Chaotic Environmental Compliance: Winning With Integrated Approaches

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NWCCC, Seattle, WA 13 Nov 2001

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Presentation Overview

- Clean Air Act: brief history, positives, opportunities, challenges
- Energy: restructuring, efficiency, integration with building design
- New areas: multi-pollutant and harmonized approaches
- Putting it all together

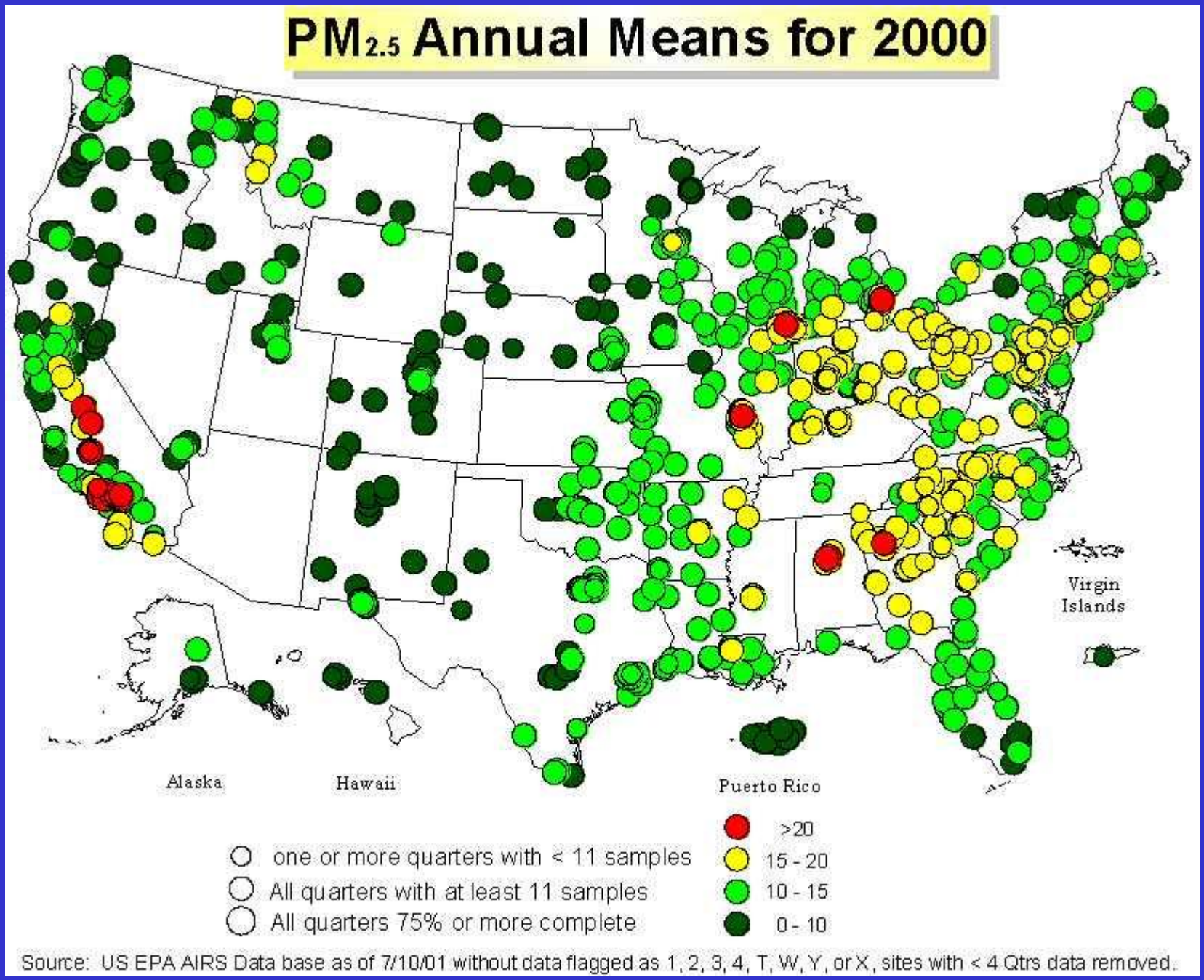
Clean Air Act

- 1977 Amendments: grand compromise…NSPS focus on new, assumed old sources would shut down
- 1990 Amendments: delegation to States, idea of market based program
- Now: tension: command & control v. environmental performance
- www.epa.gov

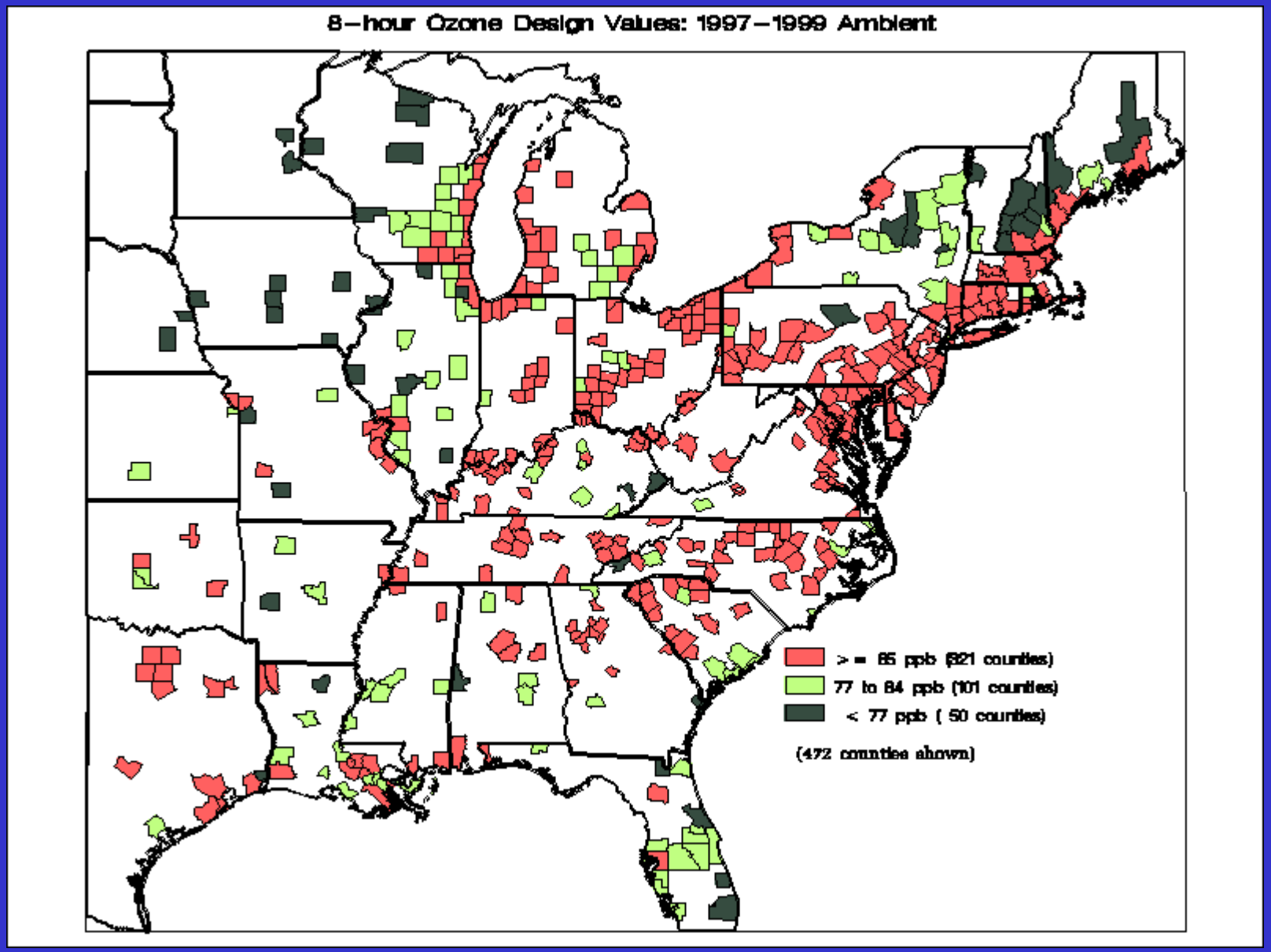
State/local Delegation

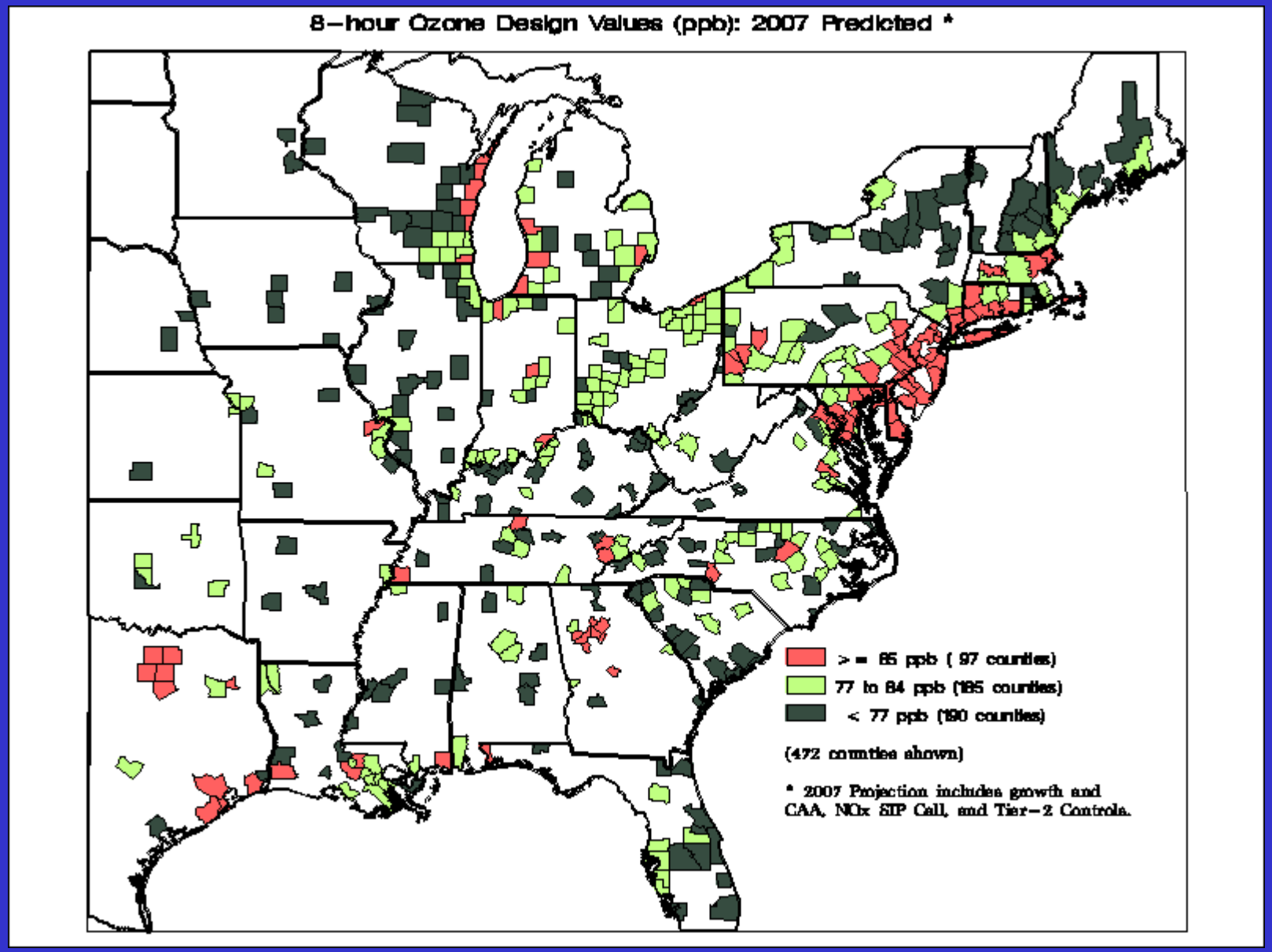
- Reagan “de-volution” to States/locals is complete…and do we like what we see?
- Programs were delegated..but no are very little funding was provided: “unfunded mandates” debates of mid1990s .
- Now: State plates too full/insufficient resources
- Are we measuring the right things?
- New EPA standards for Pm2.5 and 8-hour ozone.

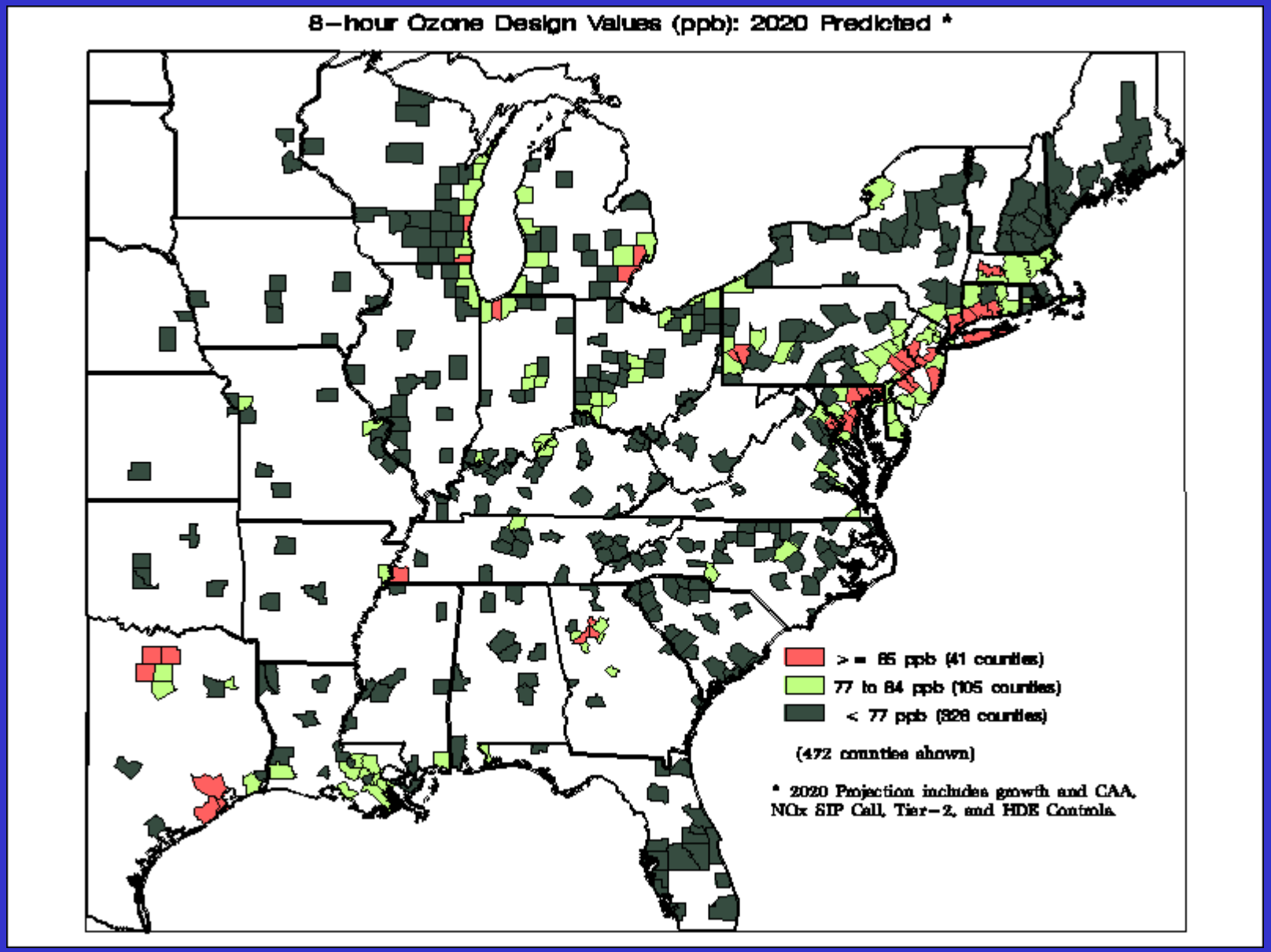
$PM_{2.5}$ Annual Means for 2000



Source: US EPA AIRS Data base as of 7/10/01 without data flagged as 1, 2, 3, 4, T, W, Y, or X, sites with < 4 Qtrs data removed.


8-hour Ozone Design Values: 1997-1999 Ambient
>= 85 ppb (321 counties)
77 to 84 ppb (101 counties)
< 77 ppb (50 counties)
(472 counties shown)


8-hour Ozone Design Values (ppb): 2007 Predicted *
>= 85 ppb (97 counties)
77 to 84 ppb (185 counties)
< 77 ppb (190 counties)
(472 counties shown)
* 2007 Projection includes growth and
CAA, NOx SIP Call, and Tier-2 Controls.


8-hour Ozone Design Values (ppb): 2020 Predicted *
>= 85 ppb (41 counties)
77 to 84 ppb (105 counties)
< 77 ppb (326 counties)
(472 counties shown)
* 2020 Projection includes growth and CAA, NOx SIP Call, Tier-2, and HDE Controls

Existing Metrics Insufficient

- New pm2.5 and 8-hour ozone standards promote integration, but implementation is held up in court[s].
- Nitrates and sulfates significant contributors to PM2.5 and regional haze
- Existing NAAQS almost everywhere is below health standards, yet asthma rates are increasing dramatically

Monitoring Data Results

- Single pollutant 1970s approaches provided regulators with certainty, easy to obtain SIP credit, but no flexibility. “Easy” reductions have occurred
- Future standards point to need for multipollutant and harmonized strategies
- Monitoring data drives regulatory decision making

Permitting Challenges

- NSR “modifications”: no incentive to clean up older sources. Actual v. potential test, create air pollution to offset new “potential”
- PSD requires: energy/economic/environmental considerations..but little evidence of holistic thinking
- Q: how can sources be encouraged to “play” NSR?

Public Mistrust of Gov't and Corporations

- Opportunity to comment restricted
- Little efforts to promote awareness, increase education
- Some corporations "bad neighbors"
- There are some positive examples

Clearly we can do much better: existing programs create infrastructure that: ".gives companies little leeway in how they can meet pollution targets. ..they cannot respond local differences, and this tends to lock in old technologies and stifle innovative approaches to improving the environment." [29 Sept 2001 Economist]

Existing system has achieved success but..

- Is based on replicable, predictable outcomes within a structure that was developed when instrumentation, health information was less robust. [I.e. “smoke” and particulates are bad..control it]
- Explicitly excluded energy, economic and even other environmental factors [I.e cross-media pollutant transfers occurred in this vacuum, use of wet scrubbers]

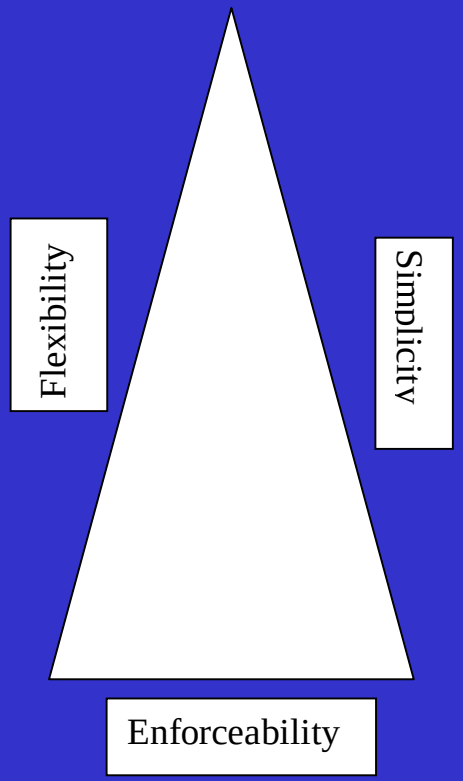
Ideas That Have Worked

- innovative permitting schemes: P4, green permits, gold/silver track programs
- permitting what matters: general permits/registration for small sources
- emissions trading programs: Nox budget, acid rain [baseline issue with latter]
- How to implement given limited gov't resources [and now even more so]

Permitting Models to Consider

- EPA P4
- Oregon Green Permitting
- PAL
- European “covenant” model [but…many in US shy away from anything Euro]
- Caveat: public and many enviro groups like “command and control”

The Unholy Triangle of Permits



Optimize two parameters

Possible Market Based Programs:

- tradable permit schemes
- green taxes
- reduction of subsidies
- reducing barriers to creation of new markets
- But…public, enviros and even some States are skeptical…how to increase awareness?
- There are good examples..outside of stationary source sector

Transportation

- responsible for >50% [or more] of US Nox emissions
- diesel: PM2.5 and carcinogens [school buses, construction equipment]
- SOV VMT swamping previous reductions achieved from industrial control measures
- Seattle…24/7 rush hour?

Mobile Source Programs

- construction equipment and school bus retrofits: particulate traps, catalysts, fuels
- PM2.5, Nox controlled. Improve worker environment and school children's health
- Also much quieter! [show NESCAUM video]
- These are voluntary programs
- States/locals get "credit" w/o having to pass rules [hmmm..is there a model here?]

Harmonized/Multipollutant Strategies

- Sector based, output based, performance limits, provide certainty, flexibility,address environmental harm and public health concerns
- Nox, Sox, CO2, Hg [some include PM2.5, other toxics]..”constructive chaos” in NE.
- Power plant sector focus in NE, NC, WI, Congress
- Closely watched, other sectors interested

Clean Air Act Summary

- 1970s thinking still infuses regulatory structure
- US industry has no incentive to reduce emissions…dirtier/less efficient equipment and "life extension"
- A few models exist for future program design and development..but is there the necessary political will to do so?
- NE/CA energy/air integration looks promising..IF it is allowed to succeed.

Environmental, Economic, Energy Nexus

- energy includes transportation sector
- driver: utility restructuring [comprehensive approach to address demand and generation components]
- increased communication and coordination among air, energy, ISO

Utility Restructuring

- Positive components include:
- Systems benefit charges: efficiency/renewables
- Disclosure/labeling
- Renewable portfolio and environmental performance standards

Summary Table of Public Benefit Programs and Electric Utility Restructuring

Arizona	In Dec96, the ACC ordered retail competition beginning in Jan99 and completed by Jan03. Later delayed to begin in 2001. ACC rule requires SBC for LI, EE and RE. Funding determined in indiv. utility cases. Also a separate charge for an "Environmental Portfolio Standard" (see RE). Also, EE may be shifted into RE.		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $	TBD	8.0	3.9	16.0	28.0	ACC rule calls for 0.2% by 2001, up to 1.1% by 2007. Half must be solar elec.	Fuel mix and emissions are required by ACC rule.
		mills/kWh	TBD	0.4	0.2	0.85	1.40		
		% rev.	TBD	0.3	0.2	0.6	1.0		
		admin.	TBD	utility	utility	utility			
California	In Sept96, AB1890 signed into law, with full retail access Apr98. A 4-yr. SBC was created using a non-bypassable wires charge. In Aug00 the SBC got 10-yr extension, with inflation adjustment. Table shows just the 4 large IOUs. Small IOUs and muni's are also spending over $100 million/yr on pub ben. (New additional $400 million for EE pledged by state also not included in table.)		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $	62.5	228.0	100.0	135.0	525+	None.	Yes. A "power cont label" is required fo generation mix.
		mills/kWh	0.4	1.3	0.5	0.8	3.0		
		% rev.	0.4	1.3	0.5	0.8	3.0		
		admin.	CEC	Utility	CPUC	CEC			
Connecticut	In April 1998 Public Act 98-28 was signed into law. Phases in retail access during 2000. It funds EE, RE, and LI. RE ramps up over time, average is in table. Support for R&D is imbedded in the RE programs. Funds are collected through a non-bypassable wires charge.		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $	in RE	87.0	8.7	22.0	117.7	Two tier, limits hydro starting at 6% and escalating to 13% by the year 2009.	Included in bill with- out specifics.
		mills/kWh	in RE	3.0	0.3	0.75	4.00		
		% rev.	in RE	3.0	0.3	0.75	4.0		
		admin.	EE &RE	collab.	DPUC	St. Auth.			
Delaware	Restructuring Act signed in March 1999. Has two SBCs: 0.178 mills/kWh for EE "incentive" programs, overseen by DE Economic Dev. Office, 0.095 mills/ kWh for LI bill asst & EE, overseen by Dept. of Health & Soc. Services. An additional $250,000 from rates is to go to customer education, esp. regarding RE.		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $		1.5	0.8	0.3	2.6	None.	Not required. Law says Commission "may" promulgate rules.
		mills/kWh		0.18	0.1	0.03	0.3		
		% rev.		0.3	0.15	0.05	0.5		
		admin.		state	state	state			
District of Columbia	In May 2000 Congress passed restructuring bill for D.C. Includes a "Reliable Energy Trust Fund". To be funded by a non-bypassable charge of 0.8 mills/kWh. (After 4 years, can increase to a maximum of 2.0 mills/kWh.) Covers EE, RE and LI. To be administered by the local District government.		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $		TBD	TBD	TBD	8.0	Commission Working Group is examining the issue.	Disclosure of fuel m is required. To be reported every 6 mo
		mills/kWh		TBD	TBD	TBD	0.8		
		% rev.		TBD	TBD	TBD	1.0		
		admin.		City	City	City			
Illinois	In Dec97, PA 90-561 was signed. It provides funding for EE, RE and LI (although EE and RE are at low levels), using non-bypassable flat monthly charges on customer bills. ("mills/kWh" equiv. includes $ from gas & electric.) Also, one-time ComEd $250 million Clean Energy Trust fund ok'd by legis. May 99 (not in table).		**Details of SBC Funding**					**Renewables Portfolio Standard**	**Generation Disclosure**
			R&D	**EE**	**LI**	**RE**	**Total**		
		million $		3.0	75.0	5.0	83.0	None.	All electricity retailer would be required t disclose generation mix and emissions.
		mills/kWh		0.03	0.6	0.04	0.7		
		% rev.		0.04	0.8	0.05	0.9		
		admin.		DCCA					

TBD = to be decided

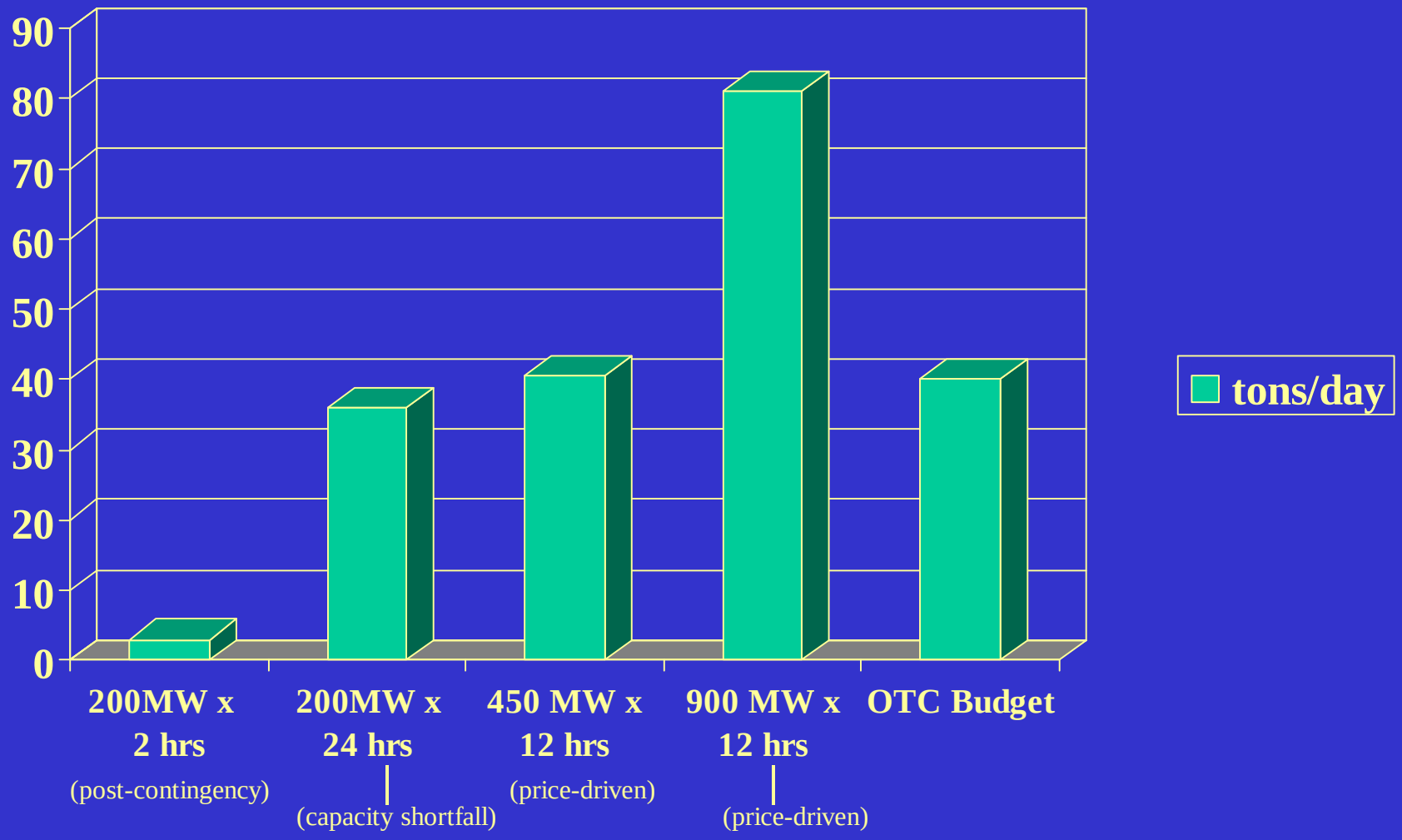
SBC funding amounts provided in the table are average annual funding levels.

Barriers and Possible Solutions

- Transmission interconnection standards
- Reliance on diesel BUGs
- Bias against intermittent resources
- Clean DG, esp. in congested areas, potential roles for ESCO/aggregators
- Use TX and other States models for interconnection standards

BUG Emissions Impact in CT

(NOx tons on a given ozone season day)

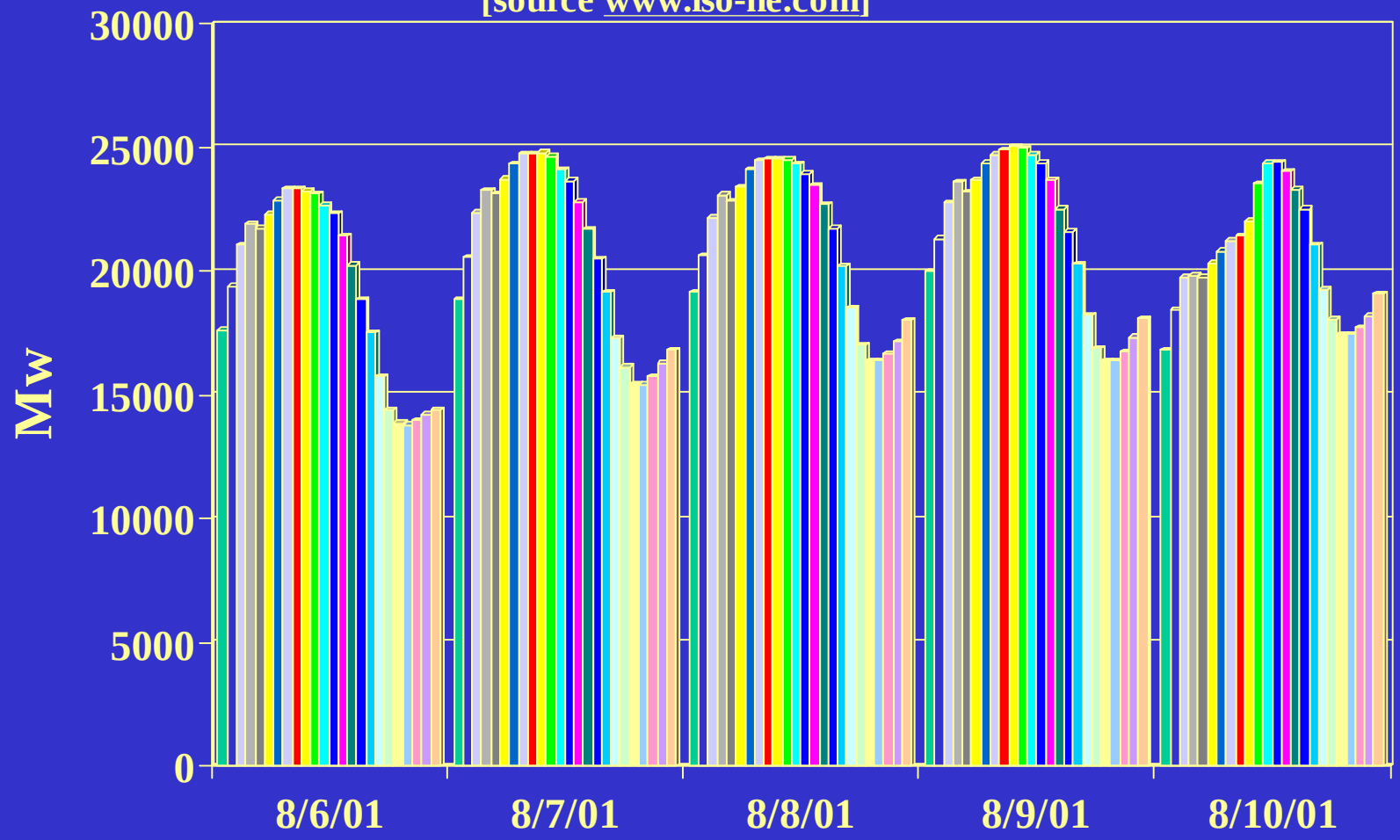


Benefits from Demand Side Programs

- Energy security: reduce outflow of US $, provide long term ,replicable price certainty
- Increase grid stability and reliability [see "Efficient Reliability]
- BUT..isn't "conservation a virtue"?
- Hmmm..let's look at some live examples from summer 2001

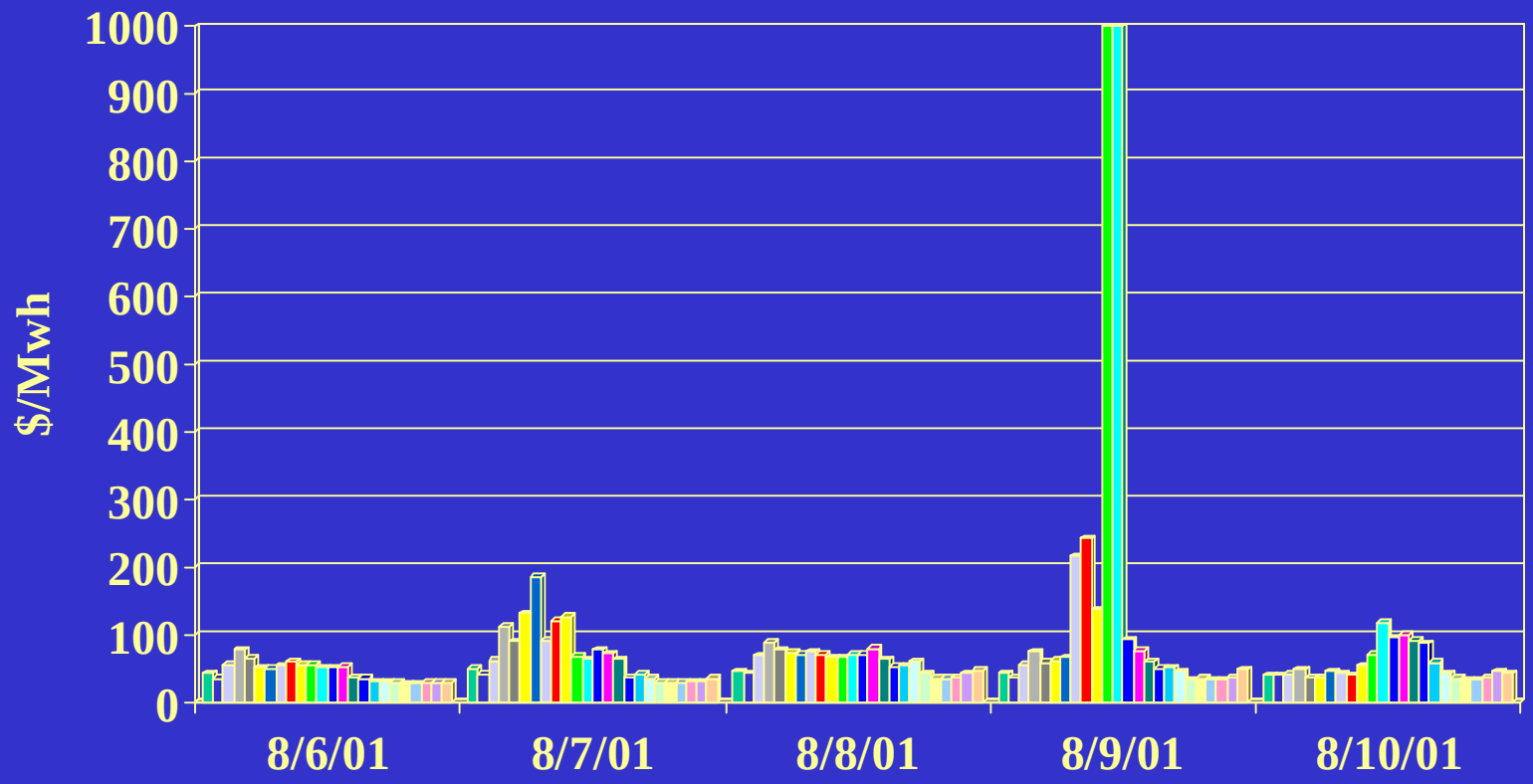
ISO-NE Load

[source www.iso-ne.com]



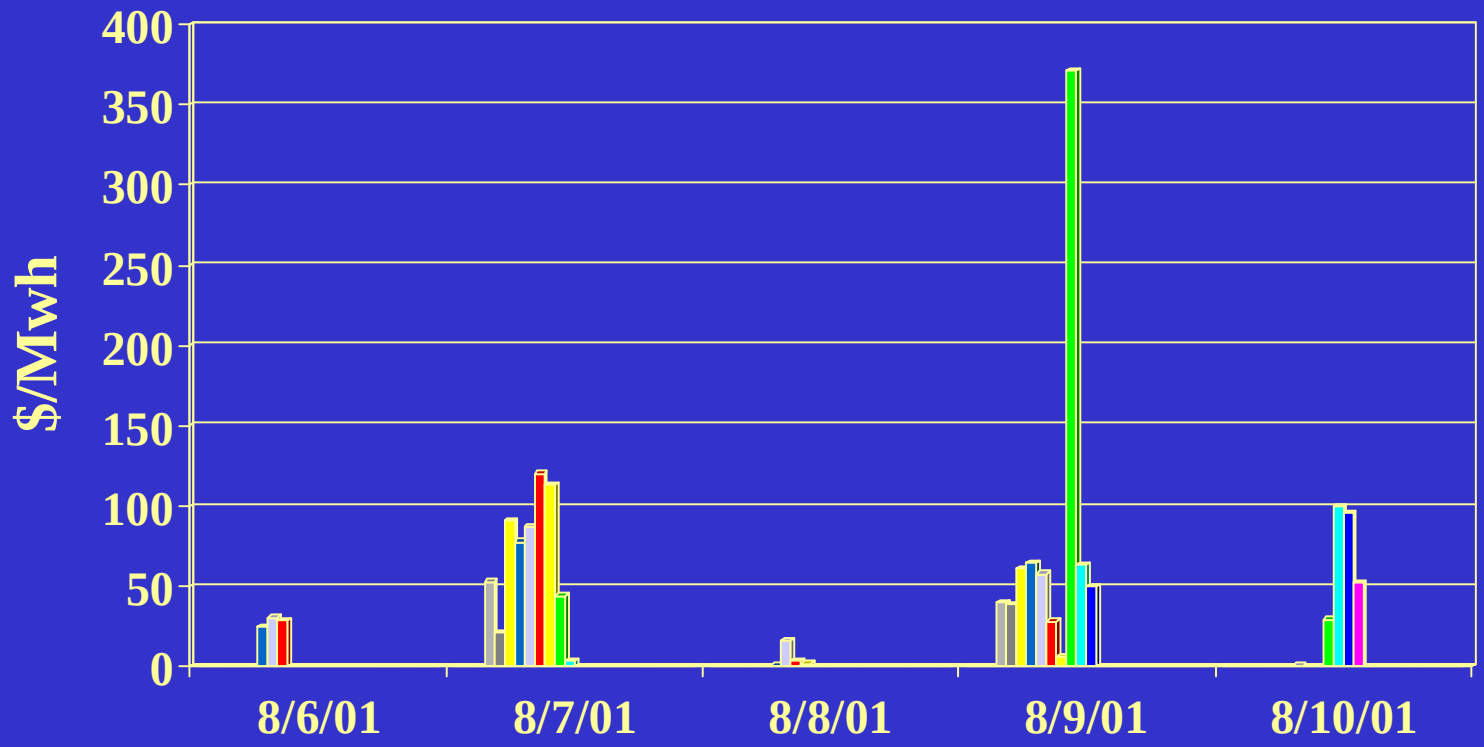
Hourly Bids ISO-NE

[source www.iso-ne.com]

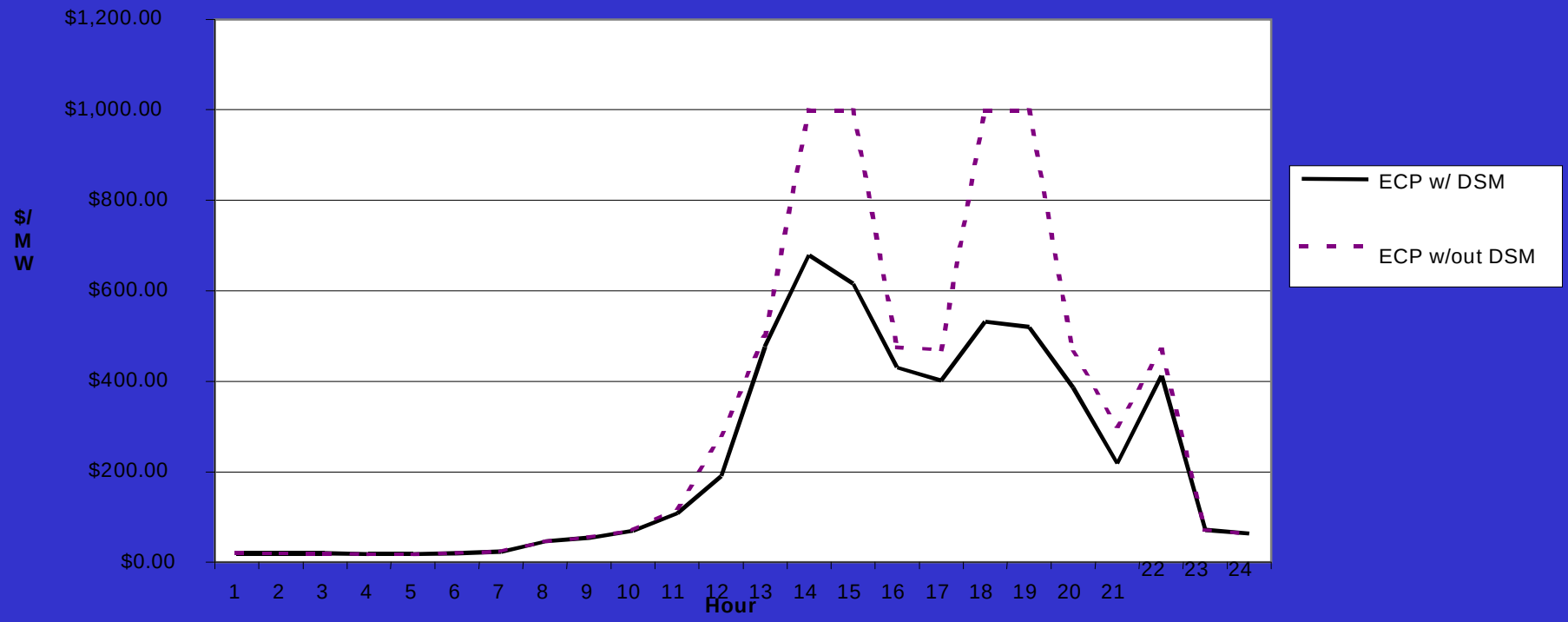


ISO-NE 30-Minute Spinning Reserve

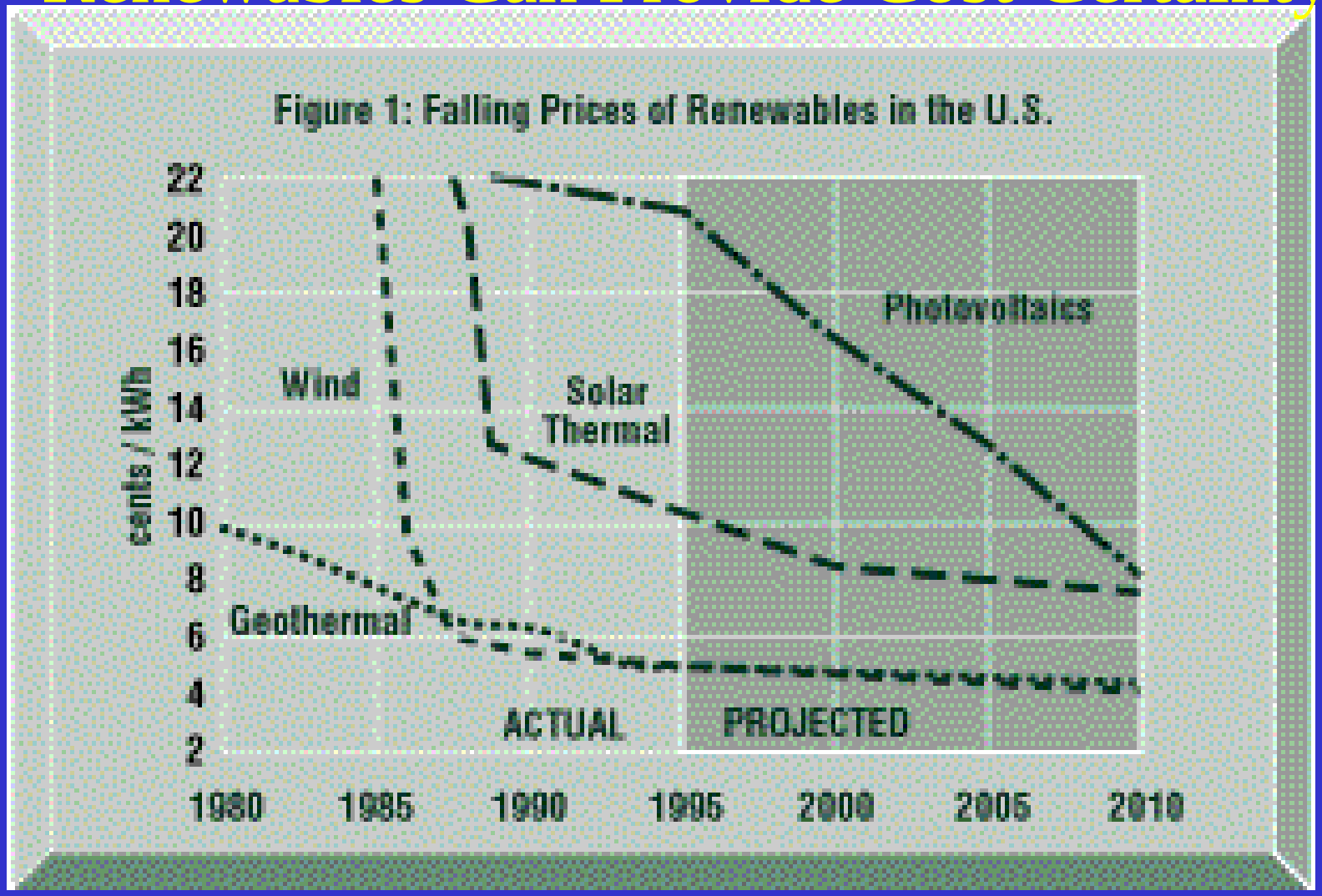
[source www.iso-ne.com]



Impact of Energy Efficiency on ISO-NE Spot Market Clearing Price [source MA DOER]



Renewables Can Provide Cost Certainty



Mainstream Ideas That Are Win-Win for Air and Energy

- low bids v. costs over life cycle [the latter is cheaper over the project's life]
- feebates: base payment on energy savings
- building layout: is it the engineer's or the architect's fault? [or the bank's?]
- Big Box stores as energy farms [each at 300 kw] [PV on roofs plus C&LM] [negawatts]
- But…what does this have to do with air pollution? [credit/incentives based on investment and/or amount of reduction, with emissions cap in place]

Public Awareness

- Even in NE..focus groups conclude that electricity comes from hydro
- Public wants clean air [but they drive SUV and complain about gas prices]
- Public often opposes any expansion/mods at your plant even though you're likely reducing emissions
- What to do? [Gov't not doing good job at outreach]
- Technology exists now to increase fuel efficiency

Air/Energy Policy Integration..What's Working?

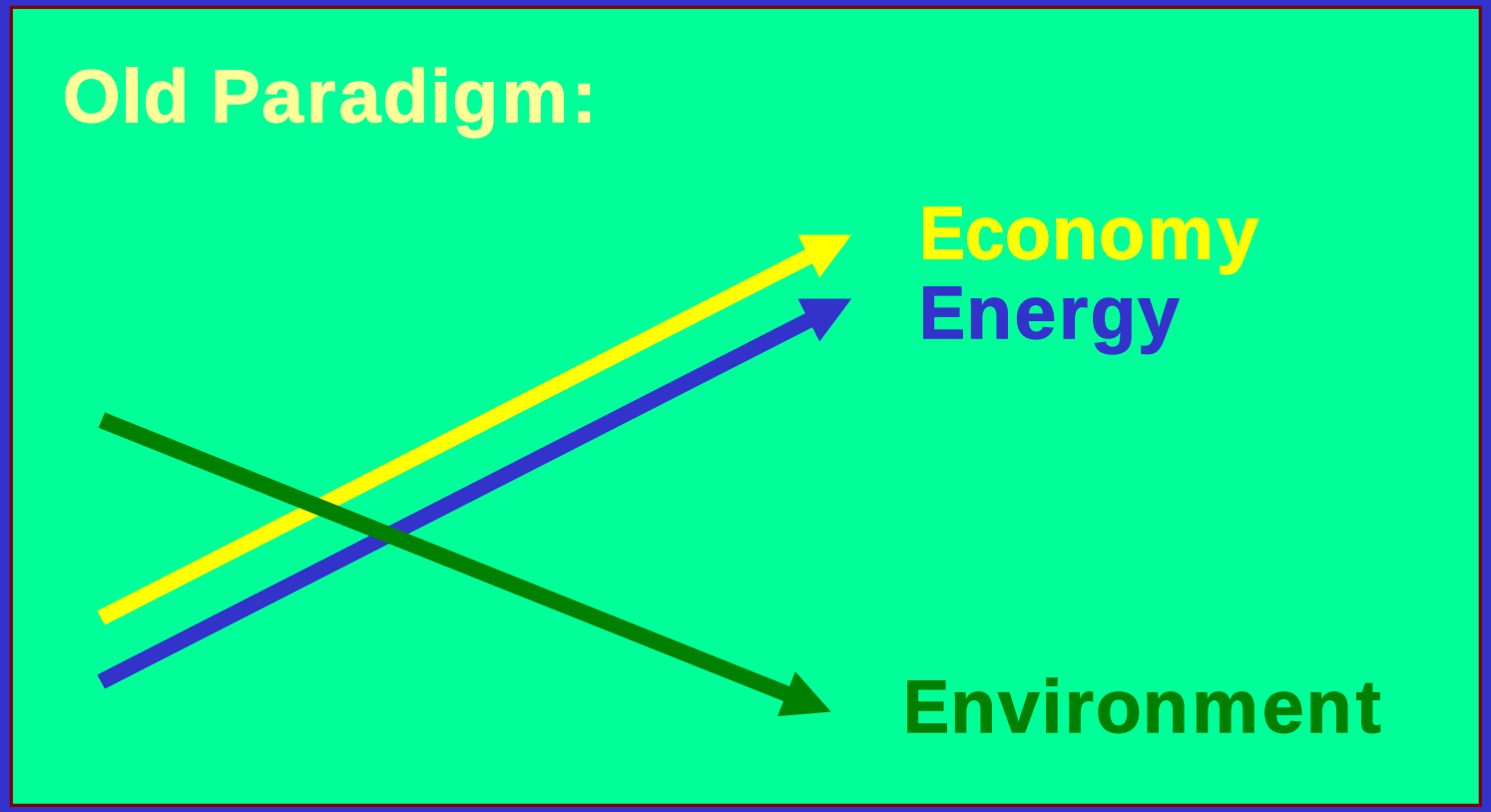
- NE/CA: Officials are talking: air, ISO, PUC, energy offices: communications, increased coordination
- NE SBC programs..savings at 2c/kwh
- pilot programs: green building, green electricity,set-asides for efficiency/renewable efforts
- EPA's CHP policy
- RAP DG model rule
- NEG/ECP climate change action plan

What's Next?

- DG/CHP development: siting, policies, regs
- Ex: siting clean DG in load pockets
- C/I: peak/load shaving, payments, C&LM
- Public awareness: disclosure, education, input improved
- Credit for replacing dirty w/clean [Iowa, EPA, NY set-aside]

An Economic Sea Change is Underway

Old Paradigm:



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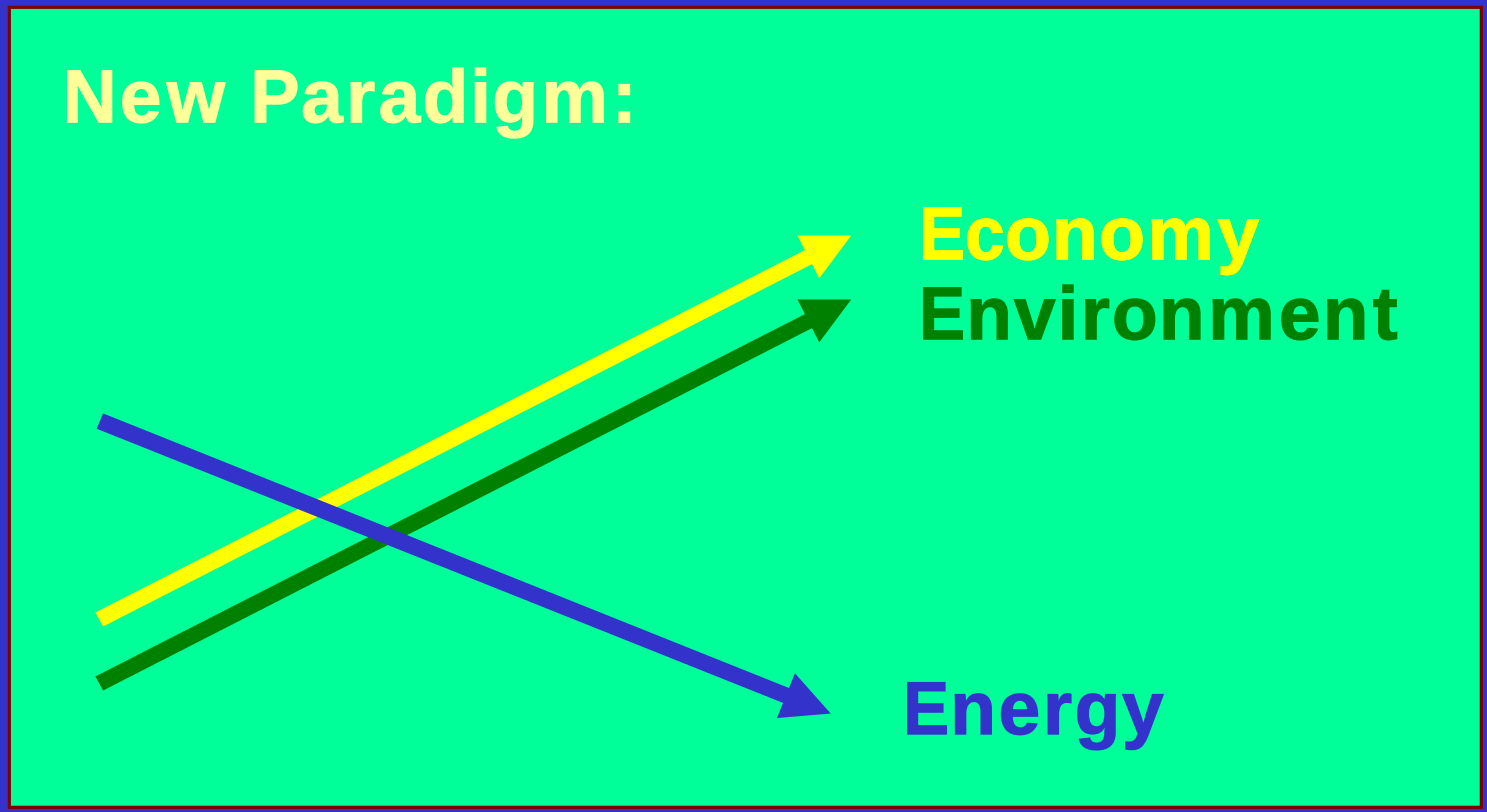
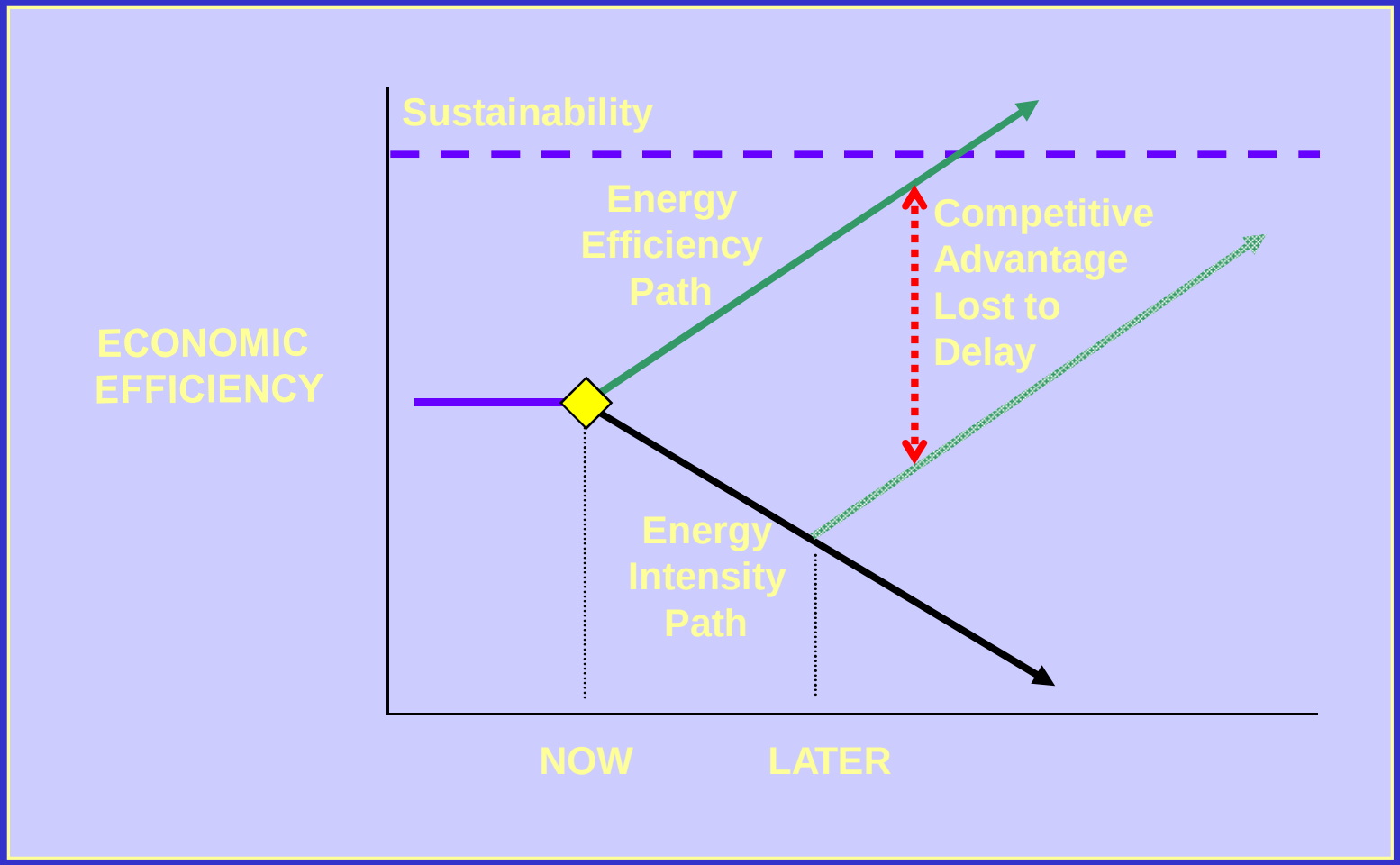


Old or New Energy Path?



What's Next [cont]

- Transmission interconnection [bias against intermittent and subMw units]
- State (NY, NH) and Congressional legislation [Jeffords/Lieberman]
- Add transportation: freight, clean fuels, CAFÉ
- Technology development: fuel cells, PV, wind
- Price signals to consumers [internet, net metering]

Take Home Ideas

- Energy: read your meters, talk with your wires co [ESCU ex.]
- What can be improved? Measure it.
- Work with air officials to: develop policies to encourage efficiency
- Banks/pension funds
- SEP to invest in efficiency/renewables
- Partner with DOT on transportation
- Work with public, reach out to other stakeholders: health dept, fire/police [“community heroes”]
- Disclose environmental effects of energy use [labels are powerful…let consumers make choices based on this information]
- Credit efficiency/renewables
- Zoning/building code changes

Take Home Ideas [cont]

- Find a friendly regulator [champion]
- Explain project..before you've signed a contract
- Involve key stakeholders to develop support
- Have a Plan B ["soft landing"] if risk is high
- Develop permit conditions, have "innovative" piece off-permit
- Stay legal:work within the "four corners" of statutes..but remember the adage about "rules, regulations, policy, guidance..reasons not to think".

Conclusion

- CAA: focus on positive, bust through negative
- Use references embedded to provide examples to skeptics
- Engage new stakeholders
- Set goals, with interim milestones and opportunities for recalibration
- Thank you!