An Integrated Policy Approach to Managing Air Quality and Climate Change

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Ontario Ministry of Environment
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Toronto, Ontario
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Presentation Overview

- Problem statement
- Reasons for an integrated multi-pollutant approach
- Challenges
- Examples
- Recommendations

Who is Synapse ?

- Synapse Energy Economics is a research and consulting firm specializing in energy, economic, and environmental topics. Synapse applies analytical tools to complex resource and policy issues. The firm provides research, testimony, and reports intended to inform sound decisions in planning, regulation, ratemaking, operations, and policy.
- For more information, visit www.synapse-energy.com

Recent Synapse Projects

- “No Need to Wait” (May 2009): report shows that Obama’s electric sector GHG targets can be met with energy efficiency
- “Don’t Get Burned” (February 2008): risk of investing in new coal plants
- Other clients include: California Energy Commission, Nova Scotia Power (IRP), NRDC, consumer advocates

Problem Statement

- Rational for integrated multipollutant planning:
- “Addressing ground-level ozone and global climate change can be catalysts to recognize the limits of the existing air quality management framework and the importance of moving to a more holistic, multipollutant approach.”

Source: L. Weiss, M. Manion, G. Kleiman and C. James, *Environmental Management, May 2007,* page 25

Reasons for an Integrated Planning Approach

- Energy: a proper IRP is like a SIP
- Environment: a good SIP is like an IRP
- Economic: valuing resources equally is cost-effective and promotes local economic development
- These concepts are simple to understand, why haven’t we done better at implementing them?

There Are Many Challenges

- Structural
- Institutional
- Technical

Structural Challenges

- Decades of stove-piped regulations, statutes and organizations
- Clean Air Act has been interpreted to mean: mono-pollutant, mono-media, fuel-specific project review
- Funding is aligned with media or specific issues

Institutional Challenges

- Command and control worked well: easy to regulate, easy to monitor success
- Unfamiliar with, or don’t believe other approaches can work (“energy efficiency can’t be measured”)
- Integrated planning efforts not sustained after a “champion” leaves, is promoted, or retires
- Don’t know contacts at other agencies

Technical Challenges

- Measuring indirect reductions may require new tools, or modifications to existing tools, to determine benefits from energy efficiency and reductions in vehicle miles travelled,
- Existing utility planning models focus on generation and power pool scale.

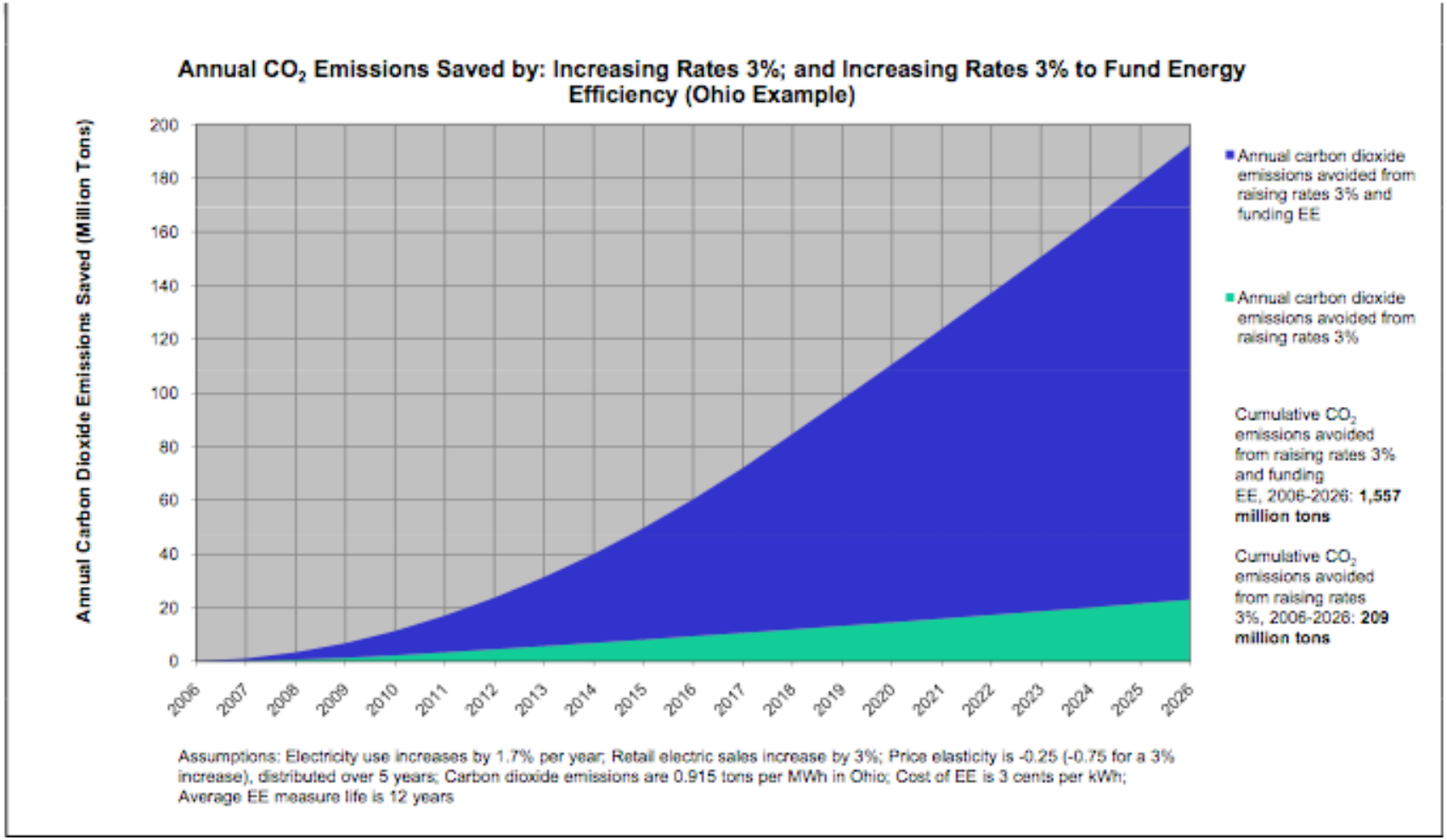
Examples of Success

- RGGI
- Connecticut high electric demand day
- California SIP and Utah environmental benefits projects
- China

RGGI

- Required air and energy regulators to work closely together to design the framework and regulations
- Decision to auction allowances and use revenue for EE/RE recognizes that reductions will occur away from the smokestack
- Auction concept picked up by Congress and the Obama Administration

It Matters How Auction Revenue Is Used

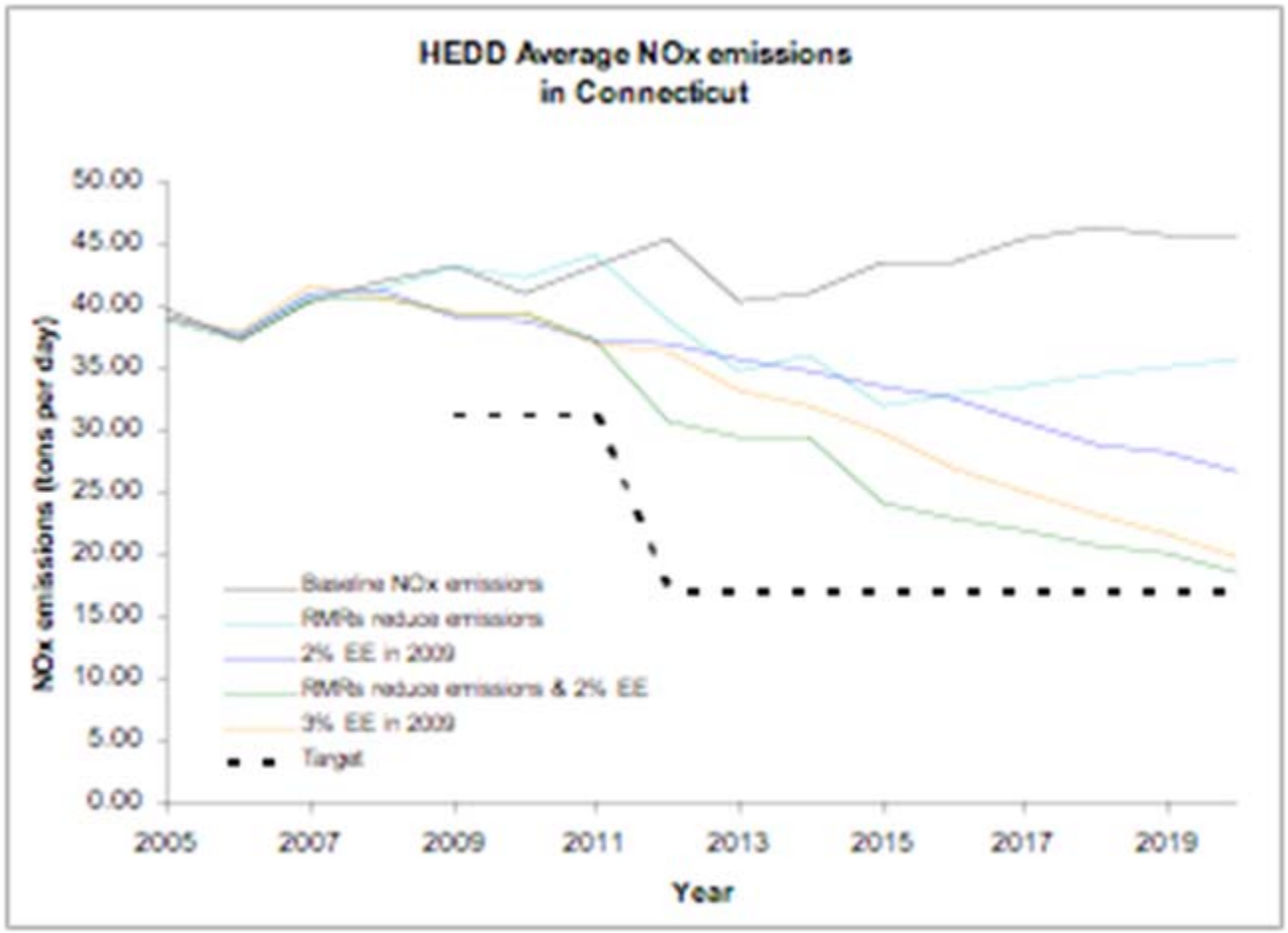


Source: Richard Cowart, Regulatory Assistance Project, NARUC Summer Meeting, Portland, Oregon; July 2008

Connecticut High Electric Demand Days

- Connecticut signed MOU with OTC to reduce NOx
- Recognized that controls alone would not achieve reduction goal, and costs of controls are passed along to ratepayers
- Report shows that combination of EE plus additional controls is needed

Energy Efficiency Benefits Today for Criteria Pollutants

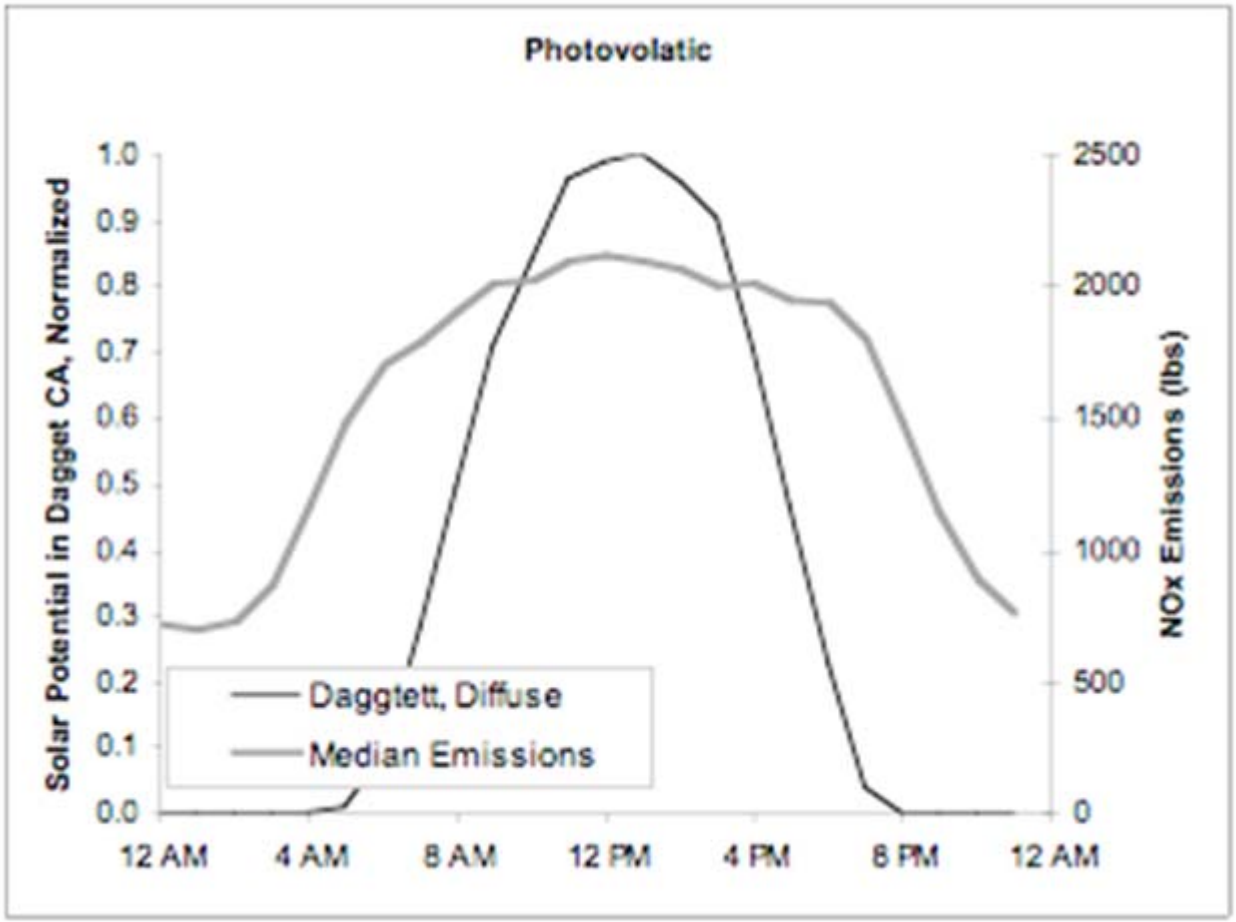


Source: C. James and J. Fisher, PhD, Reducing Emissions in Connecticut on High Electric Demand Days, July 2008

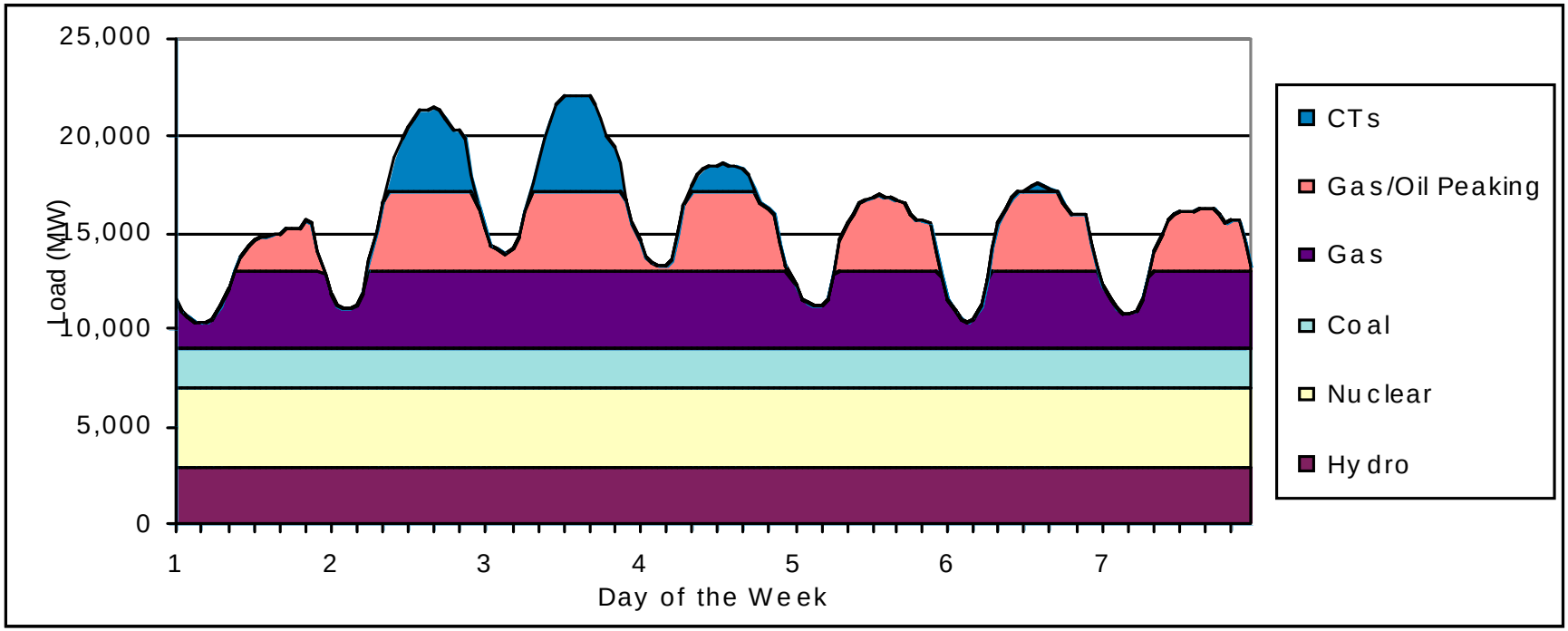
California and Utah Efforts

- Evaluate air benefits (CA), air/water benefits (UT) from EE/RE
- Investment in one location may produce benefits in another part of the state or another state
- Requires knowledge of electric system operation, transmission and dispatch

Output of Solar PV v. NO_x Emissions



It Matters What Resources Are Displaced and When

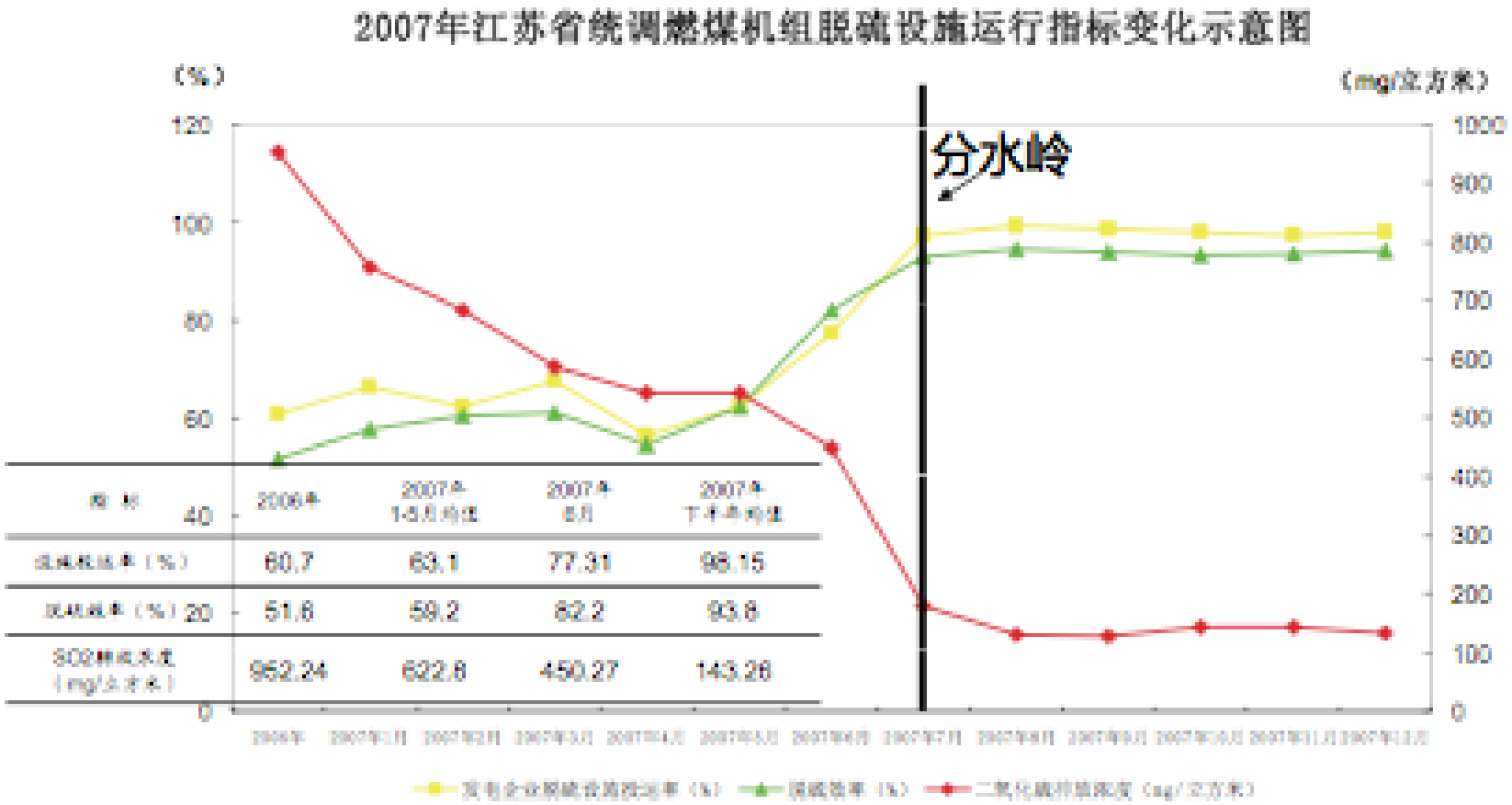


Above is typical dispatch for California. Profiles for NE, NY would be similar in shape. Quantity of emissions displaced would vary by power pool.

China

- GHG emissions now surpass US
- Fine particles from China and Asia recorded on western US air quality monitors
- N. America and EU: driving demand
- Projects to integrate energy and environmental sector
- Environmental pricing for dispatch of units with emissions control
- CEMS data transmitted to grid operator

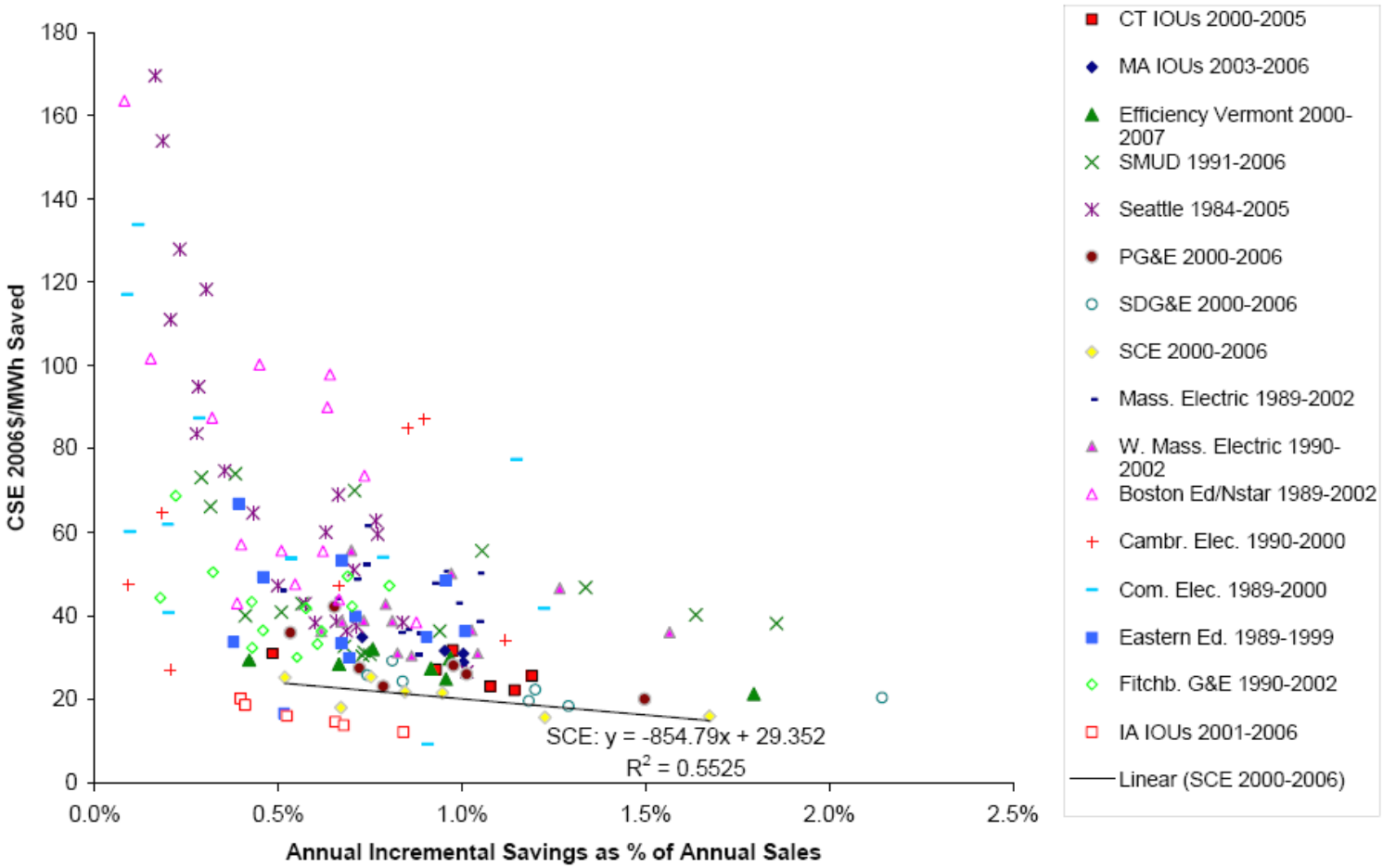
Example of CEMS Data Transmitted to Grid Operator in China



Recommendations

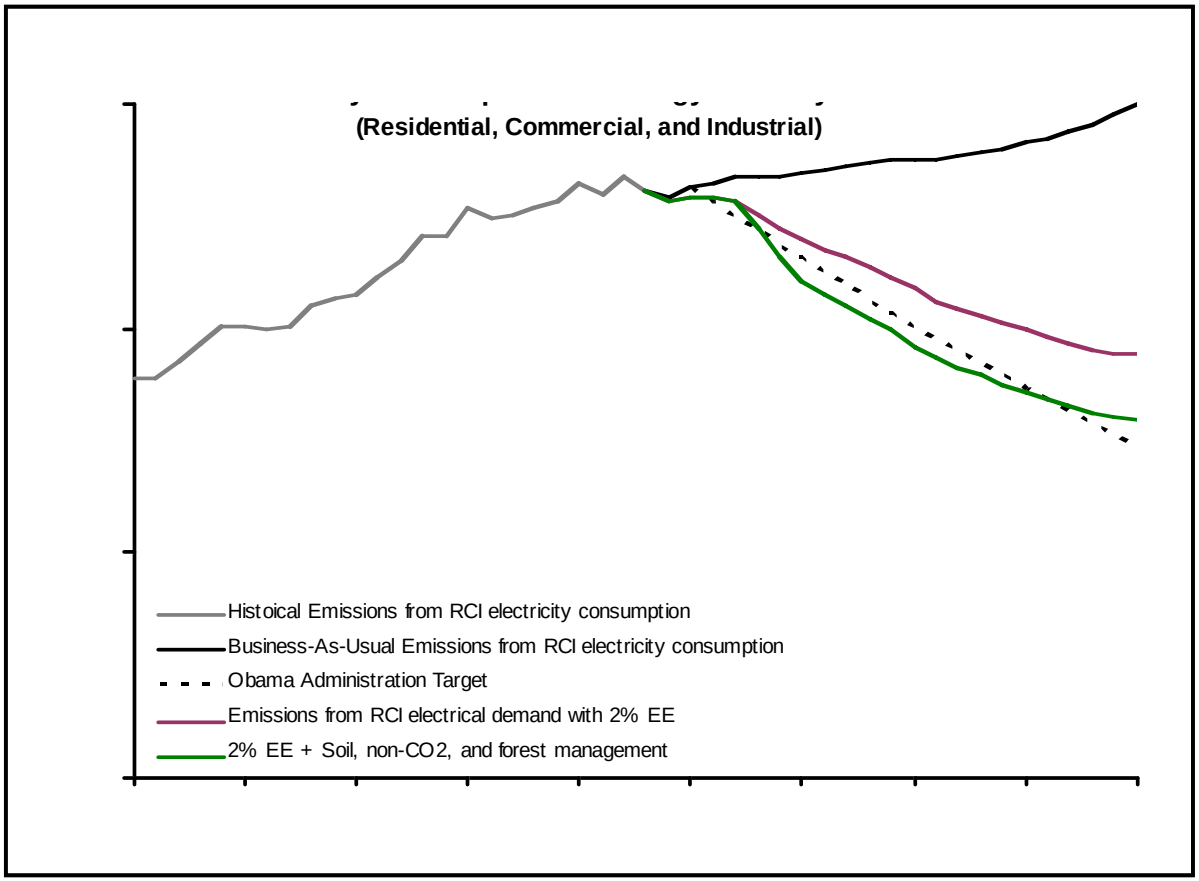
- Establish governance structures that promote multi-agency planning and coordination
- Develop metrics for long-term environmental, economic and energy goals
- Train agency staff
- Align funding with multipollutant efforts
- Start…take the leap! Launch pilot programs
- EE works and is cost effective (next slide)

Analysis of Existing Programs: Cost of Saved Energy Continues to Decline as Level of Savings Increases



Source: D. Nichols and K. Takahashi, ACEEE Summer Study, August 2008

Energy Efficiency Can Play a Big Role to Meet Obama's Electric Sector GHG Targets



Source: "No Need to Wait", Synapse Energy Economics, May 2009

Examples of How to Move Forward

- Air quality regulators participate in energy planning (IRP) and dockets (EE, RE and resource siting)
- Energy regulators participate in SIP process
- Also applies to transportation planning
- These steps seem simple and basic, but are still rarely done.

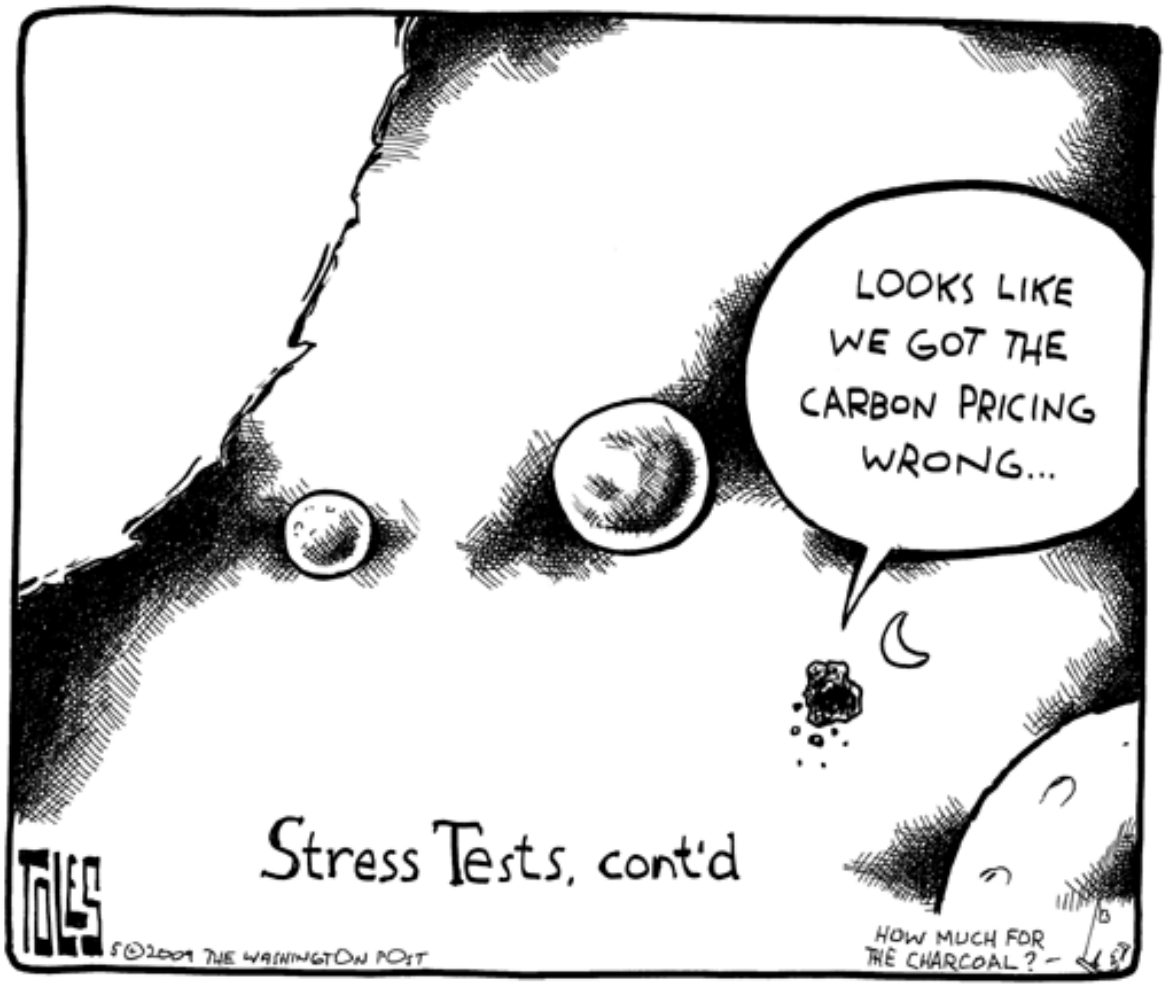
Asking the Right Questions

- What is the best way to produce a MWh of electricity? (or ton of cement or barrel of oil) (not, what is the cleanest way to burn coal…)
- “I don’t know what questions to ask. We assume the utilities are providing us with accurate information”- comment from one air regulator
- Review assumptions, question how they were derived, etc.

Conclusions

- Achieving significant GHG reductions will require intensive, sustained coordination and commitment
- Additional technical analysis can reveal co-benefits: criteria and toxic air pollutants, water quality, public health, economic development, etc.
- “No Need to Wait”: starting now captures benefits and avoids higher cost, and potentially more disruptive measures later.

It Does Matter That We Get It Right



Thank You For Your Time

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