

What Explains the Success of Top Performing States in Energy Efficiency?

TOP STATES' SECRET SAUCE

PRESENTED BY

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THE **Brattle** GROUP



Energy efficiency is the centerpiece of decarbonization efforts

Nation's third-largest electricity resource, employing 2.3 million Americans and typically providing the lowest-cost way to meet customers' energy needs ⁽¹⁾

Vital component of the formula for success as more cities, states, regions, and utilities set ambitious clean energy goals and carbon reduction targets

Deeper savings and broader participation for all customers require a **more holistic approach to EE:**

- Fresh look at the **EE program administration and delivery steps**
- **Innovative models and incentives** for entities undertaking these steps
- **Coordinated approach** for planning and integrating distributed energy resources across the energy “ecosystem”.

(1) National Association of State Energy Officials and Energy Futures Initiative, *The 2019 U.S. Energy and Employment Report*, 2019.

Brattle report identified elements of an holistic approach that leads to successful EE program performance

Uplight commissioned Brattle to undertake an assessment of energy efficiency administrator models to inform discussions in New Jersey and elsewhere:

- Reviewed **four types of EE administrator models**: i) utility administrator model; ii) state/government administrator model; iii) third party administrator model; and iv) hybrid model
- Discussed each model's **structural advantages and limitations**, drawing upon experiences in various U.S. jurisdictions
- First of its kind quantitative regression analysis to gauge the **effectiveness of alternative EE administrator models** in delivering successful EE outcomes
 - A key aspect of the methodology is to incorporate the effect of various **regulatory incentive mechanisms** to address program cost recovery, lost fixed cost recovery, and performance incentives
- Peer reviewed by various EE industry veterans

https://brattlefiles.blob.core.windows.net/files/17632_2019_11_18_brattle-uplight_energy-efficiency-administrator-models.pdf

OBSERVATION 1

No single administrator model is superior to the others across all dimensions

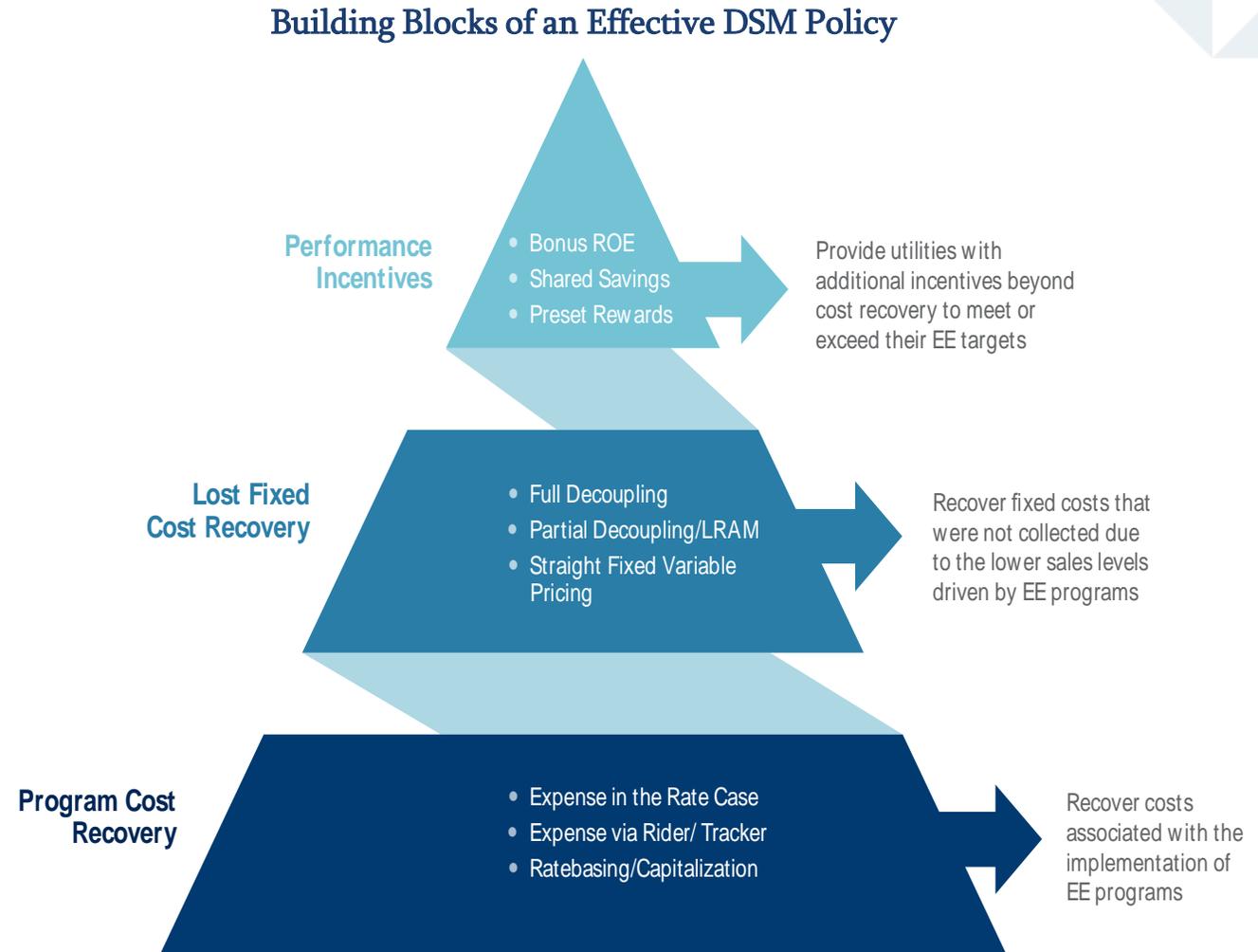
- Each jurisdiction should weigh these strengths and weaknesses and decide which model is likely to yield the most cost-effective and sustainable delivery of EE savings
- EE sector is a large ecosystem of a multitude of players and one of the most important roles of an administrator is to leverage comparative advantages of all involved entities and to integrate them seamlessly

Relative Strengths	Program Administrator		
	Utility	State	Third Party
Focus singularly on EE			+
Align EE program with state policy goals		+	+
Integrate EE program with broader DER deployment	+		
Acquire new customers at low cost	+		+
Design EE program to meet specific system needs and incorporate EE in resource planning	+		
Access to customer data and analytics	+		
Consolidate administrative functions across jurisdiction		+	+
Respond quickly to evolving industry/customer needs			+
Direct accountability/transparency	+		+
Ability to deliver comparable programs statewide		+	+
Relative Weaknesses	Utility	State	Third Party
Lack of access to key customer and system data without data sharing agreements		-	-
Potentially misaligned incentives	-		
Limited ability to provide robust EE program infrastructure and retain staff		-	
Subject to political pressures and budget expropriation		-	
Higher transaction costs		-	-

OBSERVATION 2

Aligning utility incentives with EE program goals is key for success

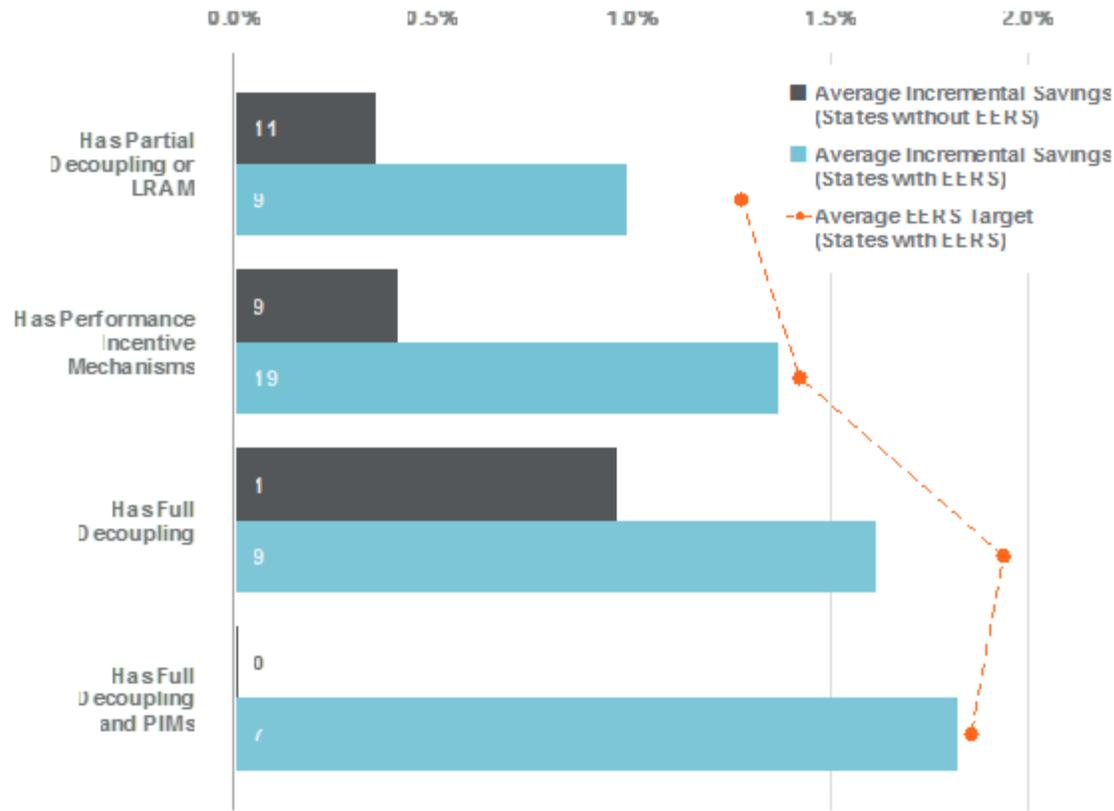
- Utilities' full support play a key role in the success of these programs (even when the utility is not itself the EE program administrator)
- Utility incentives should be aligned with the goals of the EE programs by:
 - providing them with **certain and timely program cost recovery**
 - **eliminating risk of lost revenue** (decoupling),
 - providing **opportunities to improve their earnings** based on how well they meet certain targets



OBSERVATION 3

Having a clear long-term commitment to EE is one of the most important determinants of EE success

2017 Average Incremental Savings by Incentive



Source: The Brattle Group. Analysis of the ACEEE State Energy Efficiency Scorecard (2016–2017) and SNL RRA Regulatory Focus (2016–2017).

Note: Out of the 26 states with EERS targets, seven states (CA, CT, ME, MA, RI, VT, and WA) have the requirement that the EE administrators achieve all cost effective energy efficiency.¹⁰

- An energy efficiency resource standard (EERS) establishes **specific, long-term targets** for EE savings targets
 - As of 2017, there were 26 states that set EERS targets, with seven of them requiring the states to achieve all cost effective energy efficiency
- Establishing these goals in the statute or regulatory rule making is a **clear signal** to the market participants that the state's interest in EE is sustained, encouraging large-scale projects that enable deep-saving opportunities

What matters for the success of EE programs?

While several other studies made similar observations qualitatively, there was a **gap in the literature** that quantitatively explored and explained the effectiveness of different models in delivering robust EE savings

We performed a **regression analysis** by using a comprehensive dataset over the 2012–2017 time frame for 50 states and DC to answer the question:

Is any of the EE administrator models associated with better EE performance, after accounting for various incentive mechanisms and other confounding factors?

FINDINGS

Results from the quantitative assessment

We found that:

- None of the administrator model variables are statistically significant, meaning that none of them are associated with higher EE savings compared to the others
- Full decoupling and PIM variables are positive and statistically significant, meaning that states with full decoupling or PIMs are associated with higher EE savings, compared to those without these mechanisms
- EERS target, electricity price, and EE spending variables are all positive and statically significant at the 1% level, consistent with our expectations

Variable	MODEL 1		MODEL 2		MODEL 3	
	Estimate	Pr(> t)	Estimate	Pr(> t)	Estimate	Pr(> t)
Intercept	0.348	0.138	-0.555	0.035 *	-0.388	0.104
EERS Goal (% of sales)	-	-	0.200	0.003 **	0.181	0.007 **
Full Decoupling (binary)	-	-	-	-	0.132	0.038 *
LRAM (binary)	-	-	-	-	-0.035	0.451
PIM (binary)	-	-	-	-	0.111	0.016 *
Restructured State (binary)	-	-	0.066	0.458	0.043	0.596
Electricity Price (¢/kWh)	-	-	0.039	0.002 **	0.033	0.003 **
Utility Administrator (binary)	0.216	0.398	0.275	0.101	0.196	0.204
Third Party Administrator (binary)	0.961	0.009 **	0.324	0.060	0.186	0.197
Hybrid Administrator (binary)	0.336	0.242	0.231	0.180	0.138	0.370
EE Spending (% of revenue)	-	-	0.195	0.000 ***	0.186	0.000 ***
Year Trend (yr since 2011)	0.030	0.004 **	0.018	0.039 *	0.021	0.032 *
State GDP per Capita	-	-	1.386	0.377	-0.144	0.917
R ²	0.119		0.844		0.855	

Where do these results leave us?

- No single administrator model is associated with better EE performance, as measured by annual EE savings
- What seem to matter most are having:
 - a state level energy efficiency goal
 - dedicated EE funding
 - availability of full decoupling
 - performance incentive mechanisms

These four drivers collectively highlight the importance of a state's commitment to a long-term energy efficiency agenda and enabling utilities with the right incentives to help and be partners in achieving that agenda

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Dr. Sanem Sergici is a Principal in The Brattle Group's Boston, MA office specializing in program design, evaluation, and big data analytics in the areas of energy efficiency, demand response, smart grid and innovative pricing.

She regularly supports electric utilities, regulators, law firms, and technology firms in their strategic and regulatory questions related to retail rate design and grid modernization investments. Dr. Sergici has been at the forefront of the design and impact analysis of innovative retail pricing, enabling technology, and behavior-based energy efficiency pilots and programs in many states and regions including District of Columbia, Connecticut, Florida, Illinois, Maryland, Michigan, Ontario, CA and New Zealand. She has led numerous studies in these

areas that were instrumental in regulatory approvals of Advanced Metering Infrastructure (AMI) investments and smart rate offerings for electricity customers. She has significant expertise in resource planning; economic analysis of distributed energy resources (DERs); their impact on the distribution system operations and assessment of emerging utility business models and regulatory frameworks.

Dr. Sergici is a frequent presenter on these matters and regularly publishes in academic and industry journals. She was recently featured in Public Utility Fortnightly Magazine's "[Fortnightly Under 40 2019](#)" list. She received her Ph.D. in Applied Economics from Northeastern University in the fields of applied econometrics and industrial organization. She received her M.A. in Economics from Northeastern University, and B.S. in Economics from Middle East Technical University (METU), Ankara, Turkey.

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