US REGULATORY UPDATE: A TWENTY-STATE REVIEW OF REGULATORY REGIMES AND EFFECTIVE ENERGY EFFICIENCY PROGRAMS

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INTRODUCTION

NAVIGANT + ECOFYS

WE'VE JOINED FORCES

Across geographies, Navigant and Ecofys are enabling the energy transition. In a world of rapidly changing energy demand and supply, Navigant and Ecofys provide the deep expertise in strategy and implementation our clients need to adapt to ongoing energy and climate changes.

KEY RESEARCH QUESTIONS

- How has US state-level legislative & regulatory conditions influenced energy efficiency program development?
- What can be learned by comparing the success of energy efficiency programs across states?
- Have there been unintended consequences?
- How can we best encourage energy efficiency in light of these learnings?

ACKNOWLEDGEMENT

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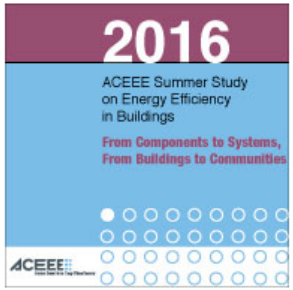
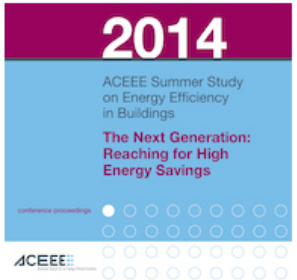
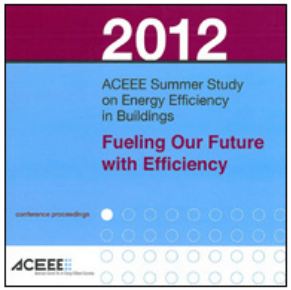
Continuous Research

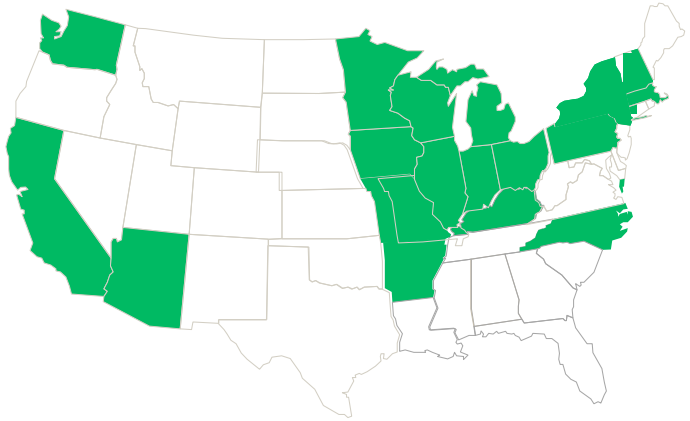






20 US STATES

AR	Arkansas	AZ	Arizona
CA	California	IA	Iowa
IL	Illinois	IN	Indiana
KS	Kansas	MA	Massachusetts
MD	Maryland	MI	Michigan
MN	Minnesota	MO	Missouri
NC	North Carolina	NH	New Hampshire
NY	New York	OH	Ohio
PA	Pennsylvania	VT	Vermont
WA	Washington	WI	Wisconsin



REGULATORY STRUCTURES FOR ENERGY EFFICIENCY

Program Cost Recovery

Because program costs reduce utility revenues on a dollar-for-dollar basis, reasonable & timely recovery of energy efficiency program costs is a minimum requirement in most states

Costs include energy efficiency program administration, implementation & evaluation

Lost Margin Recovery

Energy efficiency programs are designed to reduce the amount of electricity that customers use, but this reduction in sales impacts utilities' marginal revenue

Lost margin recovery mechanisms attempt to mitigate this impact (e.g., decoupling)

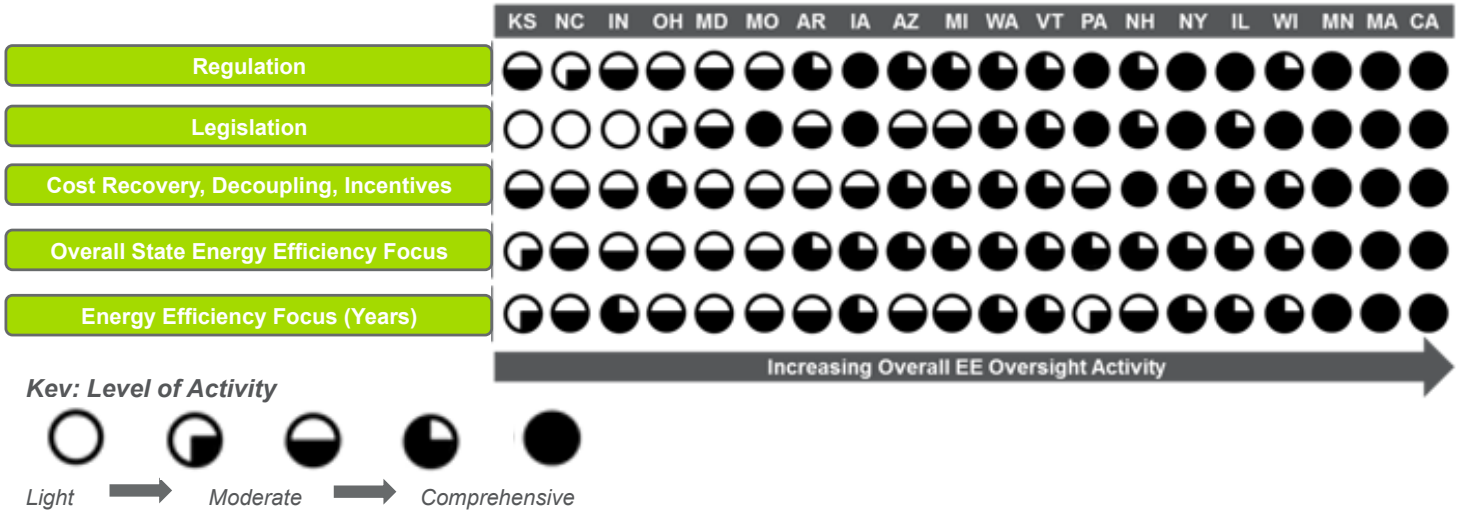
Performance Incentives

Financial incentives to encourage investment in energy efficiency over other supply side investments

Often allowed in addition to cost-recovery if utilities meet energy efficiency goals

Source: ACEEE Glossary

ENERGY EFFICIENCY PROVISIONS ‘INTENSITY SCORE’



All States	Least Oversight	Most Oversight
Some level of legislative or regulatory activity	KS: No legislation, utility programs with cost recovery rider	CA & MA: Legislated energy efficiency goals, implemented by State Commission
Varying levels of initiatives underway	IN: Has legislation, but minimal structure / oversight	MI: cost recovery & performance incentives, decoupling pending

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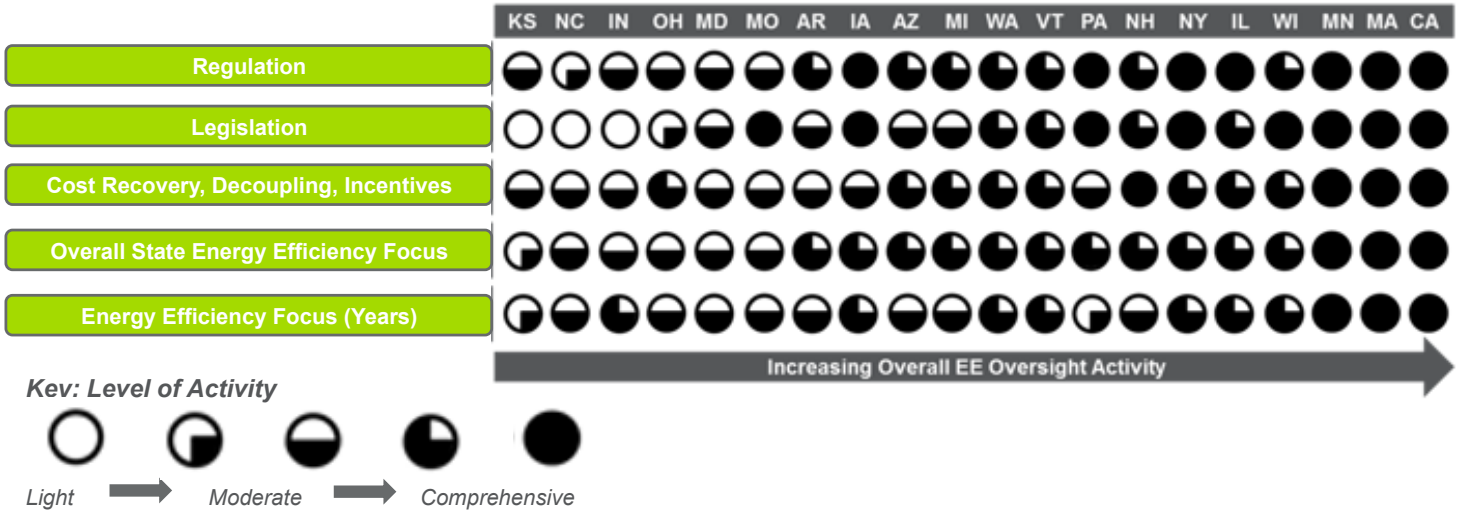
ENERGY EFFICIENCY PROVISIONS 'INTENSITY SCORE'



Strong Performers	On the Rise	To Be Determined
Enabling legislation & regulation	Enabling commission action	Legislative 'freeze'
Policy goals	Stakeholder engagement	Continued utility programs with commission oversight
Clear implementation pathway for utilities	State goals not established	IN, OH
AZ, MH, NH, NY, PA, VT, WA, WI	IL, AR, MO	

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DATA ANALYSIS - OVERVIEW

Benchmarking	Mapping	Standardization
kWh savings as percent of state sales	Energy efficiency policy & legislative provisions	Program maturity
US$ / kWh saved		Gross v. net
		Generator v. meter

Data Sources
Energy utility reports submitted to state commissions
Energy utility data from interviews, annual reports
US Energy Information Agency data on sales, revenues, peak demand

Data Normalization
Verified gross energy savings at meter as percent of annual sales
Verified program costs (per first year annual kWh)

DATA ANALYSIS: BENCHMARKING TARGET VALUES

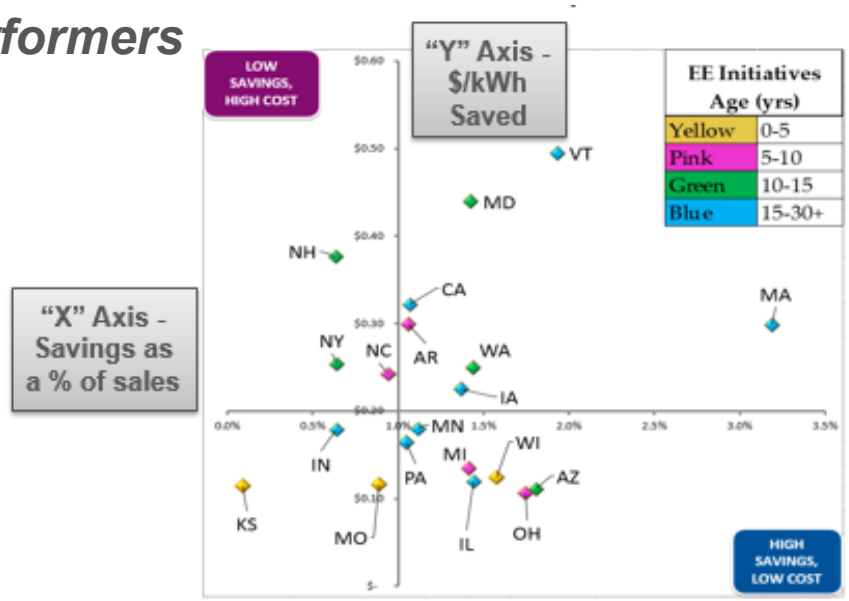
State	Benchmarking Data Source	Total GWh Savings	Total GWh Sales	Total GWh Savings / Sales	Utility % of State Sales in EIA 861
AR	Annual Report 2014	265	25,068	1.06%	**53%**
AZ	Annual Report 2014	664	36,750	1.81%	**48%**
CA	Annual Report 2014	2,015	194,405	1.04%	**67%**
IA	Annual Report 2014	482	35,204	1.37%	**75%**
IL	Annual Report 2014	1,807	125,478	1.44%	**52%**
IN	Annual Report 2013	481	75,245	0.64%	**70%**
KS	EIA 861	1	21,962	0.00%	**54%**
MA	NEEP-REED Database 2014	1,473	46,207	3.19%	**58%**
MD	Annual Report 2014	852	59,912	1.42%	**64%**
MI	Annual Report 2014	1,187	84,190	1.41%	**73%**
MN	Annual Report 2014	448	40,144	1.12%	**58%**
MO	EIA 861	403	45,577	0.89%	**54%**
NC	Annual Report 2014	886	94,257	0.94%	**71%**
NH	NEEP-REED Database 2014	63	10,022	0.63%	**63%**
NY	NEEP-REED Database 2014	906	141,757	0.64%	**63%**
OH	Annual Report 2014, EIA 861	2,306	132,107	1.75%	**53%**
PA	Annual Report 2014	1,112	123,719	0.90%	**43%**
VT	Annual Report 2014	91	4,729	1.93%	**85%**
WA	Annual Report 2014, EIA 861	762	53,033	1.44%	**56%**
WI	Annual Report 2014	757	48,096	1.57%	**69%**

Savings: 1% of total savings as percent of total sales

Costs: $0.20/kWh (median cost level)

BENCHMARKING RESULTS: SAVINGS AS PERCENT OF SALES

'Inefficient' Performers



A few 'very mature' states (15+ years of activity) have moved to the upper right quadrant (higher savings, higher costs)

'Efficient' Performers

Consistent with legislative & regulatory analysis:
States with stronger oversight have *greater savings* and *managed costs*
States with less oversight achieve *less savings* at often *higher costs*

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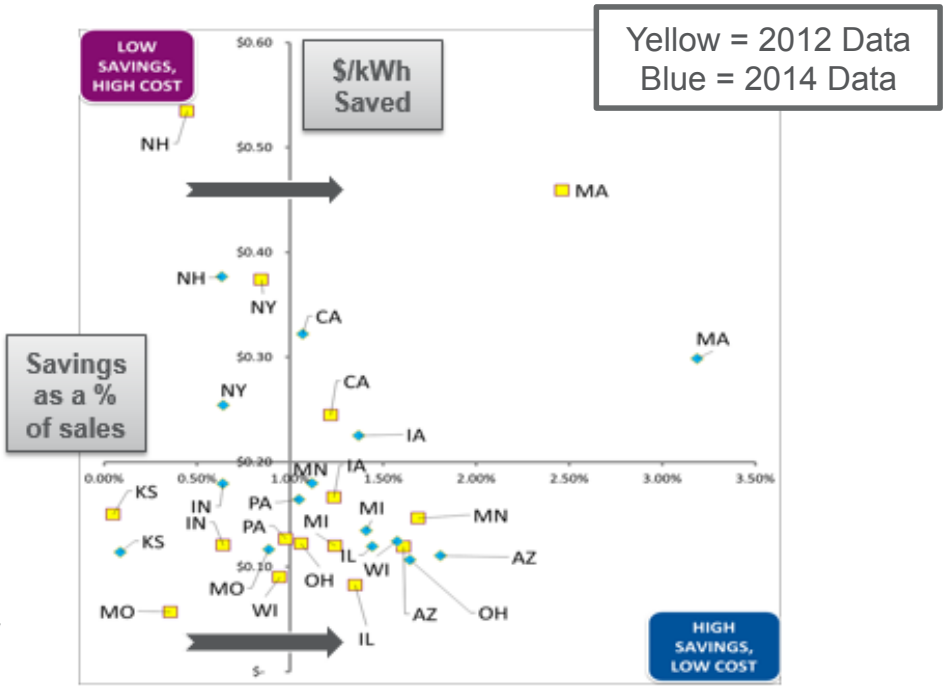
BENCHMARKING RESULTS: CHANGES OVER TIME

State standing relative to peers has remained relatively constant, however, most states have shifted to the right – towards higher savings as a percent of state sales since 2012

Most states have reduced costs (e.g., NH, MA)

Most states achieved performance improvement overall



State focus on legislation and regulatory oversight has led to steady increases in savings while mostly containing or decreasing costs

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CONCLUSIONS

- States with energy efficiency targets set by legislation and enabled by commissions have made more progress than states without such detailed structures
  - States that achieve relatively high levels of energy savings appear to share a number of similar energy efficiency regulations, policies and practices that have been in place for several years
  - States with greater energy savings tend to:
    - Specify energy efficiency goals that utilities or agencies must meet - this is true even with varying approaches to policy
    - Most of these states also specify penalties for not meeting the energy savings goals
      - While penalties are in place, few have been assessed since states are mostly meeting goals
    - States with more recent legislation and regulatory activity appear able to catch-up relatively quickly
- Results from policy analysis mirror results from state-by-state analysis of energy efficiency program performance
  - Energy savings and cost data show that both scale and overall cost-effectiveness continue to improve over time
  - Valid across a range of states, across different program and portfolio structures

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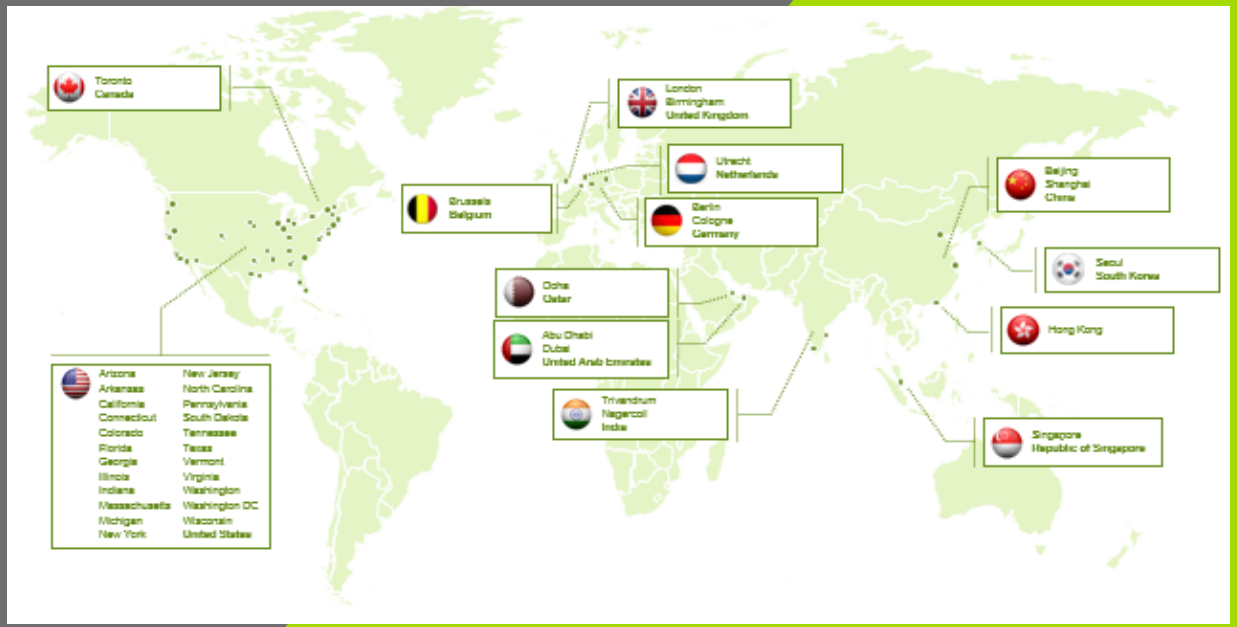

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