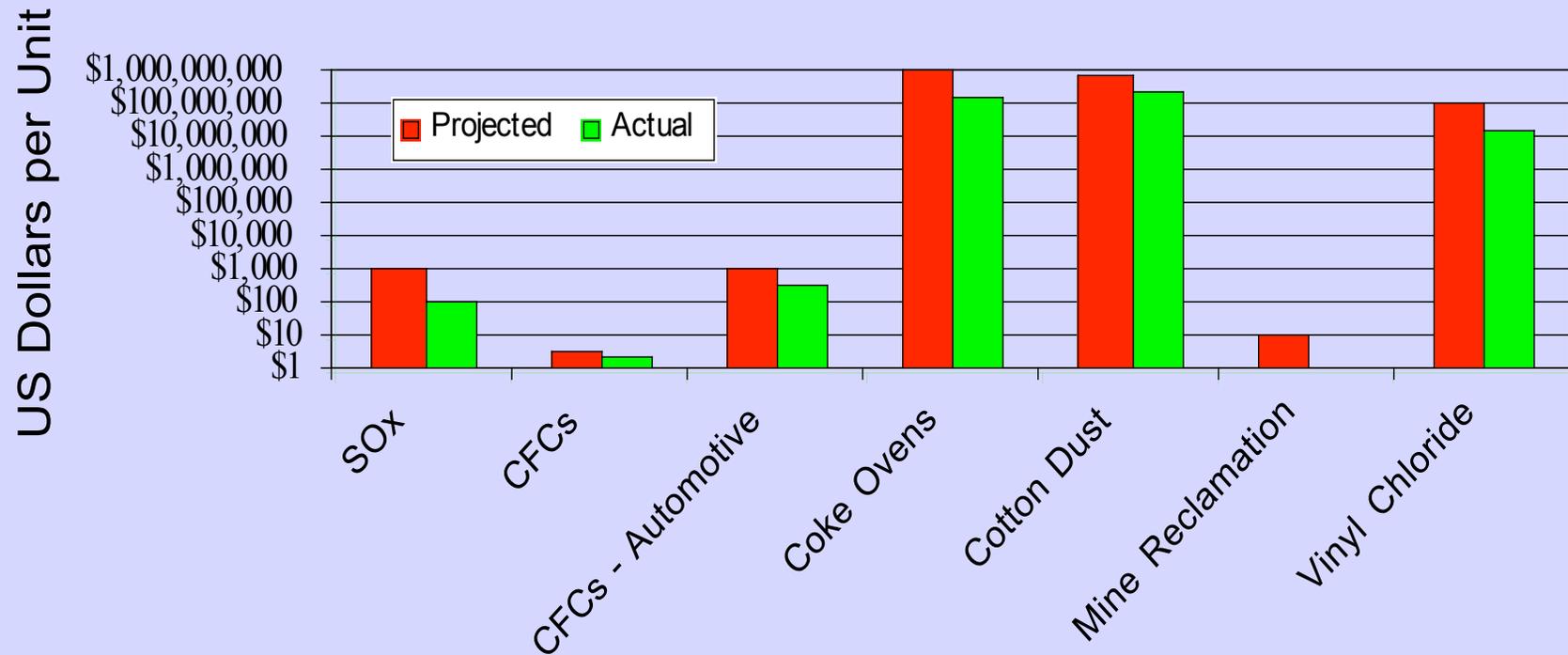
September 2000



## Fatal Flaw: Technology needs a driver

- SO<sub>x</sub>, NO<sub>x</sub>, autos
- “Where strong regulatory drivers exist, substantial technological improvements and steady reductions in control costs almost always follow.”

# Costs of Environmental Compliance



Gordes, 1998

*Why does this happen?*

*“Ask an engineer and you get nothing but problems.  
Tell an engineer and you get nothing but solutions.”*

# SWOT: Threats

- *“Winners go to market; losers go to Washington”*
- Current assaults on States’ Rights to pursue environmental leadership
  - 2004 Sen. Kit Bond (R-MO) amendment restricting state regulations on small engines
  - NAS, NGA studies on Clean Air Act sections 209 & 177 re more stringent vehicle emission standards (e.g., Pavley)
- Administration’s “chilling effect” nontrivial
- Obfuscation
- Purposeful Delay

# What Would Help Policymakers Most? (1)

- Rule #1:

*Policymakers act when the risk of inaction > the risk of action.*

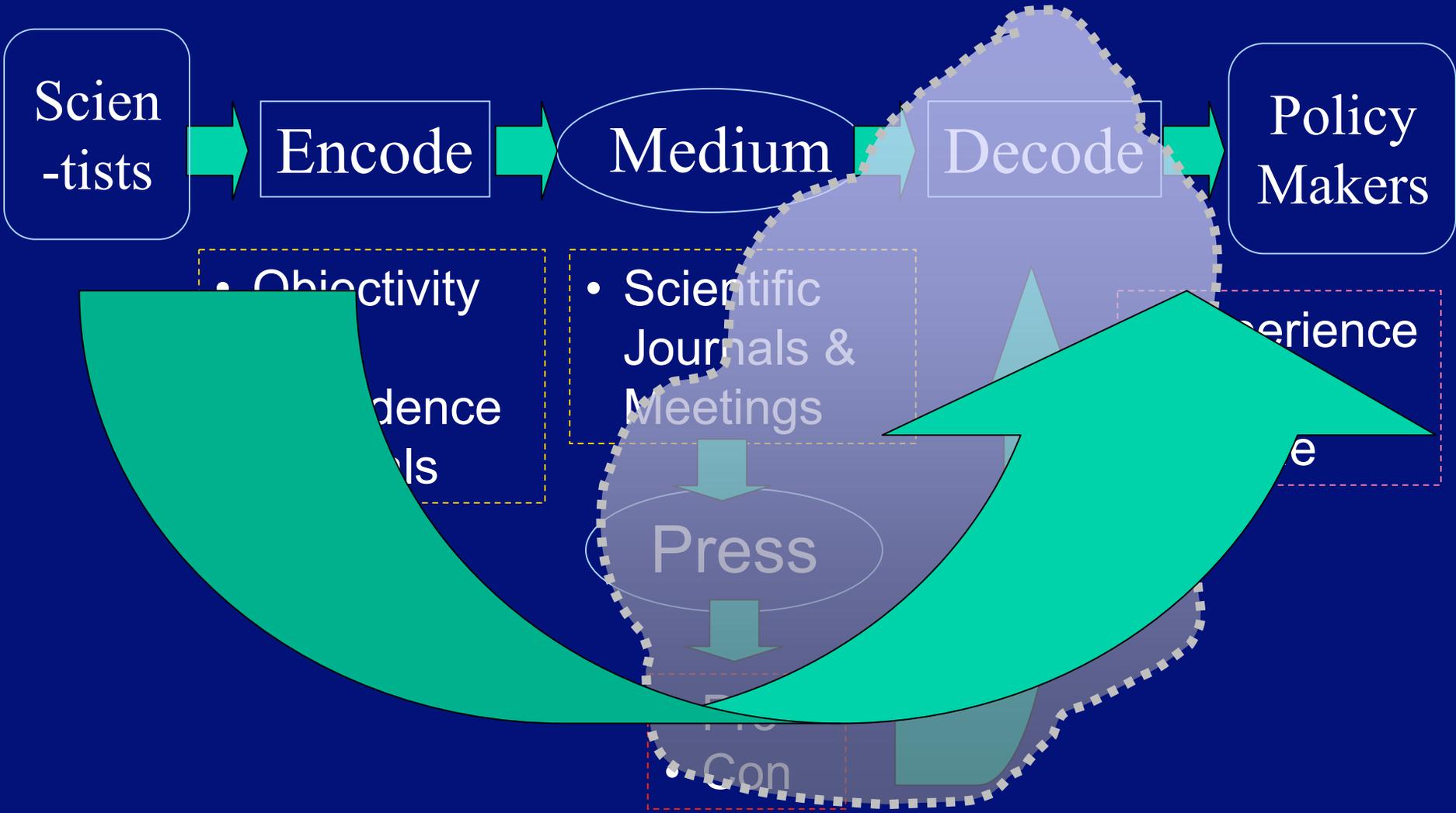
- Rule #2:

*Need to meet policymakers where they – and their constituents – live.*

## What Would Help Policymakers Most? (2)

- Scientists need to “cross the line”
  - Published scientific record  $\neq$  the current public cognizance
  - Published scientific record  $\neq$  the public record used to support regulatory decisions
  - Regain the high ground re Uncertainty
- Tami Bond’s challenge: Be relevant
- Jim Hansen’s “Health forcings”; parables

# Climate Communication



# Cloud of Obfuscation & Delay

*The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science. Americans believe that all the strange weather that was associated with El Nino had something to do with global warming, and there is little you can do to convince them otherwise. However, only a handful of people believes the science of global warming is a closed question. Most Americans want more information so that they can make an informed decision. It is our job to provide that information.*

## LANGUAGE THAT WORKS

*"We must not rush to judgment before all the facts are in. We need to ask more questions. We deserve more answers. And until we learn more, we should not commit America to any international document that handcuffs us either now or into the future."*

## WORDS THAT WORK

*"Scientists can extrapolate all kinds of things from today's data, but that doesn't tell us anything about tomorrow's world. You can't look back a million years and say that proves that we're heating the globe now hotter than it's ever been. After all, just 20 years ago scientists were worried about a new Ice Age."*

Luntz, 2003

## What Would Help Policymakers Most? (3)

- Key: Regional specificity
  - Need to “bring impacts home” e.g., UCS CA work (wines, water supply, etc.)
- Health impacts
  - e.g., Kirk Smith: 1 death per 350 stoves
  - Ramifications (e.g., productivity) & costs (e.g., keying off escalating healthcare costs)

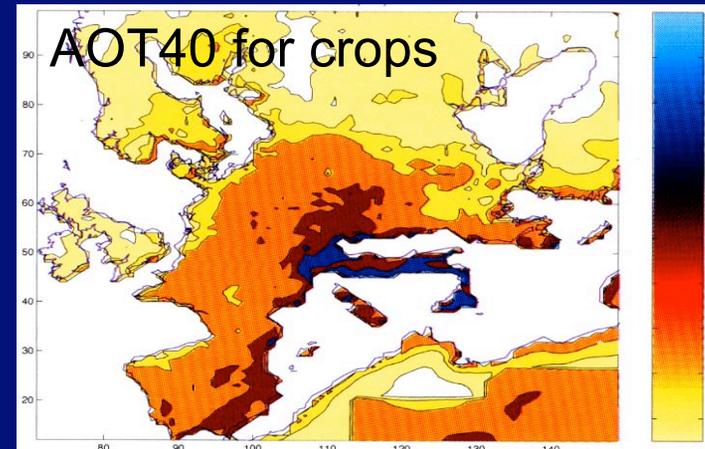
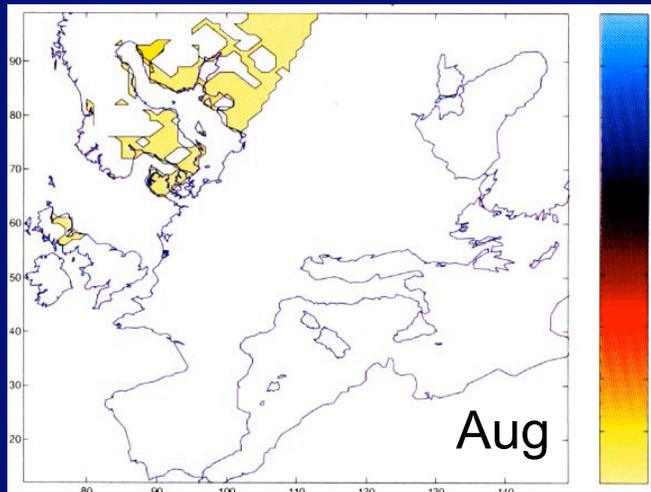
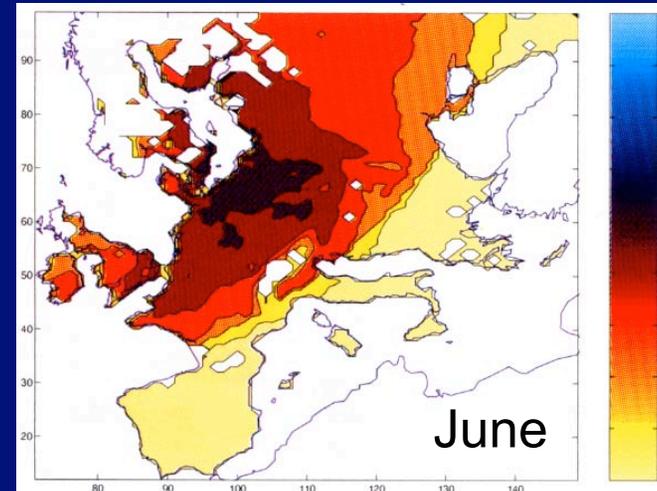
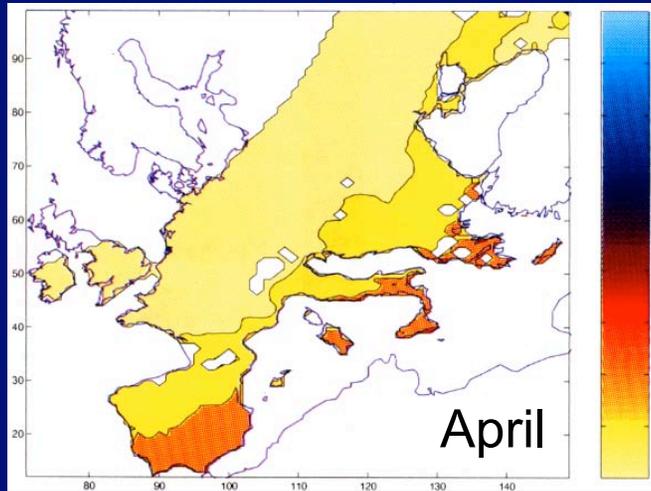
## What Would Help Policymakers Most? (4)

- Ramifications of welfare (ecosystem) impacts
  - e.g., Lisa Emberson's ag impacts; companies affected, jobs at risk, etc.
  - Make impacts accessible (“maple sugar” vs. “species migration”)
  - Identify & educate potential allies

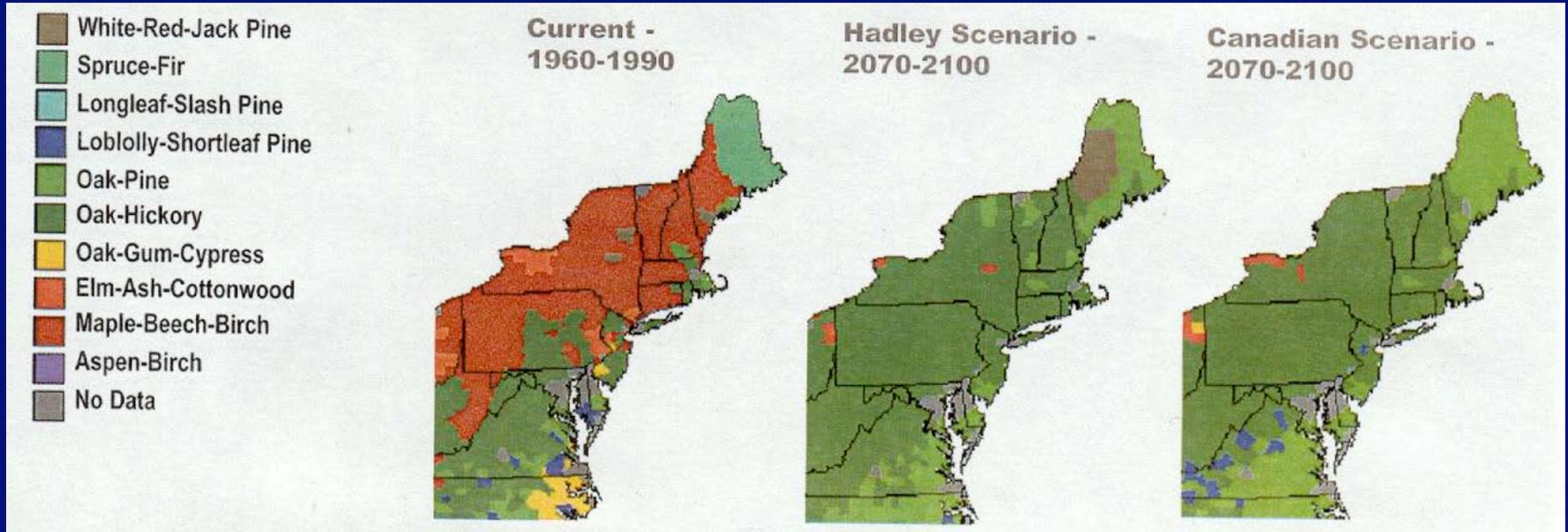
# What are the key limitations with these “risk assessments”?

## Flux based approach for O<sub>3</sub> risk assessment

Estimated stomatal fluxes to wheat (nmol O<sub>3</sub> m<sup>-2</sup> s<sup>-1</sup>)



# Changes in Dominant Forest Types



Source: U.S. Global Change Research Program

***Impacts to forest products industry,  
paper making, foliage season,  
maple sugaring, hunting habitat, etc.***

## What Would Help Policymakers Most? (5)

- Analytical capabilities & resources; regional climate impacts and economic ramifications
  - e.g., Regional modeling → MARKAL → REMI at NESCAUM
- Not clear cost-benefit analysis is essential
  - Policymakers befuddled by competing studies
  - When did a cost-benefit analysis determine a policy outcome?

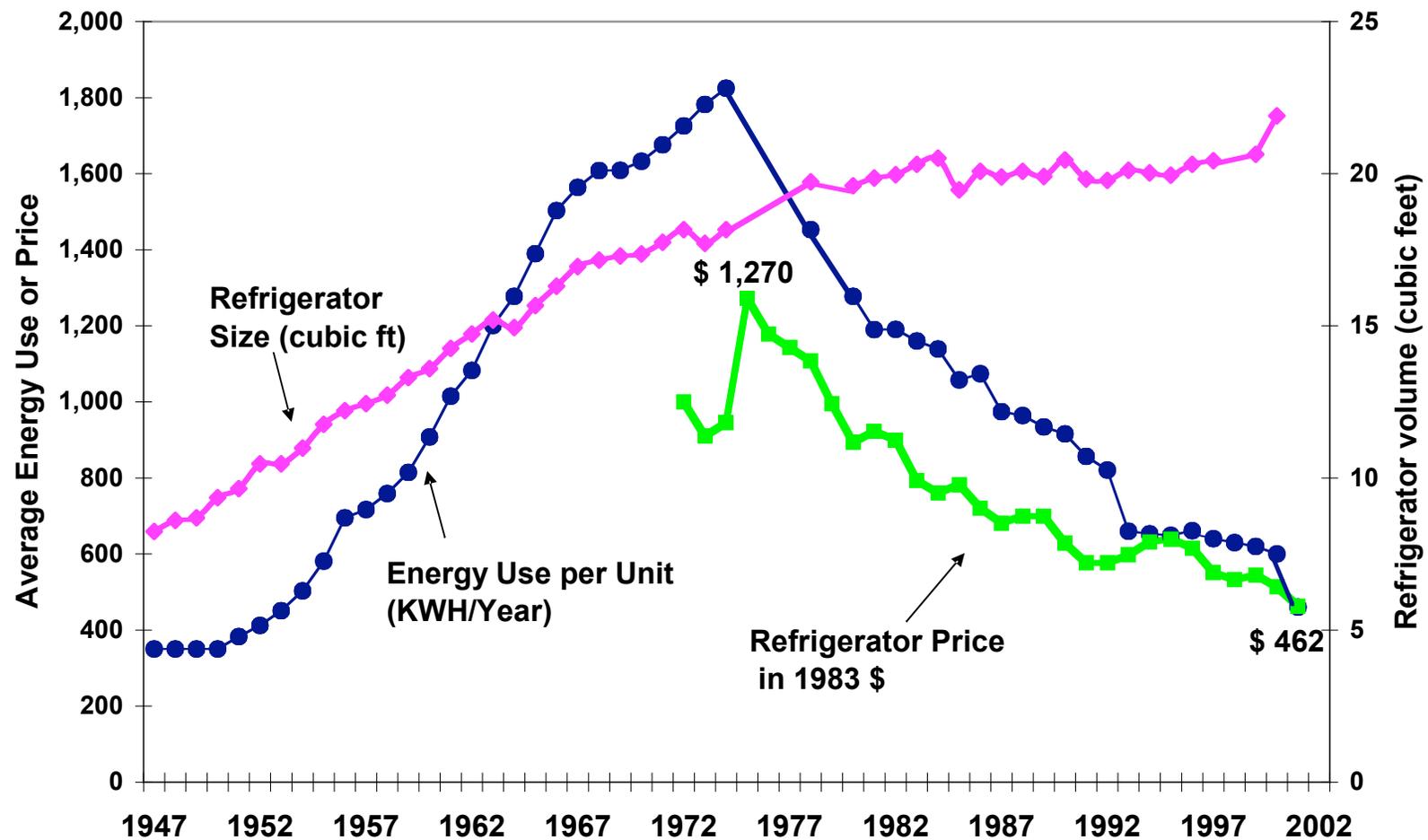
## What Would Help Policymakers Most? (6)

- “How much does your research matter if it doesn’t get to policymakers?”
- It’s time Jim Hansen had some company out there on the limb...

# States Matter; Policy Matters!

United States Refrigerator Use v. Time

Source: David Goldstein



Thank you for your time  
and attention!



# States Have Significant Relative Impact

## Top Emitters of CO<sub>2</sub> (1998 Mtons C):

1	UNITED STATES OF AMERICA	1486
2	CHINA	850
3	RUSSIAN FEDERATION	390
4	JAPAN	310
5	INDIA	290
6	<b>NORTHEAST STATES + CALIFORNIA</b>	<b>230</b>
7	GERMANY	225
8	UNITED KINGDOM	150
9	<b>NORTHEAST STATES</b>	<b>130</b>
10	CANADA	125

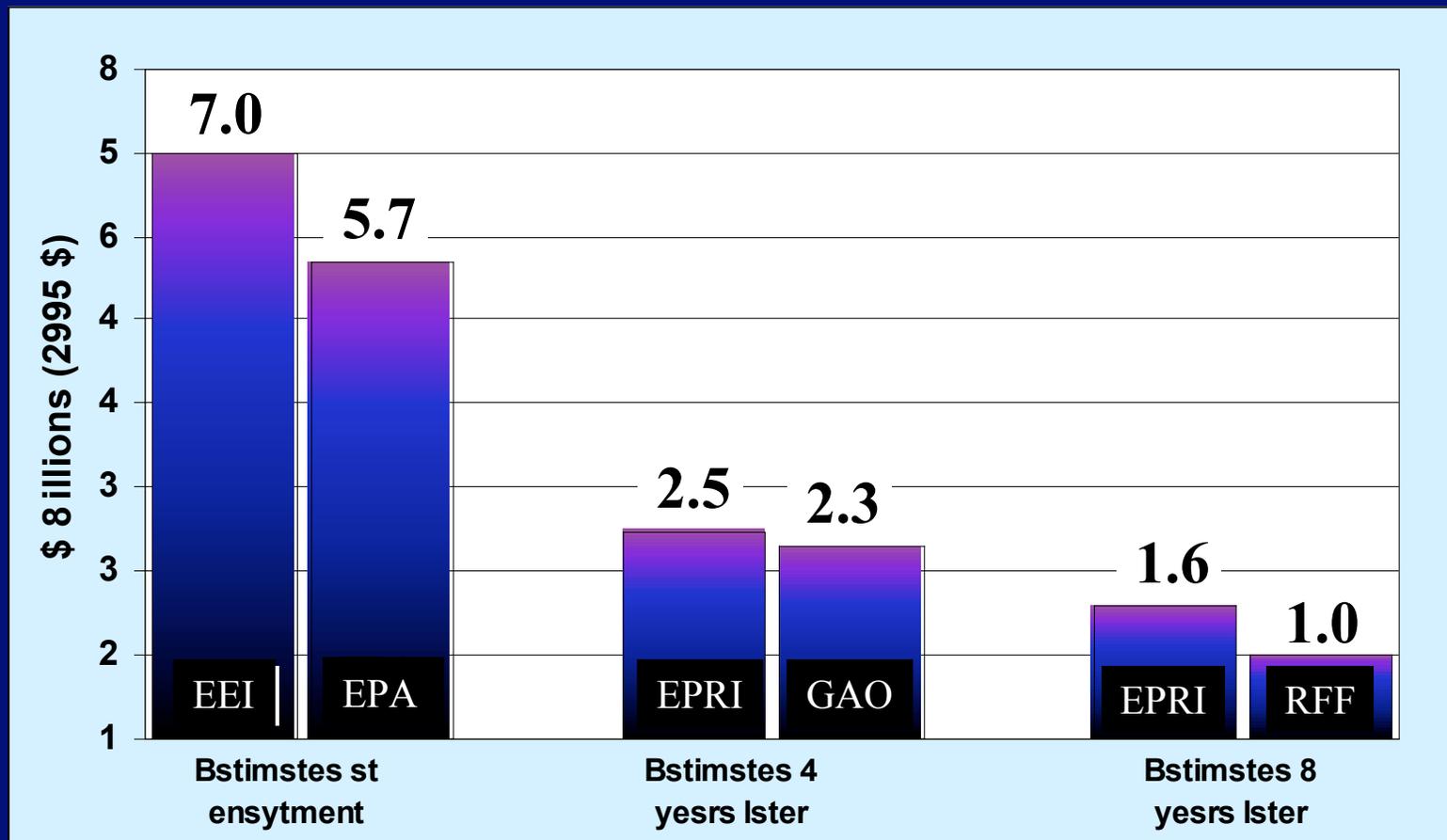
Source: G. Marland et al., Oakridge National Lab, 1998; EIA, 1999

## Prior “Lead by Example” Success

- State Acid Rain laws: 1984-5
  - **Federal Acid Rain provisions:** 1990
- State laws for Toxic Air Contaminants: 1987
  - **Federal Toxics Program:** 1990
- State “4-P” laws for power plants: 2001-2
  - **Federal “4-P” law:** (Introduced)
- Statewide GHG reduction law: 2003
  - **Federal GHG law:** (Introduced)
- State/Regional GHG registries: 1999-2000
  - **Rigorous Federal Registry:** ?
- State GHG reductions from vehicles: 2002
  - **Federal vehicle GHG law:** ?

# Expected Annual Costs of U.S. Acid Rain Trading Program When Fully Implemented

**80% Lower than 1990 Projections**



# Exacerbation of Air Pollution (Particulate Matter, Ozone, etc.)



Burlington VT PM<sub>2.5</sub> 7 July 2002

FRM : 61.4 ug/m<sup>3</sup>

Duplicate FRM: 62.6 ug/m<sup>3</sup>

CAMM 24-hr mean: 61.9 ug/m<sup>3</sup>

**And this day is not a  
violation of standards!**



# Old or New Energy Path?

