

ALL DEMAND-SIDE RESOURCES ARE NOT  
CREATED EQUAL

THE IMPORTANCE OF PUBLIC POLICIES FOR  
ENERGY EFFICIENCY  
IN REDUCING ENERGY INTENSITY

By

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## TOPICS

- 1) Conclusions
- 2) Background
- 3) Definitions
- 4) The Problem
- 5) Likely Future Developments
- 6) Reasons for Policy Intervention
- 7) Conclusions

## CONCLUSIONS

- All “Demand-Side resources are not equal
- Energy Efficiency (EE) has some important benefits not captured by Load Management/ Demand Response (LM/DR)

(e.g., EE reduces “energy intensity”)

- Within the electric industry, LM/DR is by far the preferred (“default”) demand side action.
- If you want Energy Efficiency programs to occur, it will take special government/ regulatory policies and programs to make it happen.

## BACKGROUND

- 20 years in the industry, including 10 years as the Director of Evaluation at the Michigan Public Service Commission
- The past 3 years as Director of the Utilities Program at ACEEE.
- Recent National Studies Completed:

*Energy Efficiency and Electric System Reliability: A Look at Reliability-Focused Energy Efficiency Programs Used to Help Address the Electricity Crisis of 2001*

*Can We Just Rely on the Market to Provide Energy Efficiency? An Examination of the Role of Private Market Actors in an Era of Electric Utility Restructuring*

*A Review and Early Assessment of Public Benefit Policies Under Electric Utility Restructuring. (2 Volumes)*

*Regulating Electric Distribution Utilities as if Energy Efficiency Mattered*

## DEFINITIONS

### ENERGY EFFICIENCY

Measures which result in producing the same or better levels of amenities (e.g., light, space conditioning, motor drive power, etc.) using less energy. Measures are generally long-lasting and save energy across different time periods.

### LOAD MANAGEMENT

Load management programs seek to lower peak demand during specific, limited time periods, by temporarily curtailing electricity usage or shifting usage to other time periods.

# TECHNOLOGIES/PROGRAMS

## ACEEE Reports

*Using Targeted Energy Efficiency Programs to Reduce Peak Electrical Demand and Address Electric System Reliability Problems*

*Energy Efficiency and Electric System Reliability: A Look at Reliability-Focused Energy Efficiency Programs Used to Help Address the Electricity Crisis of 2001*

## Promising Newer Technologies

- Furnace fans
- Commercial packaged refrigeration
- Commissioning of existing buildings
- Industrial fans and pumps
- Chilled water systems
- Consumer electronics
- Residential A/C and duct sealing

# COMPARISON OF BENEFITS

## ENERGY EFFICIENCY

- can reduce system peak demand
- reduces total energy consumption
  - reduces consumption of natural resources
  - reduces air emissions
  - can reduce energy imports
- effects are long-lasting
- reduces “energy intensity”

## LOAD MANAGEMENT

- reduces system peak demand very well
- little or no effect on total energy use  
(or possibly even increases usage)
- little or no effect (or possibly negative) on:
  - consumption of natural resources
  - air emissions
  - energy imports
- effects are temporary and short duration
- little or no effect (or negative) on energy intensity

## THE PROBLEM

The electric industry prefers load management and is mildly to openly averse to energy efficiency.

### Three examples:

- National energy efficiency spending by utilities plunged with the onset of restructuring. [graph]
- Our 2001 national survey of state PUCs found only 23 states with EE programs in operation, vs. at least 45 with LM/DR (Virtually all of the EE was mandated.)
- In our “private market” study, in 4 restructured states with no EE mandates, only 1 of 13 major utilities offered EE incentives to customers, vs. 12 of the 13 offering LM/DR incentives.



## REASONS FOR THE PROBLEM

There are several.

*(See: Regulating Electric Distribution Utilities  
as if Energy Efficiency Mattered)*

### Primary reason:

Utilities and other electricity suppliers tend to prefer Load Management because it lowers peak demand during the highest cost time periods without really reducing their total sales or throughput of electricity.

Energy Efficiency may reduce peak demand, but it also reduces overall sales (thus adversely affecting short term profits).

# LOAD MANAGEMENT VS. ENERGY EFFICIENCY

[Will draw load shape diagram here]

**KEY POINT:** Utility “system efficiency” is NOT the same as “energy efficiency”.

## NEED FOR GOVT./REGULATORY PROGRAMS AND POLICIES

- 1) Utilities won't provide serious energy efficiency programs on their own.
- 2) Most of the extra "benefits" of energy efficiency outlined earlier are external to the economic interests of utilities & independent generators.  
(i.e., reduced consumption of natural resources, reduced air emissions, reduced energy imports)  
or are long-term in nature (e.g., long-term avoided system costs)

So the short-term economic interests of these entities result in opposition to serious Energy Efficiency.

## NEED FOR GOVT./REGULATORY PROGRAMS AND POLICIES (Continued)

- 3) Other private market entities have not stepped in to displace the need for government/regulatory policies and programs.  
(and in fact are very reliant upon them)

Again, the above extra benefits are also external to their economic interests.

- 4) Virtually all of the states that have significant energy efficiency programs in the electricity sector have them as a result of explicit legislative and/or regulatory mandates.

**BOTTOM LINE:** Most of the special benefits of Energy Efficiency are societal in nature and external to the private economic interests of the market actors involved in the electric industry. Therefore, if you want to optimize energy efficiency you need government/ regulatory policy to help make it happen.

## LIKELY FUTURE INDUSTRY ACTIVITIES ABSENT POLICY INTERVENTIONS

- More pursuit of “real-time” metering.
- More pursuit of other “demand response” mechanisms
- More curtailment/ load-shedding incentive programs.
- Attempts at incorporation of demand response elements into power pools and RTO procedures.

KEY POINT: None of the above activities are likely to produce significant improvements in energy efficiency or energy intensity (and may even adversely affect those objectives).

## CONCLUSIONS, v2

- All “Demand-Side resources are not equal
- Energy Efficiency (EE) has some important benefits not captured by Load Management/ Demand Response (LM/DR)  
(e.g., EE reduces “energy intensity”)
- Within the electric industry, LM/DR is by far the preferred (“default”) demand side action.
- If you want Energy Efficiency programs to occur, it will take special government/ regulatory policies and programs to make it happen.

### SPECIFICALLY FOR DOE:

If you want utility industry efforts and programs to help achieve the objective of reducing energy intensity, you need to promote policies, funding, and regulatory requirements for energy efficiency.

(“Reducing energy intensity” is not a natural objective of any of the key players in the industry.)