



**ENERGY OPTIMIZATION IS MICHIGAN'S
LEAST-COST UTILITY RESOURCE:**

**ELIMINATING ENERGY OPTIMIZATION WOULD RESULT IN
HIGHER UTILITY BILLS FOR MICHIGAN HOMES AND BUSINESSES**

*Testimony before the Energy Policy Committee,
Michigan House of Representatives*

by

Martin Kushler, Ph.D.

Senior Fellow

American Council for an Energy-Efficient Economy

mgkushler@aceee.org (517) 655-7037

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

- Nonprofit 501(c)(3) dedicated to advancing cost-effective 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



TOPICS

1. Energy efficiency as a utility system “resource”
2. Michigan’s current energy efficiency policy framework
3. Data on success of that framework
4. Why policy requirements are appropriate, and necessary
5. Conclusions

FIVE FUNDAMENTAL POINTS TO EMPHASIZE

1. It is well documented, in Michigan and nationally, that ***utility energy efficiency programs are by far the cheapest source of energy supply*** (< 1/3 the cost of new generation)
2. Under traditional regulation, ***utilities don’t want to provide energy efficiency programs***, because it reduces their profits
3. Consequently, 26 states (incl. Michigan) have established “Energy Efficiency Resource Standards” ***requiring*** particular energy savings achievements. ***States with EERS save nearly four times as much as states with no standards.***
4. Conventional wisdom is that ***Michigan is facing a large shortage of electric generation*** over the next decade. (A 3GW shortage would be ~ 10 major power plants)
5. With Energy Optimization, fewer new power plants will be needed. ***Eliminating EO would raise customer utility costs over the next decade by billions of dollars.***

1. ENERGY EFFICIENCY AS A UTILITY SYSTEM RESOURCE

RATIONALE FOR ENERGY EFFICIENCY AS A UTILITY 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 than to acquire new supply resources
[We can save electricity for about one-third the cost of producing it through a new power plant]

ENERGY EFFICIENCY IS A REAL, AND RELIABLE, UTILITY SYSTEM RESOURCE

- Over a dozen states (including Michigan) are saving enough energy with their utility programs to displace power plants
- Xcel Energy in Minnesota has avoided the building of 9 additional power plants with energy efficiency programs over the past two decades
- Major regional electricity Independent System Operators such as ISO New England and PJM - - the agencies literally responsible for “keeping the lights on” in 19 states - - regularly include energy efficiency programs in their regional electric capacity mix.
Energy efficiency is a verifiable supply resource

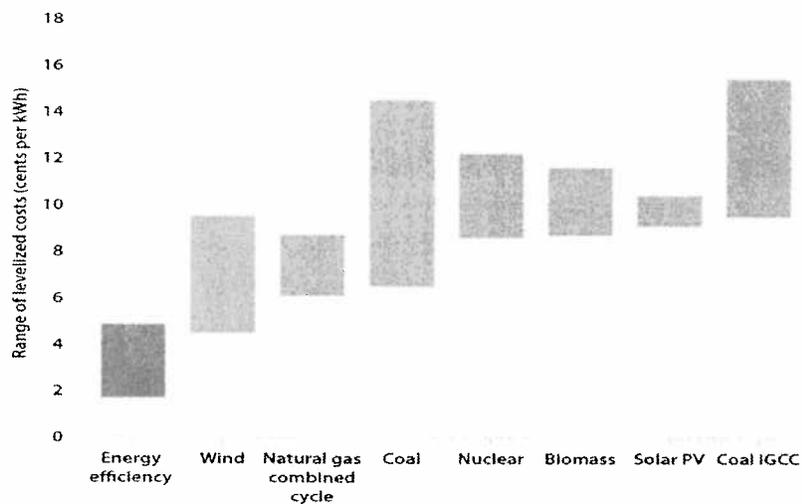
KEY POINT #1

*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

[Bonus: with no carbon (CO₂) emissions]

Levelized electricity resource costs



Source: Lazard 2013.

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**

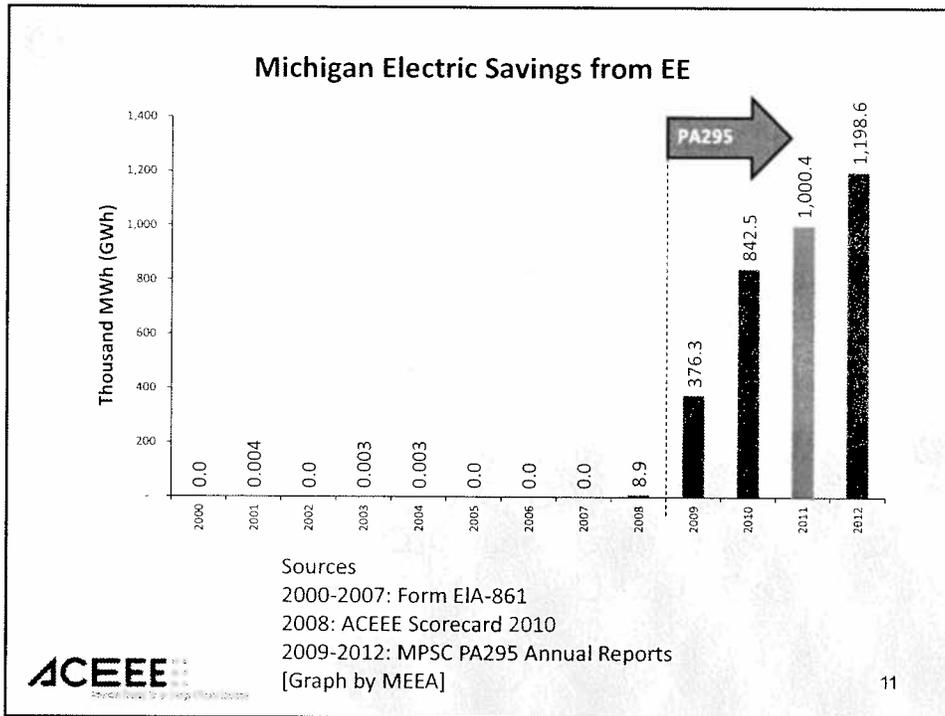
* *Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved through Utility-Sector Energy Efficiency Programs*, ACEEE, Sept. 2009 <http://www.aceee.org/research-report/u092>

** *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>

2. Michigan's "Energy Optimization" Policy Framework

KEY POINT #2:

The reason we have utility energy efficiency programs for customers in Michigan is the "Energy Optimization" requirement and policy framework created in PA 295 of 2008



- ### THE FOUR CORE HISTORIC PROVISIONS OF PA 295 "ENERGY OPTIMIZATION"
1. **Requires that Utilities Provide Energy Efficiency Programs for their Customers**
Establishes for the first time in Michigan a state policy requirement that utilities, both electric and natural gas, must provide for energy efficiency programs for their customers
 2. **Establishes Energy Efficiency as a Utility System Resource**
Clearly states that the objective of these programs is to "reduce the future costs" of utility service to customers, and "in particular", to delay the need for construction of new electric generating facilities and thereby protect consumers from incurring those costs.
 [and includes a requirement that the energy efficiency programs **must be cost-effective**: "...the total avoided supply-side costs to the provider...are greater than the total costs to the provider of administering and delivering the energy optimization program"]
- ACEEE**
 American Council on Energy Efficiency
- 12

PROVISIONS OF PA 295 ENERGY OPTIMIZATION (cont.)

- 3. Sets Energy Efficiency Performance Standards** A key component of the legislation [Section 77] **requires electric and natural gas utilities to achieve specific minimum annual energy savings amounts**

For electric utilities

2008/09: 0.3% of 2007 sales

2010: 0.5% of 2009 sales

2011: 0.75% of 2010 sales

2012 and each year thereafter: 1.0% of the prior year's sales

- 4. Provides for Rate Recovery of Program Costs**

Provides for appropriate rate recovery for approved *cost-effective* energy efficiency program costs (incl. reasonable utility incentive)

[Program spending currently capped at 2.0% of total revenues]



13

3. Data on the Success of Energy Optimization

[KEY POINT #3: MICHIGAN'S "EO" POLICY (PA 295)
HAS BEEN SPECTACULARLY SUCCESSFUL]

- The utilities have exceeded the EO targets every single year
- The **EO programs have produced cost savings of \$3.75 for every dollar spent on the programs***
- EO 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

* 2014 Report on the Implementation of P.A. 295 Utility Energy Optimization Programs, Michigan Public Service Commission, November 26, 2014.

**Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards, MPSC, February 13, 2015.



14

4. Why strong public policy is needed for energy efficiency

KEY POINT #4:

***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)
- They make money putting capital expenditures into ratebase (e.g., building power plants)

Organizational Traditions

- Institutional focus traditionally on supply side

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 affects ALL utilities, whether traditional vertically integrated or "restructured"]

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

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)**

THE "ANTI-MANDATE" ARGUMENT IS MISGUIDED

1. Utilities are not "free-market" entities....they are government-granted monopolies...regulated in the public interest
2. Utilities routinely operate under many "mandates"
 - ✓ System reliability requirements
 - ✓ Pollution standards
 - ✓ Equipment safety standards
 - ✓ Various billing and customer service requirements, etc
3. If the state decides that energy efficiency programs are in the best interests of ratepayers and the state as a whole, it has every right to require that utilities provide them. (over half of all states have such requirements)
4. Energy Efficiency Standards work (see next slide)

**KEY POINT #5:
NATIONAL DATA OVERWHELMINGLY SHOW THAT
ENERGY EFFICIENCY RESOURCE STANDARDS (EERS)
-- LIKE MICHIGAN'S EO --
ARE EXTREMELY EFFECTIVE**
(e.g., produce nearly 4X the savings.... 2013 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)

**"INTEGRATED RESOURCE PLANNING" (IRP)
IS NOT A SUITABLE *REPLACEMENT* FOR AN
ENERGY EFFICIENCY STANDARD***

	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)
States with IRP but no EERS (n=18)	0.76	0.34

...save less than a third of states with an EERS

*[Note: **combining** an IRP with an EERS can be effective]

BOTTOM LINE FOR MICHIGAN:

**A VOTE TO ELIMINATE ENERGY OPTIMIZATION...
IS A VOTE FOR HIGHER CUSTOMER UTILITY BILLS**

- We are hearing widespread claims that Michigan faces a looming electricity shortage (3 GW = ~ 10 new power plants!)
- Utilities want to build new power plants
- New power plants are expensive (e.g., A single new natural gas plant would raise rates by > 5%)
- Energy optimization programs save electricity at less than a third of the cost of electricity from a new power plant (& current EO programs save ~ a "power plant" every 2 years! > 300 MW)
- **If you eliminate the EO programs, more power plants than necessary will be built, raising utility bills for all customers**
- Available data suggests that **each year that EO programs are eliminated will cost customers an additional \$700 million!**

MICHIGAN VOTERS ARE EXTREMELY SUPPORTIVE OF THE ENERGY OPTIMIZATION POLICY AND PROGRAMS*

77% support the current EO programs, including the fees they pay to support them

90% support an **expansion** of the EO programs (including 85% of Republicans)

73% believe that EO programs will help reduce long-term energy costs for everyone

When asked to choose between a strict standard versus allowing utilities flexibility to meet clean energy goals:

62% say hold utilities accountable for meeting a standard, vs. 33% who say allow utilities to decide how and when to meet a clean energy goal

* Poll for the Christian Coalition of Michigan by Public Opinion Strategies, March 2015



23

CONCLUSIONS

- The data are clear...Energy Optimization programs work well, and are saving ratepayers hundreds of millions of \$
 - Public opinion strongly supports the Energy Optimization programs
 - Historical experience in Michigan, and nationally, shows that utilities do not “voluntarily” implement energy efficiency as a resource. Strong “Energy Efficiency Standards” are necessary.
- *If the legislature votes to eliminate the Energy Optimization programs... it will be contrary to public opinion, and **it will increase utility bill costs for all customers***



24