State Policies For Energy Efficiency: Status and Observations

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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

- 17.99 in 1970
- 8.75 in 2006

Figure 2. Energy Consumption per Person

- Peak: 360 in 1978 and 1979
- 334 in 2006
- 215 in 1949

EIA, Annual Energy Review, 2006 (June 2007)

- Improved energy intensity of the overall economy
- Flat energy use per person
- Past efficiency gains under pressure from growth and new uses of energy
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.

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**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 impacts of sources and uses of energy; and

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 thereby may encourage utilities to help their customers to improve end-use efficiency;

WHEREAS, Improperly devised ratemaking formulas used by most state commissions cause reductions in utility earnings and may discourage utilities from helping their customers to improve end-use efficiency; and

WHEREAS, Improved 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 increased international competitiveness; and

WHEREAS, Improvements in the energy efficiency of our society would lead to 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 increased international competitiveness; and

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WHEREAS, Improvements in the energy efficiency of our society would lead to 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 increased international competitiveness; and

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 the states doing?

Utility Demand-Side Spending: 1989-2004 ($billion)

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.

Electric Efficiency Studies
Gas Efficiency Studies

Regional Savings

Region

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
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.
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

U.S. Annual Energy Expenditures As Percent of Gross Domestic Product

Continued high energy prices = “new normal”

EIA, Short Term Energy Outlook, March 2008.
What are other motivations for state action?

States’ concerns about climate change

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)

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

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

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

States with Decoupling Policies

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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?

California’s Loading Order priorities: full v. partial success?

New York’s 15 by 15 goal: full v. partial success?

Massachusetts’ Zero Growth (from EE): full v. partial success?

When resources drop below target, including uncommitted resources.

NY 15 by 15 Policy – Implications for NY MWH Sales

Impacts of States’ EE Policy and Progress?

- When will we know how they’re doing?
- How will they affect IRP and amounts of new generation needed?
- How will they affect State procurement “need”?
- How will they affect state siting decisions?

Annual Energy (GWh) NYCA

Trend Line from the Past

Growth Curve Consistent with “15 by 15”

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?