

## ATTACHMENT TO TESTIMONY OF DR. MARTIN KUSHLER

*Presentation to Kansas Senate Utilities Committee  
February 6, 2018*

*by*

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### The American Council for an Energy-Efficient Economy (ACEEE)

- Nonprofit 501(c)(3) dedicated to advancing energy efficiency through research, communications, and conferences. Founded in 1980.
- ~40 staff in Washington DC, + field offices in DE, MI, and WI.
- Focus on End-Use Efficiency in Industry, Buildings, Utilities, and Transportation; and State & National Policy
- Funding: Foundations (34%), Federal & State Grants (7%), Contract work (21%) Conferences and Publications (34%), Contributions and Other (4%)

#### Martin Kushler, Ph.D. (Senior Fellow, ACEEE)

- 30 years conducting research in the utility industry, including:
- 10 years as Director of the ACEEE Utilities Program
- 10 years as the Supervisor of the Evaluation section at the Michigan PSC
- Have assisted over a dozen states with utility EE policies



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## TOPICS

- Energy efficiency as a utility system resource
  - ❖ Concepts
  - ❖ Data
- Why public policy is necessary for achieving utility energy efficiency
- Comparison of results from 4 major policy options
- Recommendations
- Q&A and discussion

[See appendix for additional details]

## RATIONALE FOR ENERGY EFFICIENCY AS A UTILITY SYSTEM RESOURCE

### SIMPLY STATED:

- Utility systems need to have adequate supply resources to meet customer demand
- To keep the system in balance, you can add supply resources, reduce customer demand, or a combination of the two
- In virtually all cases today, it is much cheaper to reduce customer demand through energy efficiency programs than to acquire new supply resources

## WHAT IS AN "ENERGY EFFICIENCY PROGRAM" ?

*An organized effort to try to encourage customers (residential and business) to implement energy efficiency improvements to their buildings and equipment*

### Key elements

- Public information, education and persuasion
- Information, training, and incentives to "trade allies" (retailers, contractors, etc.)
- Economic incentives for customers (e.g., rebates)
- Quality control, monitoring, and evaluation

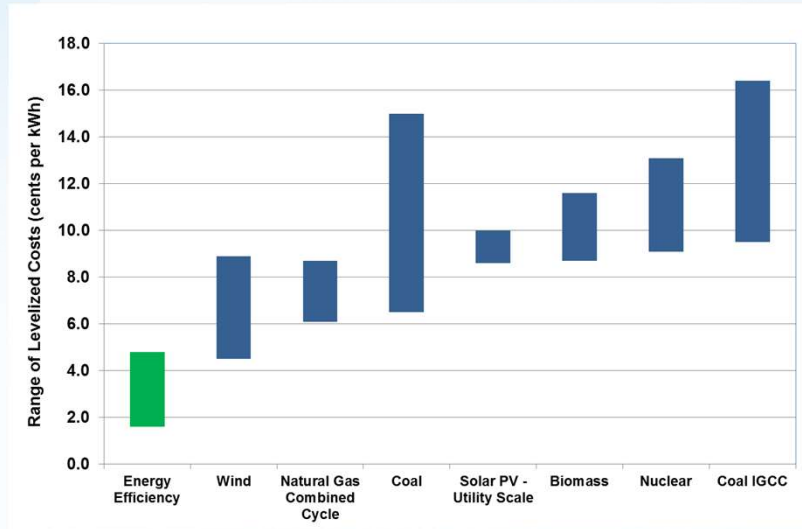
## KEY POINT #1

*It is much cheaper to save energy  
than it is to produce it.*

We can save electricity for about one-third the cost of producing it through a new power plant

## LEVELIZED ELECTRICITY RESOURCE COSTS

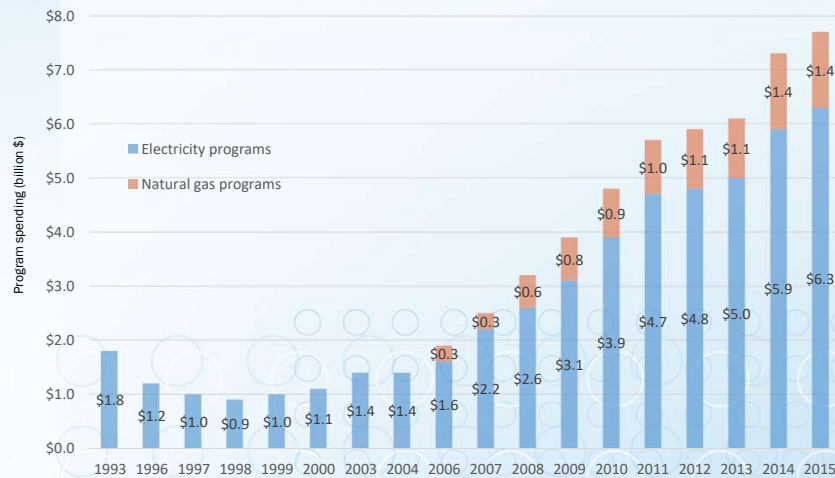
[source: Lazard, Inc.]



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## Utility EE Spending



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**Why are public policies necessary  
for utility energy efficiency?**

**THE CORE CHALLENGE...  
KEY POINT #2:**

***Utilities do not voluntarily engage in (or fund)  
“serious” customer energy efficiency programs***

[“Customer education programs” don’t count  
as “serious” energy efficiency]

***Why not?***

***Economics***

- Higher energy sales means higher profit (and vice-versa)

***Organizational Traditions***

- Institutional focus traditionally on supply side

**Fortunately, strong state policies have been very effective at producing successful utility energy efficiency achievements**

**Assuming that one wanted to achieve strong utility energy efficiency results....**

**What are the best state policies for getting there?**

**4 COMMON STATE POLICIES FOR ACHIEVING UTILITY EE**

	EE Spending (% revenues)	EE Savings (% of sales)
<b>1. Integrated Resource Planning (IRP)</b>		
40 states 'yes'	1.79	0.78
10 states 'no'	1.53	0.50
<b>2. Decoupling/Lost Revenue Recovery</b>		
27 states 'yes'	2.04	0.85
23 states 'no'	1.53	0.59
<b>3. Utility Shareholder Incentives</b>		
25 states 'yes'	1.79	0.90
25 states 'no'	1.66	0.50
<b>4. Energy Efficiency Resource Standard (EERS)</b>		
26 states 'yes'	<b>2.63</b>	<b>1.11</b>
24 states 'no'	<b>0.76</b>	<b>0.30</b>



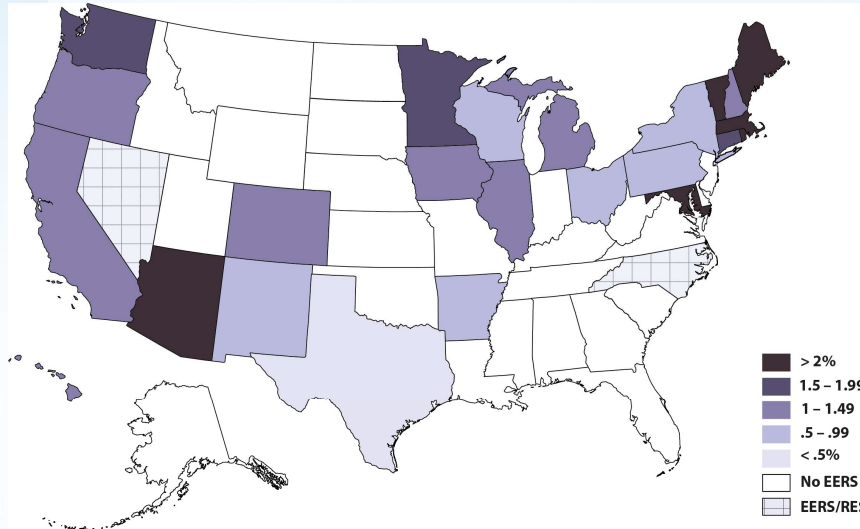
## DEFINITION OF AN 'EERS'

An *Energy Efficiency Resource Standard* (EERS) establishes specific targets for energy savings that utilities must meet through customer energy efficiency programs. An EERS can apply to either electricity or natural gas utilities, or both

**KEY POINT #3:**  
**NATIONAL DATA OVERWHELMINGLY SHOW THAT ENERGY EFFICIENCY RESOURCE STANDARDS (EERS) ARE EXTREMELY EFFECTIVE**  
(e.g., produce nearly 4X the savings.... national data below)

	EE spending as a % of Revenues	EE savings as a % of Sales
States with EERS (n=26)	2.63	1.11
States w/o EERS (n=24)	0.76	0.30
	(p<.001)	(p<.001)

## 26 States with Electric EERS (2017)



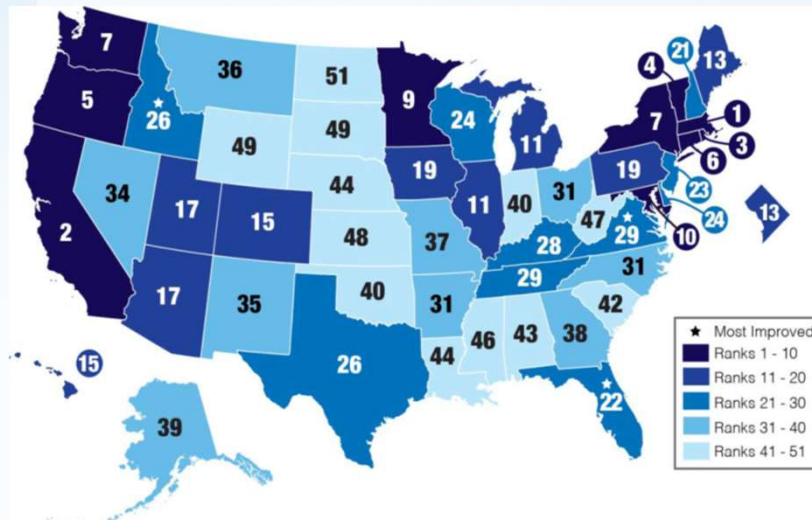
## A COMPREHENSIVE APPROACH (EERS PLUS INCENTIVES AND DECOUPLING) CLEARLY PRODUCES THE STRONGEST RESULTS

Policy	No. of States	Average EE investment as % of revenues	Average EE savings as % of sales
EERS, plus Incentives and Decoupling	8	4.0	1.5
Partial set of policies	42	1.3	0.6



## How is Kansas doing on energy efficiency?

## 2017 ACEEE NATIONAL ENERGY EFFICIENCY SCORECARD RESULTS



## KANSAS UTILITY EE POLICY FRAMEWORK

Cost recovery for EE programs: **Yes**

EERS: **No**

Decoupling: **Not in place**

Utility shareholder incentives: **Limited**

## MICHIGAN AS A COMPARATIVE EXAMPLE

- Prior to 2008, no EE programs for 10 years. MI ranked #34 in ACEEE Scorecard
- PA 295 of 2008 established an EERS
  - Ramping up to 1.0%/yr. (0.75% gas) by 2012 and thereafter
  - Authorized performance incentives, gas decoupling

PA 342 of 2016 made additional improvements

- Extended 1% EERS through 2021
- Established higher incentives for 1.25% and 1.5% savings
- Removed previous 2% of revenues spending cap
- Authorized decoupling for smaller electric utilities

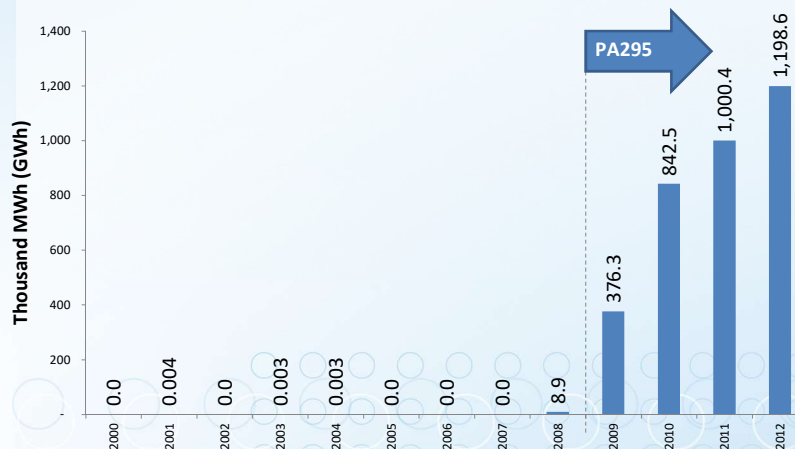
## Data on the Success of Michigan's EERS

- Energy efficiency has been repeatedly found to be very cost-effective (MPSC produces annual reports...see below)
- The utilities have exceeded the EE targets every single year (saving over 1.3% per year electricity, nearly 1% gas)
- **EE programs produced cost savings of \$4.35 for every \$1 spent on the programs, now saving over \$1 billion per year \***
- EE is by far the least-cost utility system resource\*\*
  - **Energy efficiency costs 2 cents/kWh....**
    - vs. 13.3 cents/kWh for a new coal plant
    - vs. 6.4 cents/kWh for a new combined cycle gas plant
    - vs. 6.4 cents/kWh average of all power supply costs

\*2016 Report on Implementation of PA 295 Utility Energy Optimization Programs, Michigan Public Service Commission, November 30, 2016.

\*\* Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards, MPSC, February 15, 2017

## Michigan Electric Savings from EE



### Sources

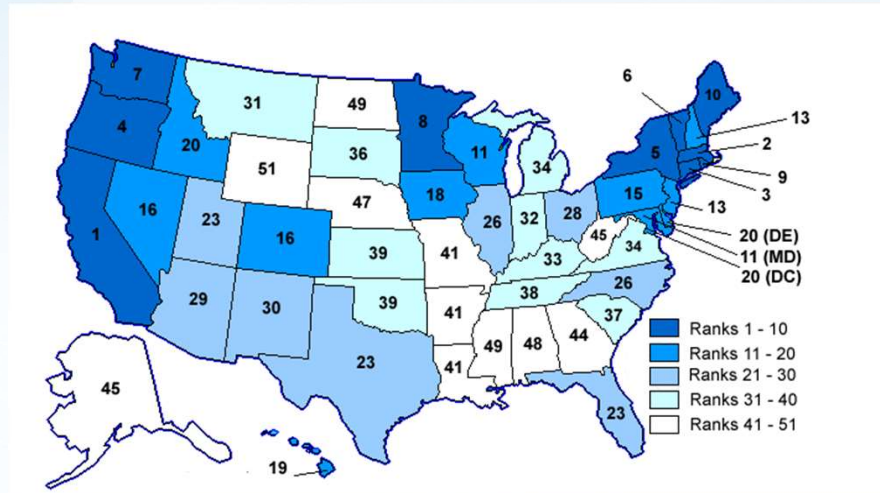
2000-2007: Form EIA-861

2008: ACEEE Scorecard 2010

2009-2012: MPSC PA295 Annual Reports

[Graph by MEEA]

## 2009 State Energy Efficiency Scorecard Rankings



### *What might Kansas do to improve its Energy Efficiency performance?*

*A: The single most effective action would be to establish a strong Energy Efficiency Resource Standard (EERS)*

## CONCLUSION

ACEEE recommends that states establish a comprehensive package of policies for utility energy efficiency, including:

1. A strong Energy Efficiency Resource Standard (EERS)
2. Utility performance incentives for meeting or exceeding the standard, and
3. A symmetrical revenue decoupling mechanism

## APPENDIX A

Additional details on policy approaches  
for utility energy efficiency



## RECOMMENDATIONS FOR AN OPTIMAL STATE POLICY FOR UTILITY ENERGY EFFICIENCY PROGRAMS

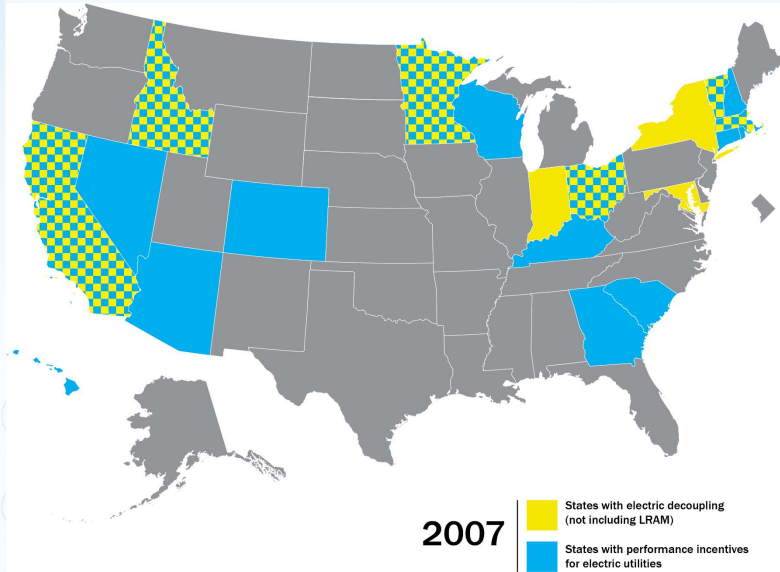
1. Establish an 'Energy Efficiency Resource Standard (EERS) that sets specific energy savings requirements
  - Also provide reasonable and timely cost recovery for program costs
2. Create a utility incentive mechanism to reward utilities for achieving/exceeding the savings goals
  - Cap incentives at a "reasonable" level (to avoid excesses) ("Reasonable" somewhere around "rate of return")
  - Reward savings, not spending (& higher savings = higher reward)
  - "Penalty" usually not needed, but reserve option for gross failure
  - Reward longer-lived measures with true resource value
3. Implement true 'symmetrical' decoupling
  - Not "lost revenue adjustment mechanism" (LRAM)
  - (Contact me for more details)

## RECOMMENDATIONS FOR AN OPTIMAL STATE POLICY FOR UTILITY ENERGY EFFICIENCY PROGRAMS (Cont.)

4. Establish a process for public participation in energy efficiency plan development and review
5. Require independent evaluation, with PSC oversight
6. Don't have an artificial 'cap' on energy efficiency spending, rather, use cost-effectiveness tests to protect ratepayers
  - Use the National Standard Practice Manual
7. Require all customers to pay for the energy efficiency resource, just like they all pay for a new power plant (i.e., no "opt-outs")



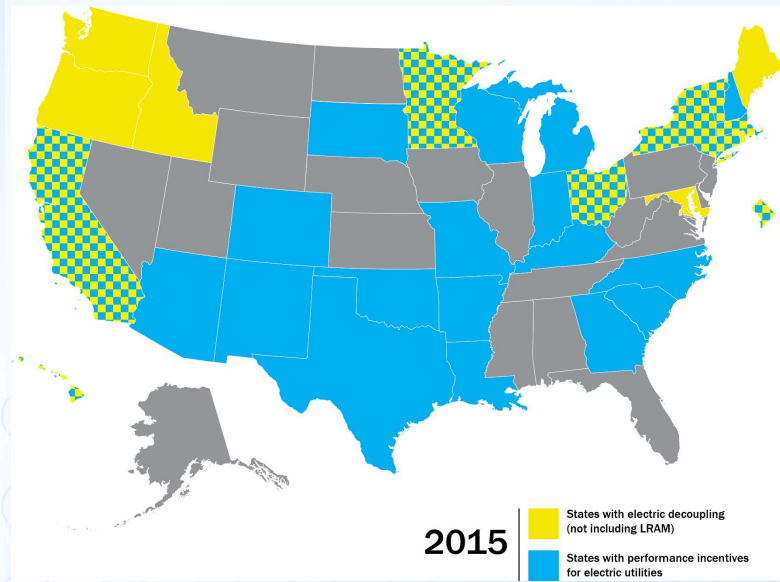
## Business Model for Electric Utilities



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Source: ACEEE 29

## Business Model for Electric Utilities



**ACEEE**  
American Council for an Energy-Efficient Economy

Source: ACEEE 30

## UNDERSTANDING UTILITY ECONOMICS REGARDING CUSTOMER ENERGY EFFICIENCY

### TWO KEY FINANCIAL MOTIVATING FACTORS:

- 1) **Drive to increase sales revenues** - - Under traditional regulation, once rates are set, if utility sales go up the utility's profits generally increase....  
.... and if utility sales go down (e.g., through customer energy efficiency) the utility's profits decline.

Therefore, utilities have strong economic incentives to seek greater energy sales and avoid declines in sales

[This is sometimes referred to as: “**throughput addiction**”. Affects ALL utilities, whether traditional vertically integrated or “restructured”]



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## UTILITY ECONOMICS (CONTINUED)

- 2) **Opportunity for earnings** - - Utilities earn a “rate of return” on their supply side investments (e.g., power plants, wires, meters),  
but not on energy efficiency programs

[Those 2 factors apply to both vertically integrated and “restructured” utilities in “competitive” states]

Not surprisingly....

**the combination of those two factors results in what you typically see from utilities: proposals to build more power plants and sell more energy....(& passive or active opposition to strong energy efficiency requirements)**



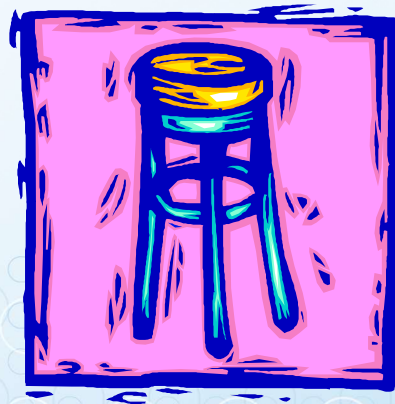
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## UTILITIES HAVE 3 SPECIFIC REGULATORY CONCERNS REGARDING THE FINANCIAL EFFECTS OF EE PROGRAMS

- **Cost recovery** for the direct costs of a program
- **Addressing the disincentives** of “lost revenues” resulting from energy efficiency improvements that reduce customer energy use
- **Providing an opportunity for earnings** from energy efficiency program activity (to reflect the fact that they can generate earnings from supply-side investment)

## 3 Legs of the financial stool for utility energy efficiency programs

1. Cost recovery (of expenditures on programs, incl. customer incentives and program costs)
2. Addressing “Through-put incentive” (more sales = more revenue).
3. Opportunity to earn on investments (comparable to supply-side)



## ACEEE NATIONAL STUDIES ON EE COST-EFFECTIVENESS

In a 2009 ACEEE analysis\*, we reviewed the reported results from 14 states with large-scale utility funded energy efficiency programs:

- **The average cost per kWh saved was 2.5 cents**

In a new 2014 ACEEE analysis\*\*, we reviewed the reported results from 20 states:

- **The average cost per kWh saved was 2.8 cents**

\* *Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved through Utility-Sector Energy Efficiency Programs*, ACEEE, Sept. 2009 <http://www.aceee.org/research-report/u092>

\*\* *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*, ACEEE, March 2014 <http://www.aceee.org/research-report/u1402>

## SOME KEY REFERENCES FOR EE POLICY

- ***Policies Matter: Creating a Foundation for an Energy-Efficient Utility of the Future*** ACEEE White Paper 2015  
<http://aceee.org/white-paper/policies-matter>
- ***Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency***  
ACEEE Research Report U1504 JUNE 9, 2015  
<http://aceee.org/beyond-carrots-utilities-national-review>
- ***Making the Business Case for Energy Efficiency: Case Studies of Supportive Utility Regulation***, ACEEE Research Report U133, December 2013  
<http://www.aceee.org/research-report/u133>
- ***Energy Efficiency Resource Standards: A New Progress Report on State Experience*** ACEEE Research Report U1403, April 2014  
<http://www.aceee.org/research-report/u1403>