

State Policies For Energy Efficiency: Status and Observations

Susan Tierney

April 8, 2008

EIA's 2008 Energy Conference – 30 Years of Energy Information and Analysis
The Role of Energy Efficiency in Meeting Future Demand

State Policies Targeting Energy Efficiency*

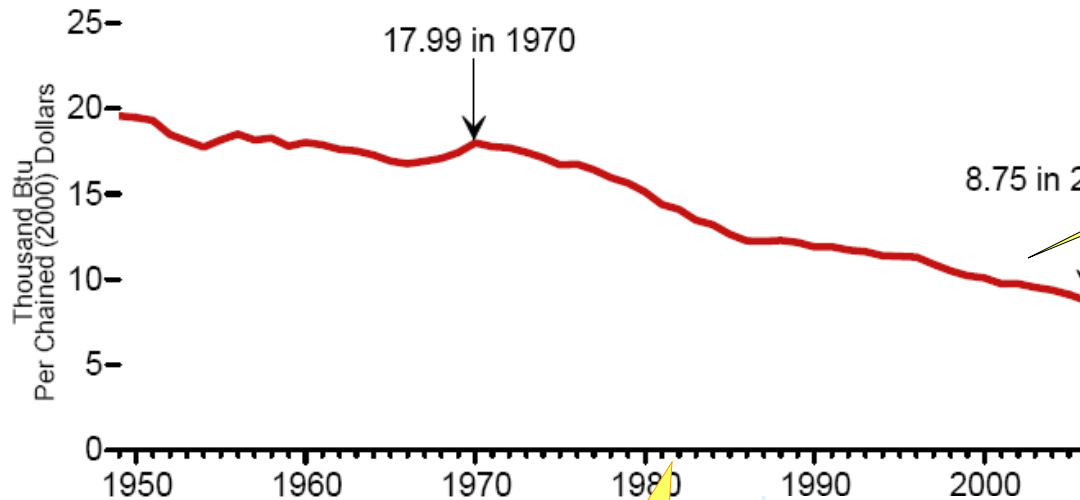
What are the states doing –

- **What are new efforts and approaches?**
- **What are various targets of efficiency opportunity?**
- **What's driving their efforts?**
- **Some final observations**

* And strategies for reducing demand more broadly

Context: Energy use and Economic Activity

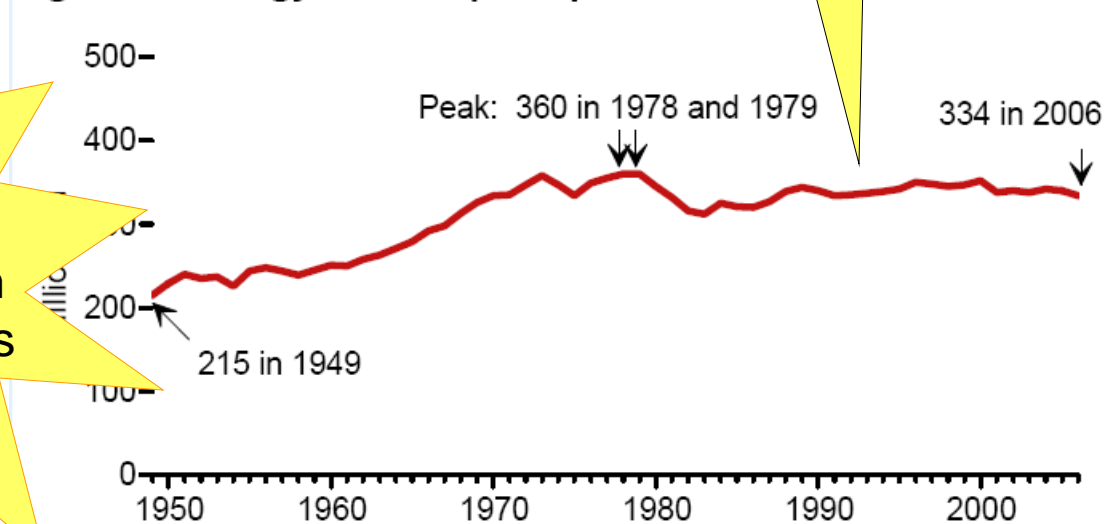
Figure 3. Energy Use per Real Dollar of Gross Domestic Product



Improved energy intensity of the overall economy

Flat energy use per person

Figure 2. Energy Consumption per Person



Past efficiency gains under pressure from growth and new uses of energy

EIA, Annual Energy Review 2006 (June 2007)

What are the states doing? A recurring theme....

Cycles of interest in energy efficiency since NARUC adopted its 1989 resolution “in Support of Incentives for Electric Utility Least Cost Planning”

RESOLVED: states should:

- 1) **Consider the loss of earnings** potential connected with the use of demand-side resources; and
- 2) Adopt **appropriate ratemaking mechanisms** to encourage utilities to help their customers improve end-use efficiency cost- effectively; and
- 3) Otherwise ensure that the successful implementation of a utility's **least-cost plan is its most profitable** course of action.

NARUC 1989 Resolution

Resolution in Support of Incentives for Electric Utility Least Cost Planning

WHEREAS, National and International economic and environmental conditions, long-term energy trends, regulatory policy, and technological innovations have intensified global interest in the environmental design sources and uses of energy;

WHEREAS, The business strategy of many electric utilities has extended to advance efficiency of electricity end-use to manage electric demand; and

WHEREAS, Long-range planning has demonstrated that utility acquisition of end-use efficiency, renewable resources, and cogeneration are often more responsible economically and environmentally than traditional generation expansion; and

WHEREAS, Investments in end-use efficiency generally reduce incremental energy sales; and

WHEREAS, Ratemaking formulas used by most state commissions cause reductions in end-use efficiency and otherwise may discourage utilities from helping their customers to improve end-use efficiency;

WHEREAS, Reduced earnings to utilities from relying more upon demand-side resources is a serious impediment to the implementation of least-cost planning and to the achievement of a more energy-efficient society; and

WHEREAS, Improvements in the energy efficiency of our society would result in lower utility bills, reduced carbon dioxide emissions, reduced acid rain, reduced oil imports leading to improved energy security and a lower trade deficit, and lower business costs leading to improved international competitiveness; and

WHEREAS, Impediments to least-cost strategies frustrate efforts to provide low-cost energy services for consumers and to protect the environment; and

WHEREAS, Ratemaking practices should align utilities pursuit of profits with least-cost planning; and

WHEREAS, Ratemaking practices exist which align utility practices with least-cost planning; now, therefore, be it

RESOLVED, That the Executive Committee of the National Association of Regulatory Utility Commissioners (NARUC) assembled in its 1989 Summer Committee Meeting in San Francisco, urges its member state commissions to:

- 1) Consider the loss of earnings potential connected with the use of demand-side resources; and
- 2) Adopt appropriate ratemaking mechanisms to encourage utilities to help their customers improve end-use efficiency cost- effectively; and
- 3) Otherwise ensure that the successful implementation of a utility's least-cost plan is its most profitable course of action.

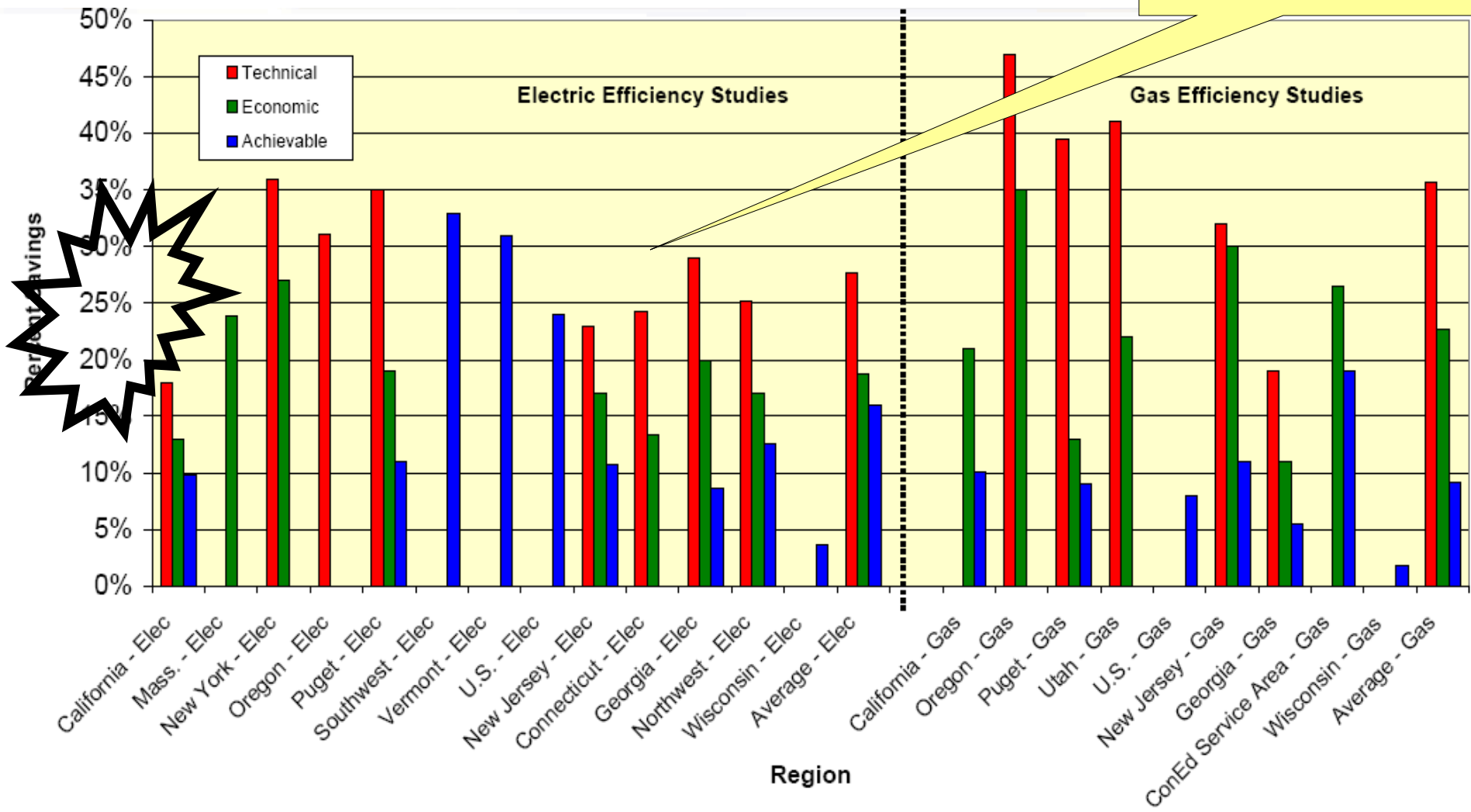
Sponsored by the Committee on Energy Conservation,
Adopted July 27, 1989

What are states doing now?

- **Digesting the array of studies of EE opportunities**
- **Examining – and committing to – policies to exploit opportunities**
- **Being motivated by a variety of reasons**
- **Identifying best practices**
- **Looking across sectors, beyond utility programs**
- **Finding that there's still a long way to go**

What are the states doing? Studying the opportunities for EE

Large reservoir of untapped efficiency resources.



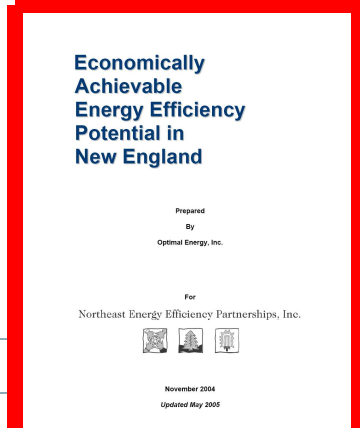
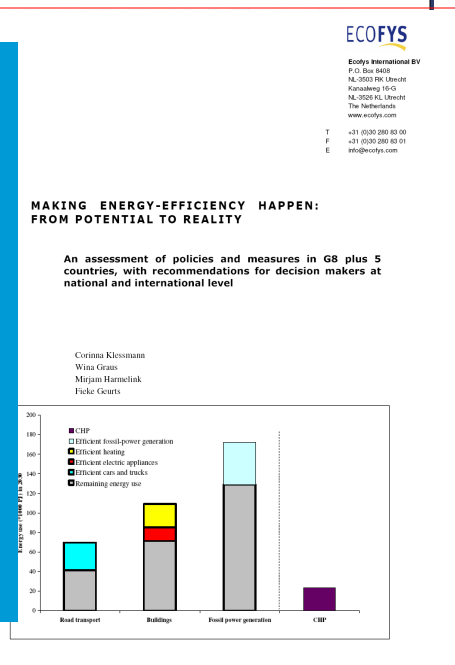
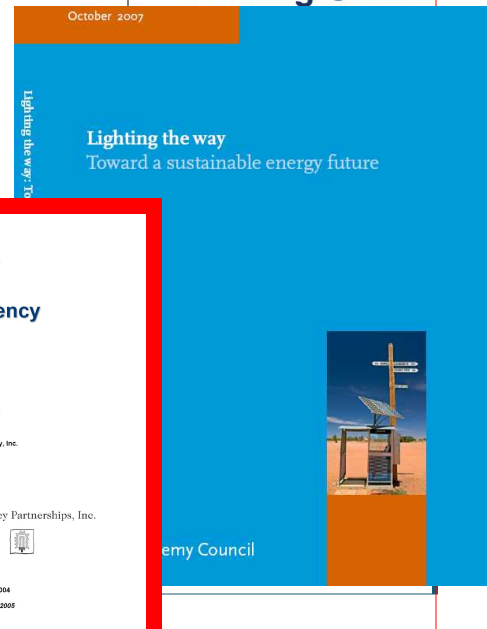
What are the states doing? Studying the opportunities for EE

Recent examples of studies of EE potential

- EPRI’s “Prism” study
- McKinsey’s “Wasted Energy” Study
- WWF – G8 Energy Efficiency Potential
- Interacademy Council – “Lighting the Way
- Northeast Energy Efficiency Partnership
- National Academy of Sciences – America's Energy Future: Energy Efficiency Technologies: Opportunities, Risks, and Tradeoffs (underway)



Curbing Global



What are the states doing? Being motivated by an array of reasons

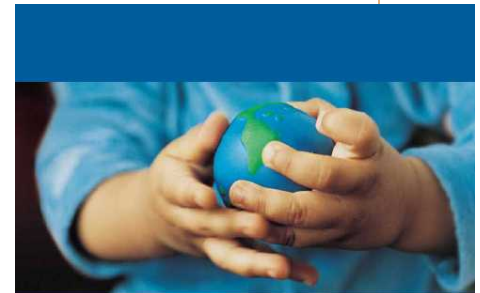
National Action Plan – Customer Benefits of EE

- Lower energy bills
- Greater customer control and customer satisfaction.
- Lower cost than conventional supplies.
- Quick to deploy.
- Significant energy savings.
- Environmental benefits
- Economic development.
- Energy security.

Reasons why EE provides benefits beyond those sent by the customer alone.

State signers:

CA CT
DC IA
ME MN
NC NJ
NY TX
WA



National Action Plan for Energy Efficiency

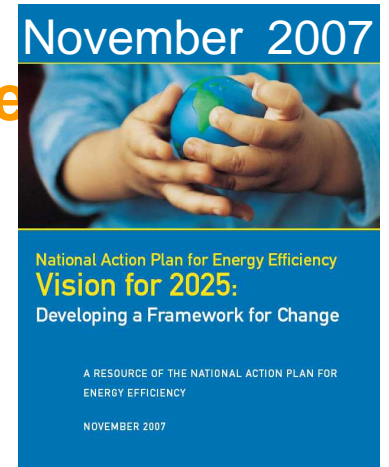
A PLAN DEVELOPED BY MORE THAN 50 LEADING ORGANIZATIONS IN PURSUIT OF ENERGY SAVINGS AND ENVIRONMENTAL BENEFITS THROUGH ELECTRIC AND NATURAL GAS ENERGY EFFICIENCY

JULY 2006

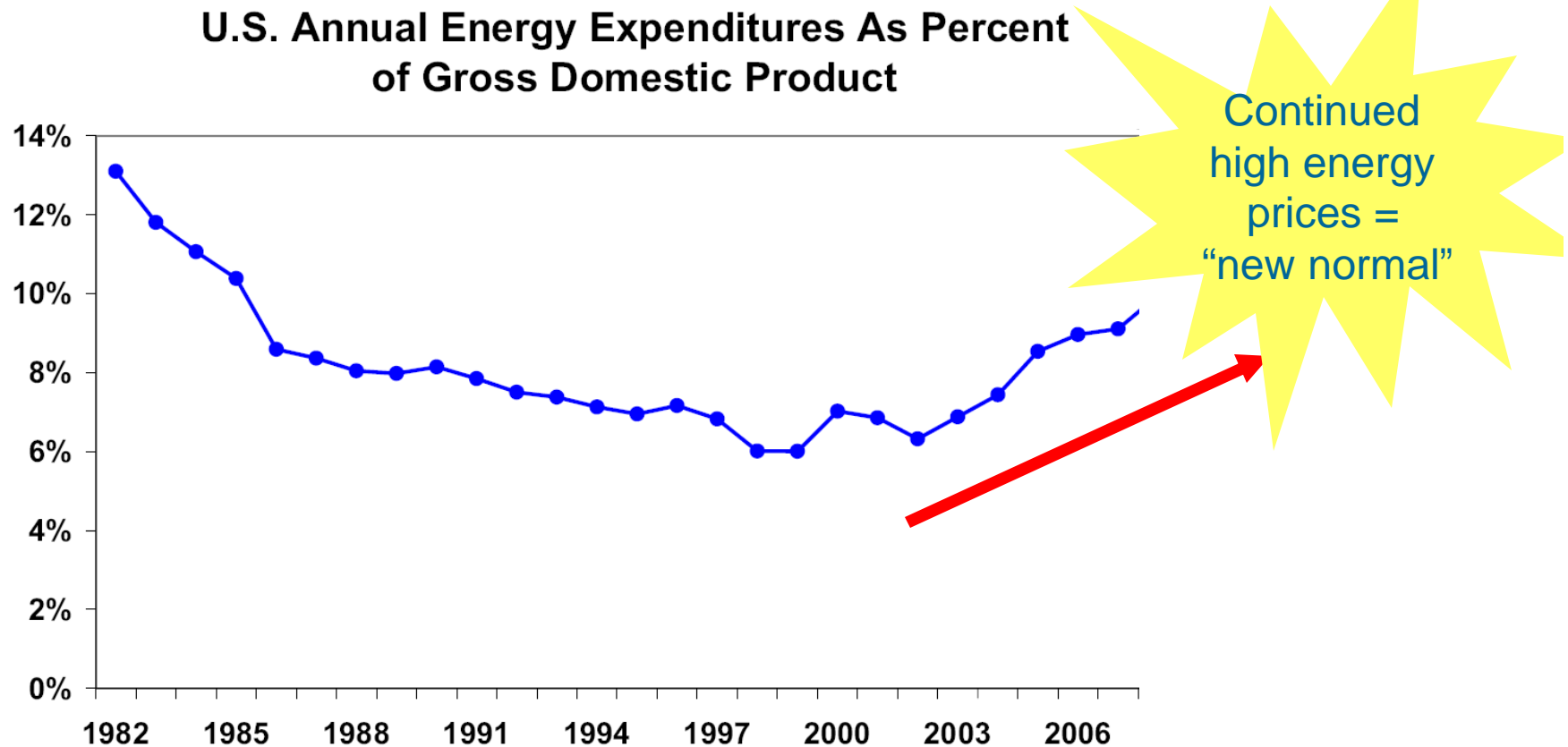
What are the states doing? Commitments to increase use of energy efficiency

National Action Plan: Implementation Goals

1. Pursue all Cost-Effective EE as a priority
2. Align Utility \$ Incentives Equally for EE and Supply
3. Establish Cost-Effectiveness Tests
4. Establish Evaluation, Measurement, and Verification Mechanisms
5. Establish Effective EE Delivery Mechanisms
6. Develop State Policies to Ensure Robust EE Practices
7. Align Customer Pricing and Incentives to Encourage EE Investment
8. Establish Advanced Billing Systems
9. Implement Advanced Efficiency Information Sharing and Delivery Systems
10. Implement Advanced Technologies

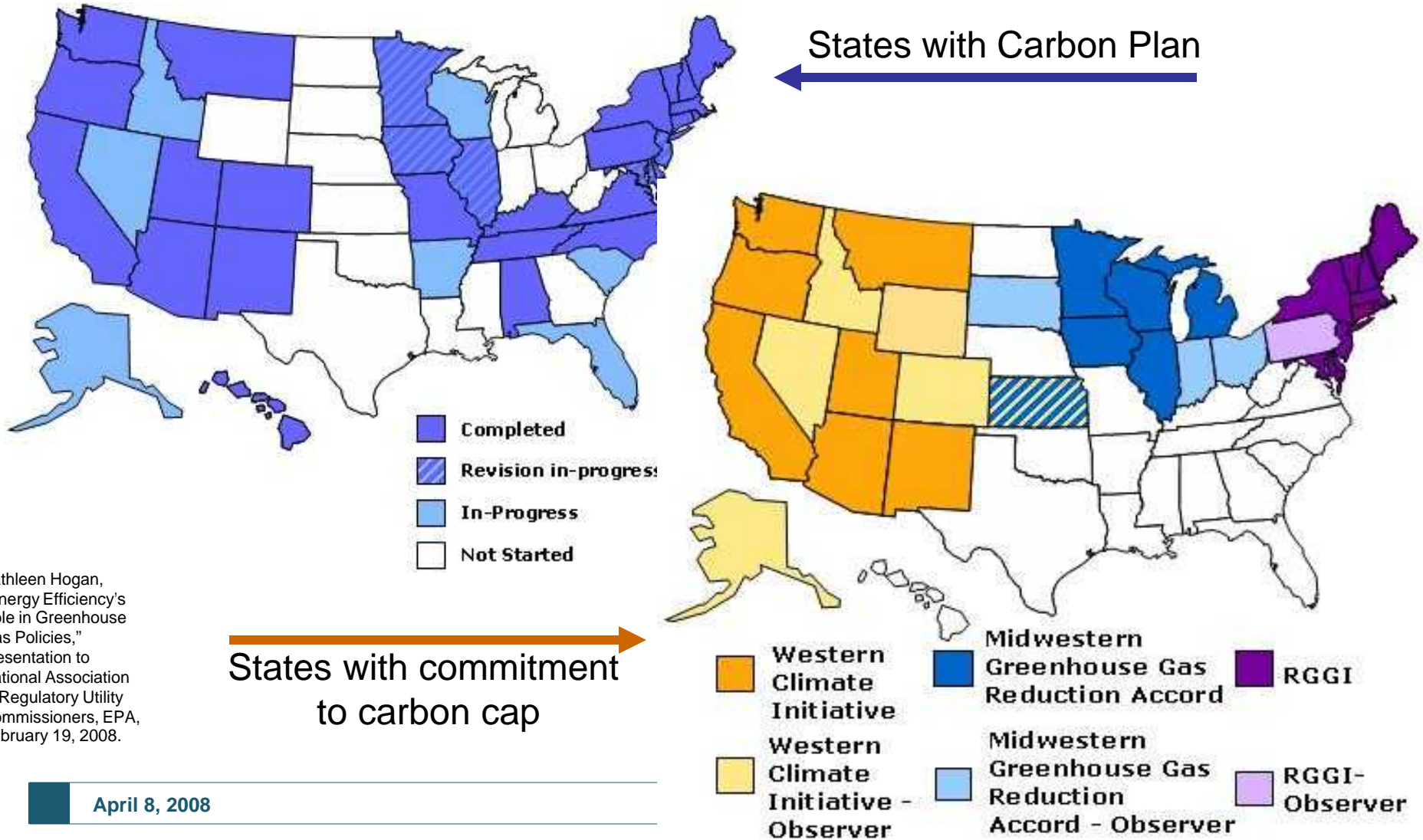


What are other motivations for state action? High energy prices – post 2000



EIA, Short Term Energy Outlook, March 2008.

What are other motivations for state action? States' concerns about climate change



Kathleen Hogan,
"Energy Efficiency's
Role in Greenhouse
Gas Policies,"
presentation to
National Association
of Regulatory Utility
Commissioners, EPA,
February 19, 2008.

Spending on EE Programs (ratepayer \$)

States require collection of funds from utility ratepayers, to be used for EE programs

Example: Vermont:

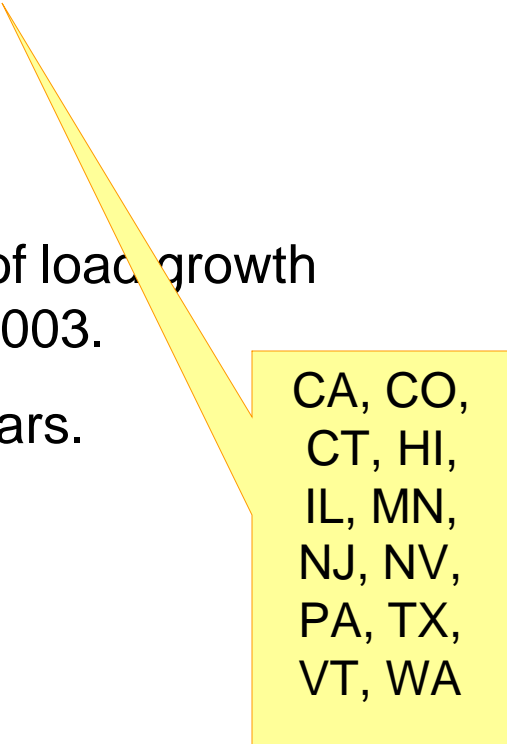
- **Efficiency Vermont (EVT) = state provider of EE services, funded by an “energy efficiency charge” (EEC) on customers bills.**
- **They spend over \$22.50 per capita and save close to 2% of its annual needs.**

Energy Efficiency Resource Standards

States requiring utilities to meet electric and gas energy savings targets

Example: Texas:

- First state to establish an EERS in 1999.
- Utilities required electric utilities to offset 10% of load growth through EE and load management starting in 2003.
- IOUs in Texas have met their goals in initial years.



CA, CO,
CT, HI,
IL, MN,
NJ, NV,
PA, TX,
VT, WA

Combined Heat and Power

States policies supporting savings from cogeneration:

- **Streamlined standard interconnection rules for Distributed Gen (TX, NY, MA)**
- **Financial incentives (grants, tax incentives, low-interest loans, and rebates) (CA, NY)**
- **RPS: CHP as an eligible technology (HI, CT, PA)**
- **Output-based emission standards and allocation of emissions allowance within a cap-and-trade program (CT, IN, TX)**

Maggie Eldridge, Bill Prindle, Dan York, Steve Nadel, "State Energy Efficiency Scorecard - 2006," ACEEE, June 2007 (Report #E075)

Codes and Standards – EE

State building codes with EE (39 states + DC)

State appliance efficiency standards: 11 states

Example: California:

- **BUILDING CODES:**

- Most stringent and best enforced energy code in the U.S.
- Annual kwh / person has remained steady (7,000 kWh) for ~30 years

- **APPLIANCE EFFICIENCY STANDARDS**

- 21 standards not preempted by federal legislation

Maggie Eldridge, Bill Prindle, Dan York, Steve Nadel, "State Energy Efficiency Scorecard - 2006," ACEEE, June 2007 (Report #E075)

Transportation

Raise fuel economy and reduce miles traveled:

- Tailpipe emissions standards (including carbon)
- State transit funding
- State fleet procurement requirements
- Tolling and other pricing policies
- Financial incentives (tax credits/exemptions, grants, loans, rebates)
- Land use policies supporting smart growth

NY, MD, NJ,
CT, ME, PA,
RI, VT, WA,
MA

Maggie Eldridge, Bill Prindle, Dan York, Steve Nadel, "State Energy Efficiency Scorecard - 2006," ACEEE, June 2007 (Report #E075)

Other policies

Tax incentives

- **Example: Washington, D.C.:**
 - **Tax incentives for new building construction, existing home weatherization, EE product purchase, efficient vehicles.**

Facilities and Equipment Procurement

- **Example: NY, CA, NH, WI**
 - **Energy performance criteria and guidelines for new and existing buildings and purchase of ENERGY STAR products**

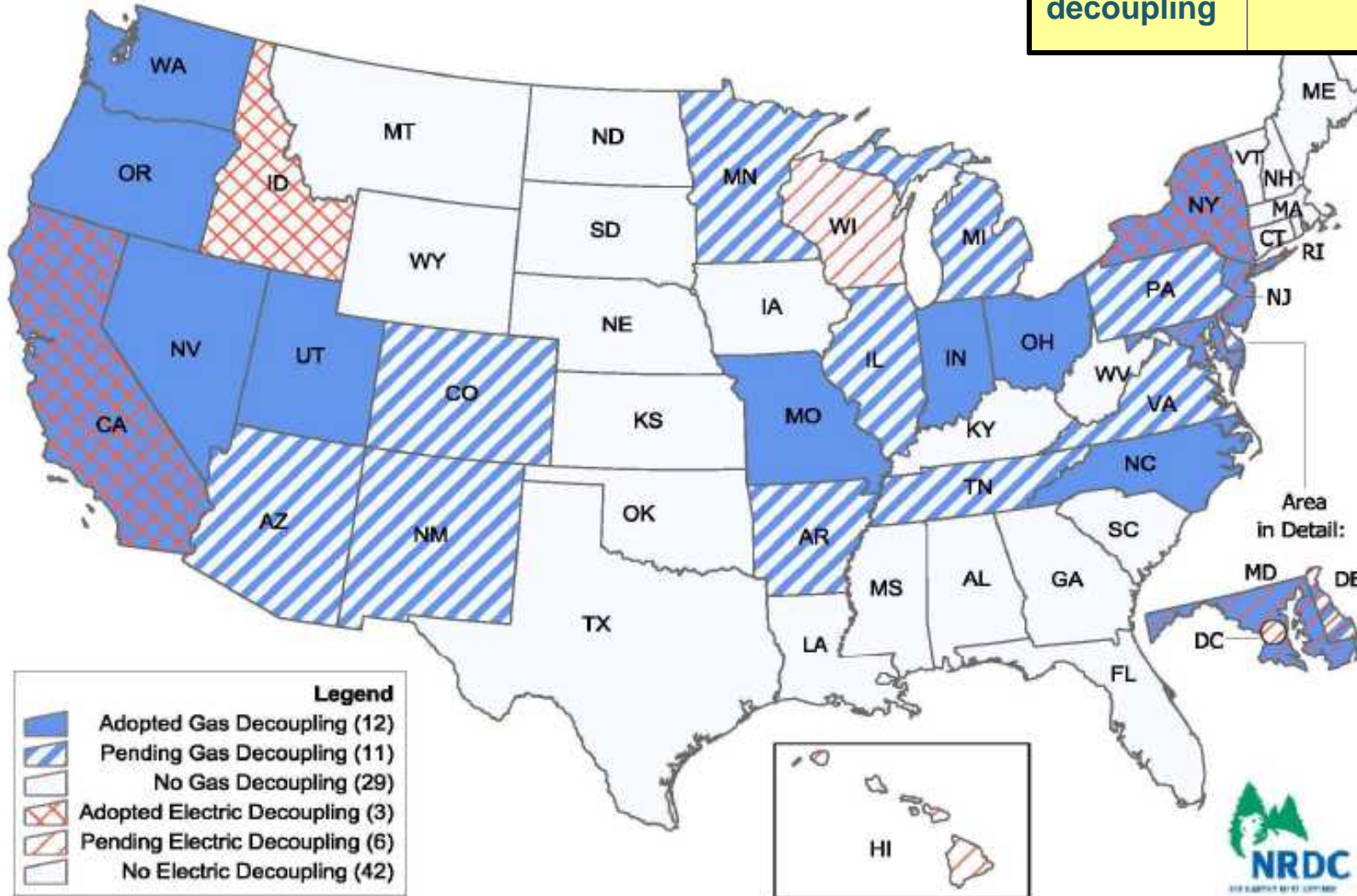
Advanced Metering Infrastructure

- **Example: NY, CA**
 - **Installations of smart meters**

Maggie Eldridge, Bill Prindle, Dan York, Steve Nadel, "State Energy Efficiency Scorecard - 2006," ACEEE, June 2007 (Report #E075)

States with Decoupling Policies

	Electric	Gas
Adopted decoupling	3	12
Considering decoupling	6	11,



Richard Sedano, "Regulatory Treatment of Demand Side Management in the U.S.," *The Regulatory Assistance Project*, Fall 2007.



The case of New England – A diversity of strategies

Funding for EE:

- 6 states: EE programs (SBC ~250 million/year)
- RGGI Auction Revenues for EE, renewables, etc.

ISO-NE Programs – regional approaches

- Demand response: 934 MW.
- Forward Capacity Market – Demand resource able to bid against supply

Codes and Standards:

- Appliance efficiency standards, building codes, CA GHG car

New and renewed efforts:

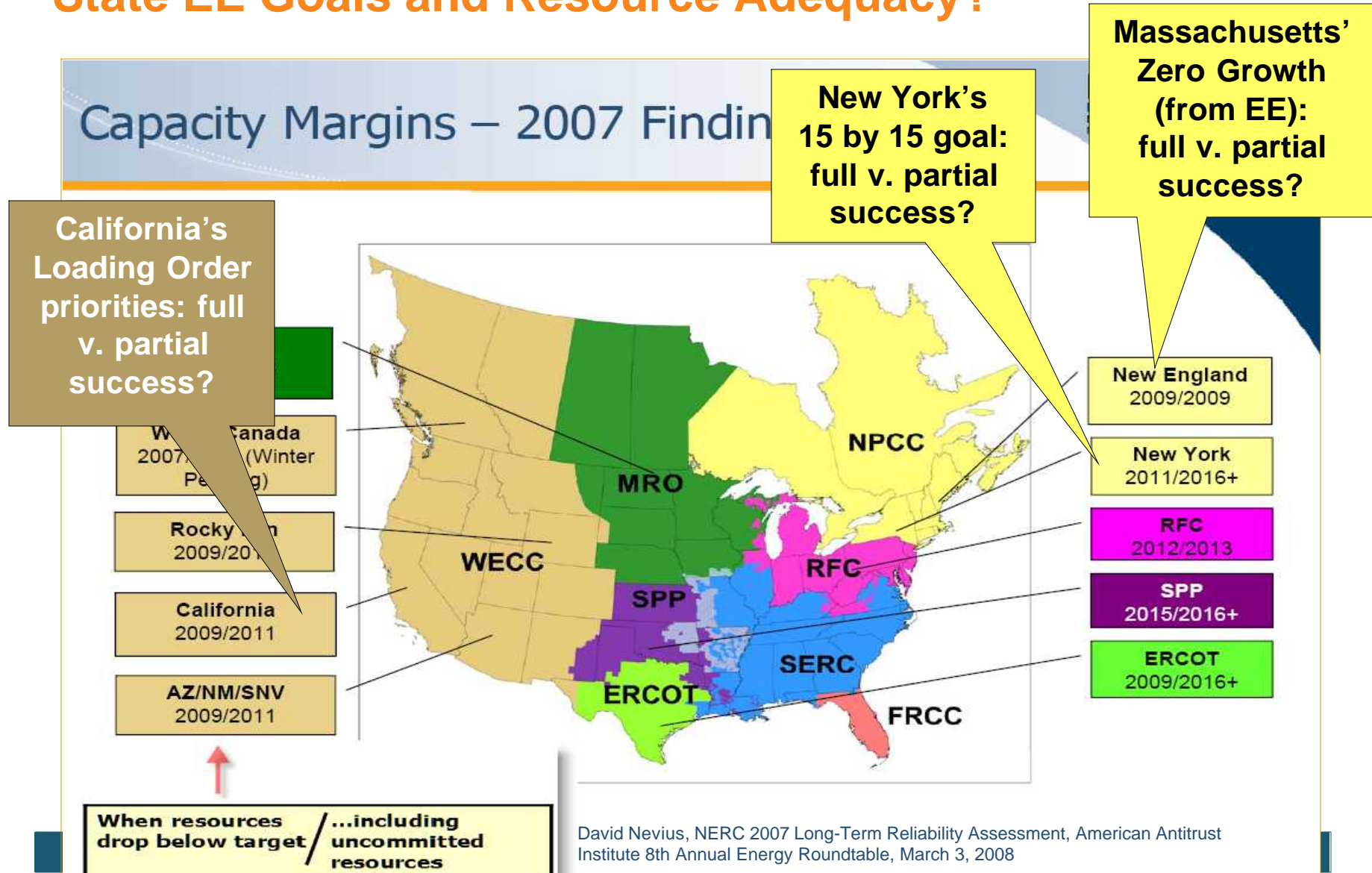
- EE Portfolio Standards: under consideration in MA
- Efficiency VT
- PUC policies for addressing financial disincentives – under review in MA, CT
- Consideration of Dynamic Pricing and Advanced Metering
- Cambridge Efficiency Alliance – comprehensive financing and delivery of EE

Drivers:

high prices,
climate commitments,
energy security,
high gas use,
aging infrastructure

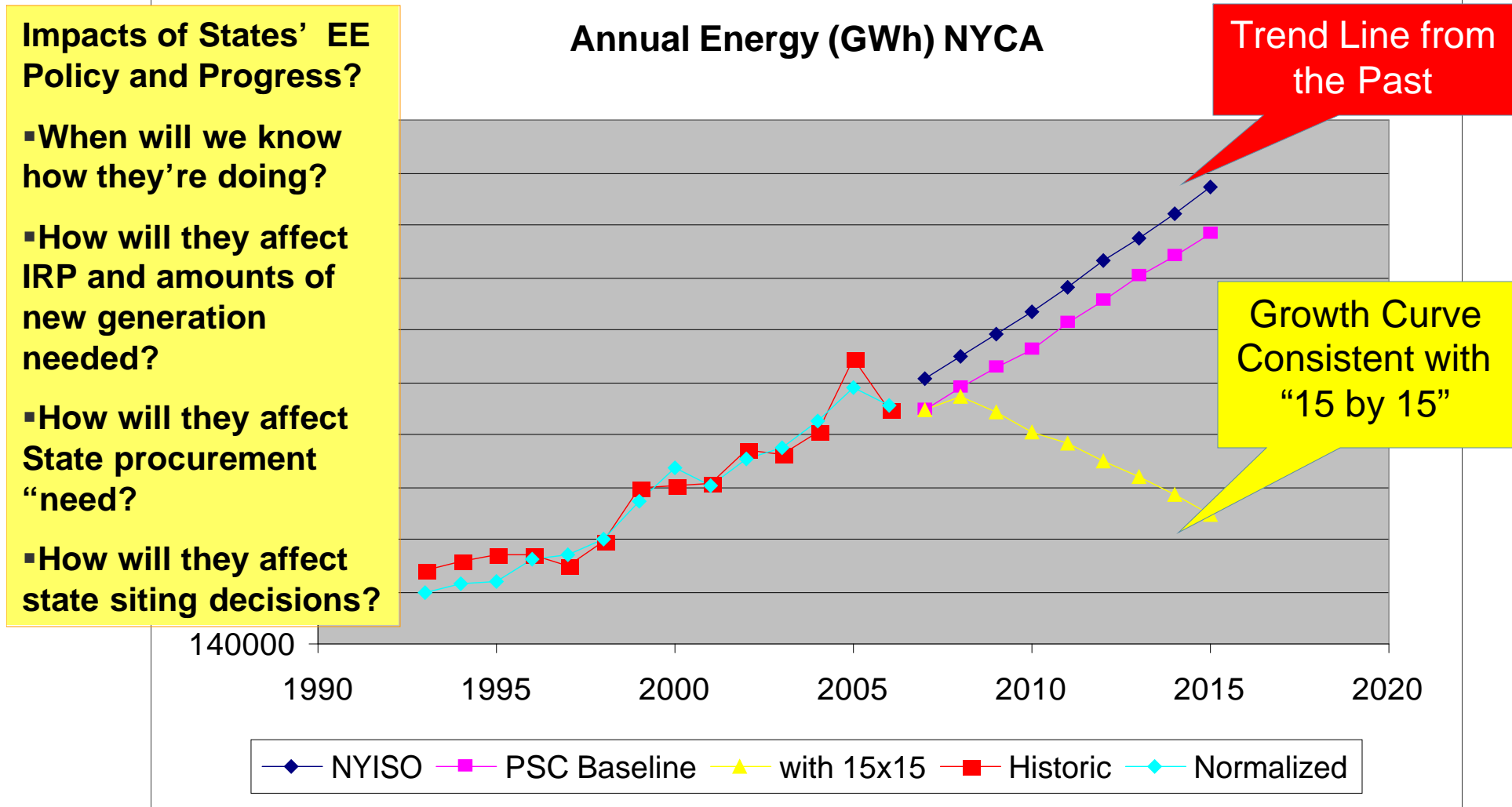
State EE Goals and Resource Adequacy?

Capacity Margins – 2007 Findings



David Nevius, NERC 2007 Long-Term Reliability Assessment, American Antitrust Institute 8th Annual Energy Roundtable, March 3, 2008

NY 15 by 15 Policy – Implications for NY MWH Sales



Some observations on state activity on EE

- **Recent renewal of interest is motivated by many factors, not just markets – e.g., continued high prices, GHG challenges**
- **States' views that markets alone will not tap economic EE**
- **States are using multiple and varied policies to mine EE**
- **States' reputation is on the line – EE is critical success factor for accomplishing other goals**
- **High continued uncertainty about EE Success, e.g.,**
 - **Implications for demand forecasts: how to reliably incorporate EE Performance?**
 - **Planning for New Resource Needs – Count on EE Commitments?**
 - **Siting Infrastructure – Only Allowed If Exhaust Cost-Effective EE?**

Susan F. Tierney, Ph.D.
Managing Principal
stierney@analysisgroup.com

Analysis Group, Inc.
111 Huntington Ave., 10th Floor
Boston, MA 02199
ph: 617-425-8000
fax: 617-425-8001
www.analysisgroup.com