

## View from The Northeast: Benchmarking the Costs and Savings from the Most Aggressive Energy Efficiency Programs

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## Benchmarking Seeks to Answer the Following Questions

- » What is the overall performance of Utility X compared to others ?
- » How does a utility efficiency results compare in terms of:
  - DSM energy and demand savings as a percent of electric sales
  - DSM spending as a percent of electric revenue
- » Are the performances of Utility X noticeably above, below, or average with respect to performance and cost?
- » How does Utility X compare in terms of levelized costs of energy savings, \$/kWh

This presentation is adapted from a study conducted for the Vermont Public Service Department- with a key focus on Efficiency Vermont and Burlington Electric Department.

# Benchmarking Provides a Look Into What Was Actually Achieved and Provides a Normalized Look into Cross-Utility Performance

## Three Key Metrics:

- » Energy savings as a percent of electric sales
- » Demand savings as percent of peak demand
- » DSM spending as a percent of utility revenue

## Navigant's benchmarking data collection process for this study

- » 2012 utility reported results.
- » Electric baseline sales and revenue for utilities were collected from FERC Form 861 from [www.eia.doe.gov](http://www.eia.doe.gov).
  - Northeastern utilities' data were collected from NEEP's REED <http://www.neep-reed.org/>
  - Emails were sent to utilities to fill identified gaps.
- » Portfolio savings and spending were normalized as a percentage to enable comparisons.
- » Navigant collected savings that were at the generator and gross.
- » Demand response programs excluded from the study



REGIONAL ENERGY EFFICIENCY DATABASE

## **Benchmarking, while helpful, is not perfect.**

- » Variations in deemed savings values and reporting practices
- » Utilities aggregate and allocate costs differently
- » For example: Revenue and sales volume data for Efficiency Vermont (EVT) and XE (MN) exclude revenue and sales from C&I Opt-out customers. We are uncertain of opt-out revenue and sales for other utilities.
- » Better than nothing!

**Navigant benchmarked the 2012 results for 21 investor-owned utilities, and 6 municipal/cooperative utilities**

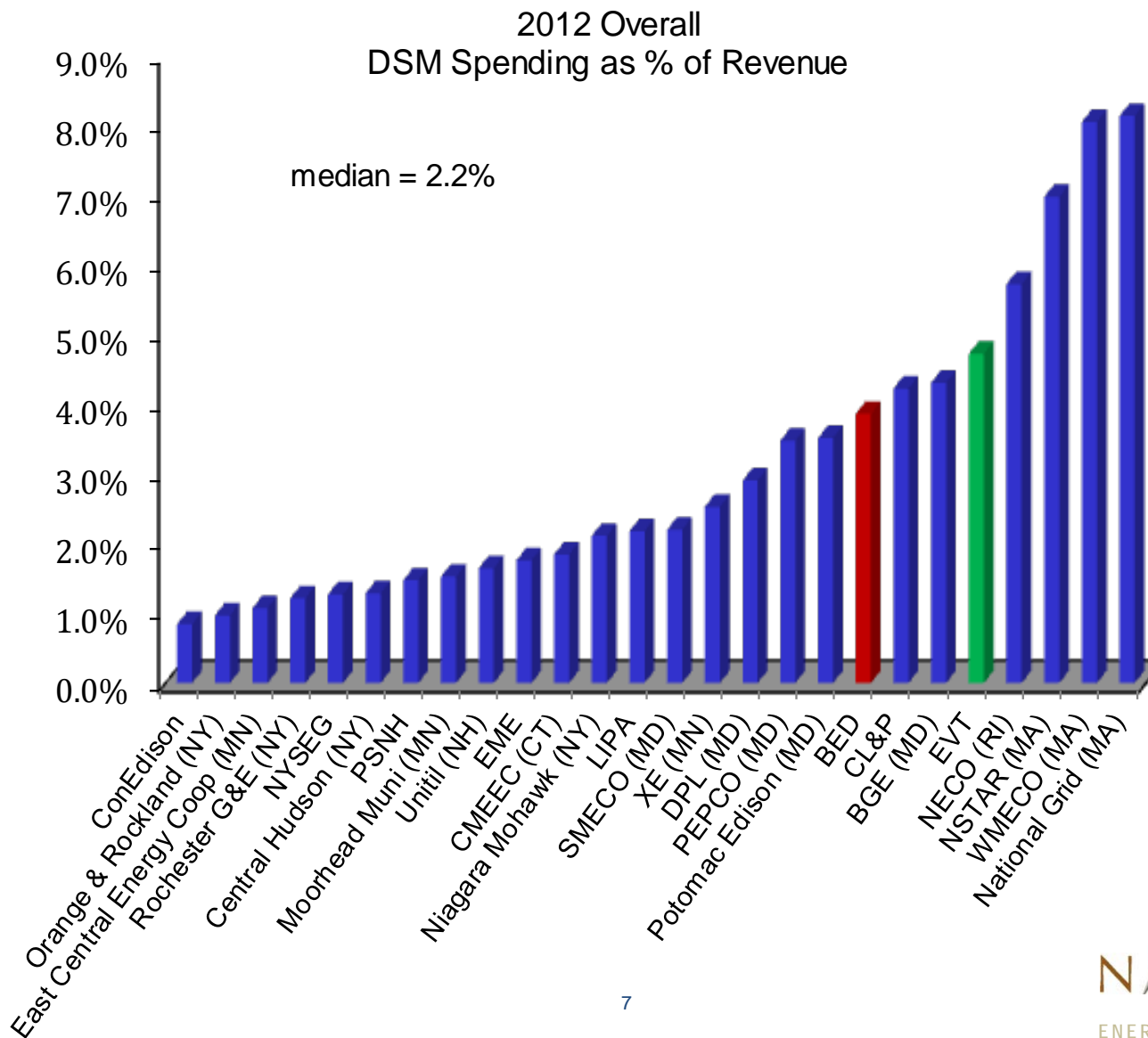
**Majority in the Northeast.**

State	Organization	IOU/State Agency	Muni/Coop
VT	Efficiency Vermont (EVT)	X	
	Burlington Electric Department (BED)		X
CT	Connecticut Light & Power (CL&P)	X	
	Connecticut Munciple Electric Energy Cooperative (CMEEC)		X
MA	National Grid (NGrid)	X	
	NSTAR	X	
	Western Massachusetts Electric Co (WMECO)	X	
MD	Baltimore Gas & Electric (BGE)	X	
	Delmarva Power & Light (DPL)	X	
	Potomac Edison (PEPCO)	X	
	Souther Maryland Energy Cooperative (SMECO)		X
ME	Efficiency Maine (EME)	X	
MN	Moorhead Municipal		X
	East Central Energy Coop		X
	Xcel Energy (XE)	X	
NH	Granite State Electric Co (GSECO)	X	
	Public Service of New Hampshire (PSNH)	X	
	Unitil	X	
NY	ConEdison	X	
	Central Hudson	X	
	Long Island Power Authority (LIPA)		X
	Niagara Mohawk	X	
	New York State Electric & Gas (NYSEG)	X	
	Orange & Rockland	X	
	Rochester Gas & Electric	X	
RI	Narragansett Electric Co (NECO)	X	

## 2012 Overall Electric Benchmarking Results

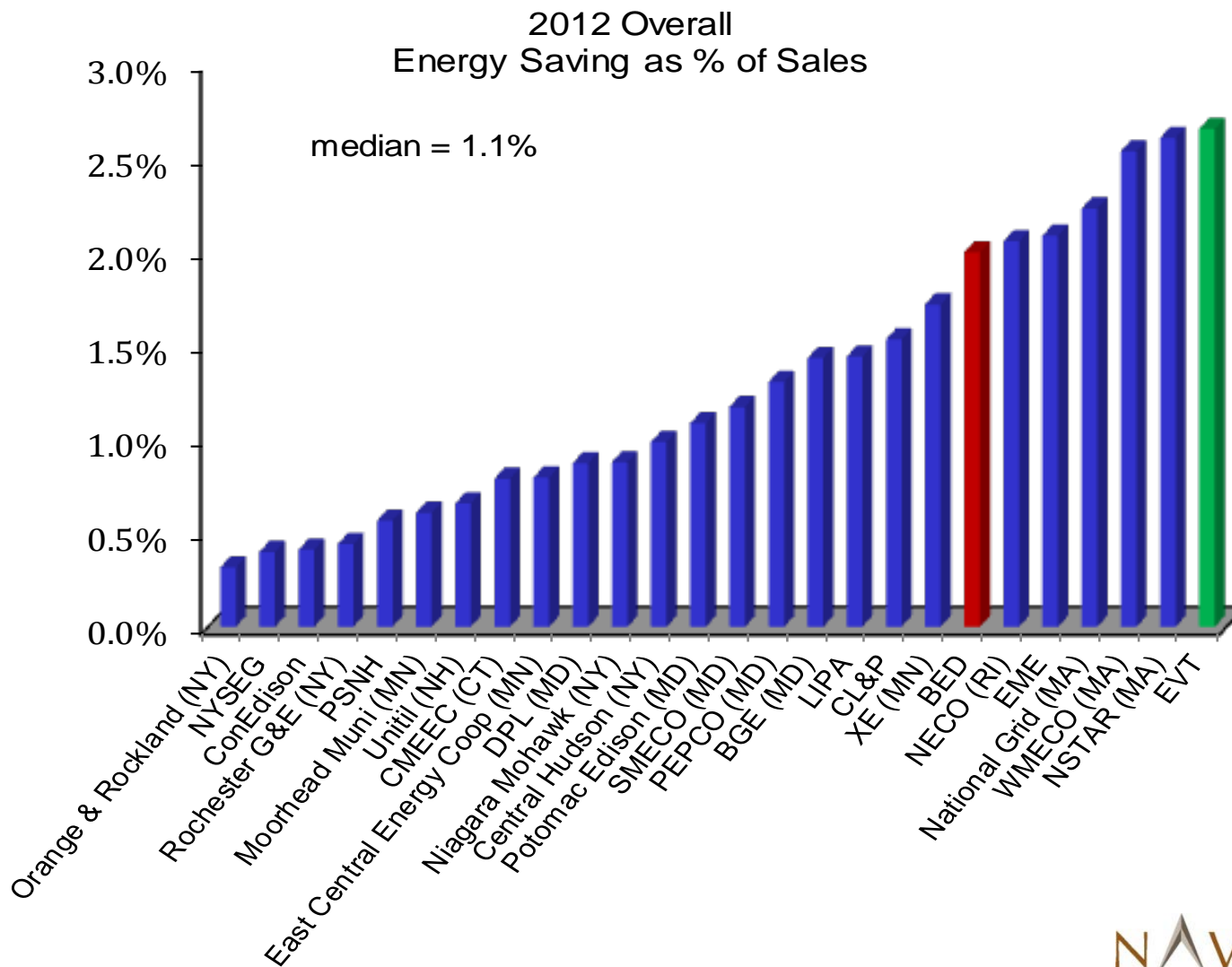
	Spending as % of Revenue	Energy Savings as % of Sales	Summer Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings		Levelized Cost of Energy Savings \$/kWh	Cost of Lifetime Savings \$/kWh
					\$/kWh	\$/kW		
All Benchmarked Median	2.2%	1.1%	0.7%	\$0.10	\$0.26	\$1,511	\$0.03	\$0.03
EVT	4.7%	2.7%	1.4%	\$0.15	\$0.27	\$1,880	\$0.03	\$0.03
BED	3.9%	2.0%	1.3%	\$0.14	\$0.27	\$2,337	\$0.03	\$0.02

Median spending was 2.2% of electric revenue, with highest at ~6-8%

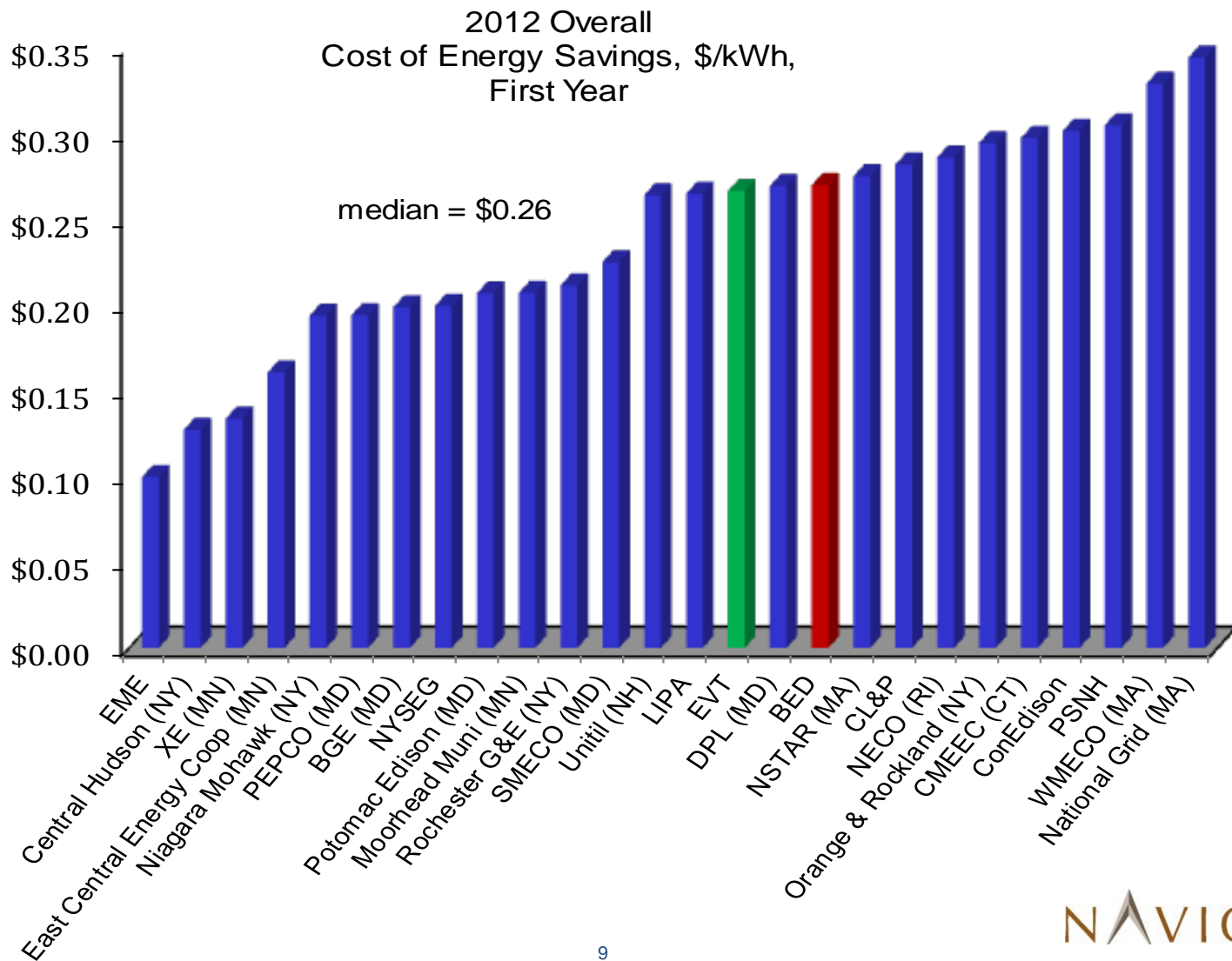




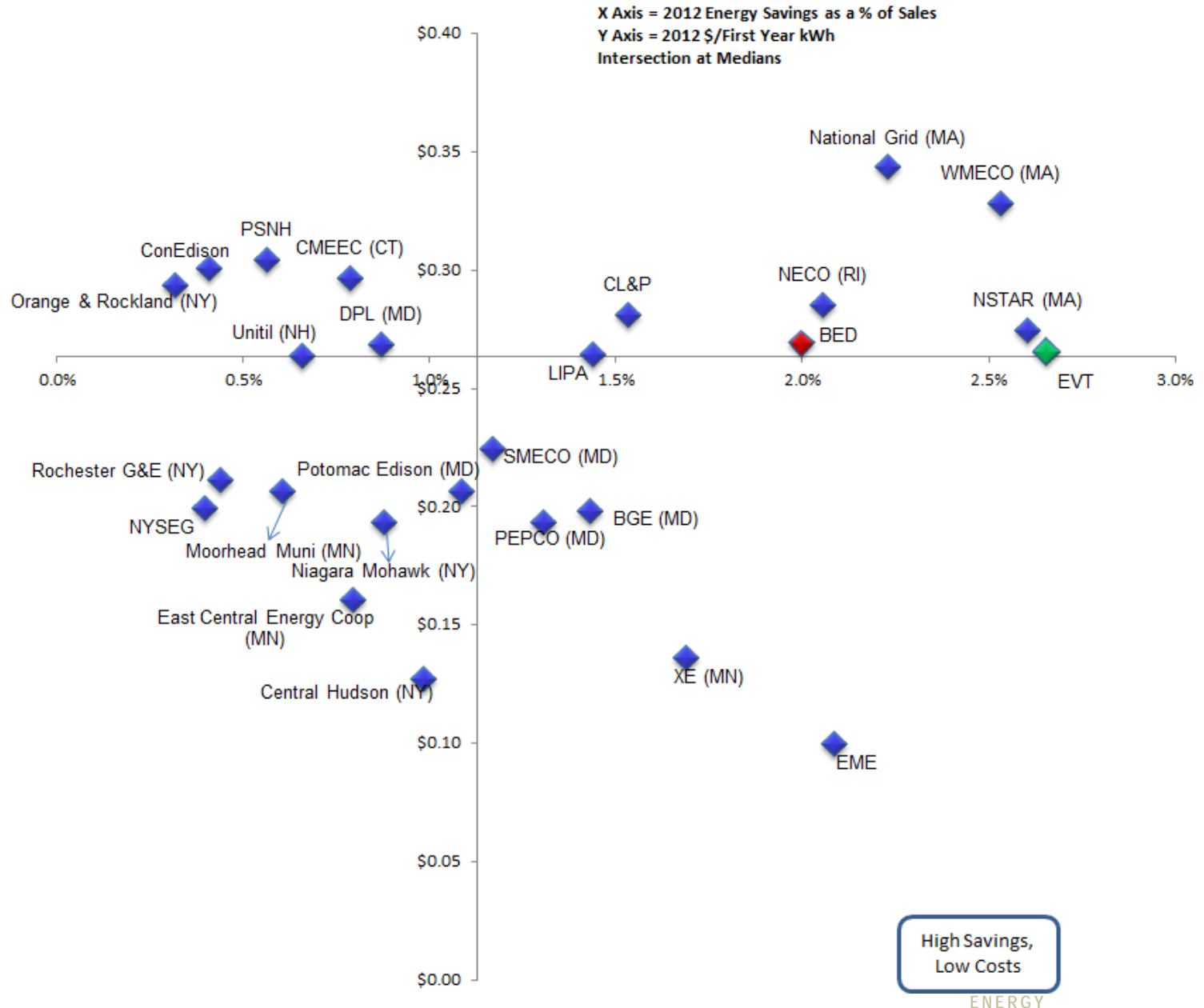
Median energy savings as percent of sales was 1.1%, highest ~2.5%



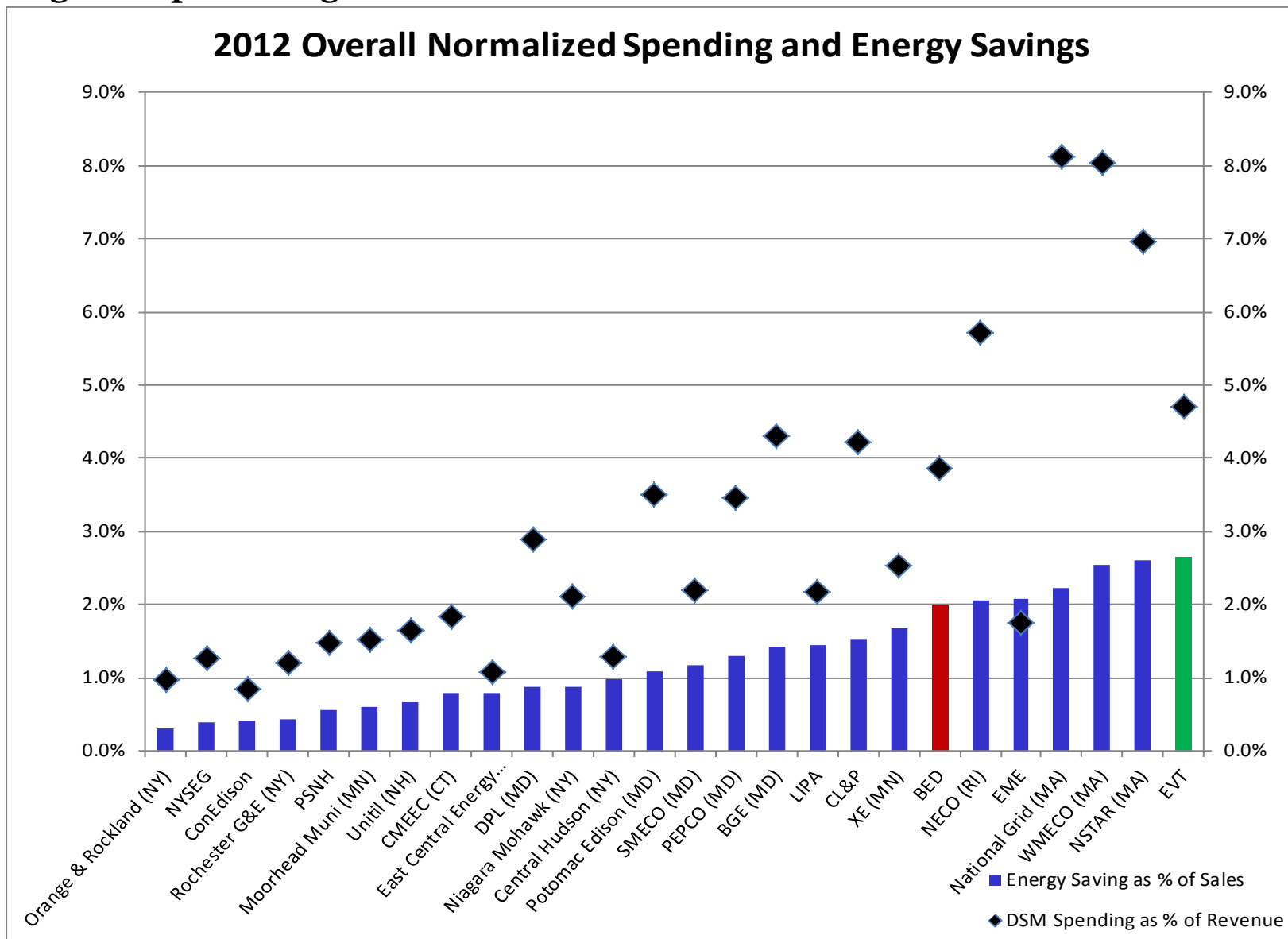
Median cost of savings is \$0.26/kWh for first year savings.



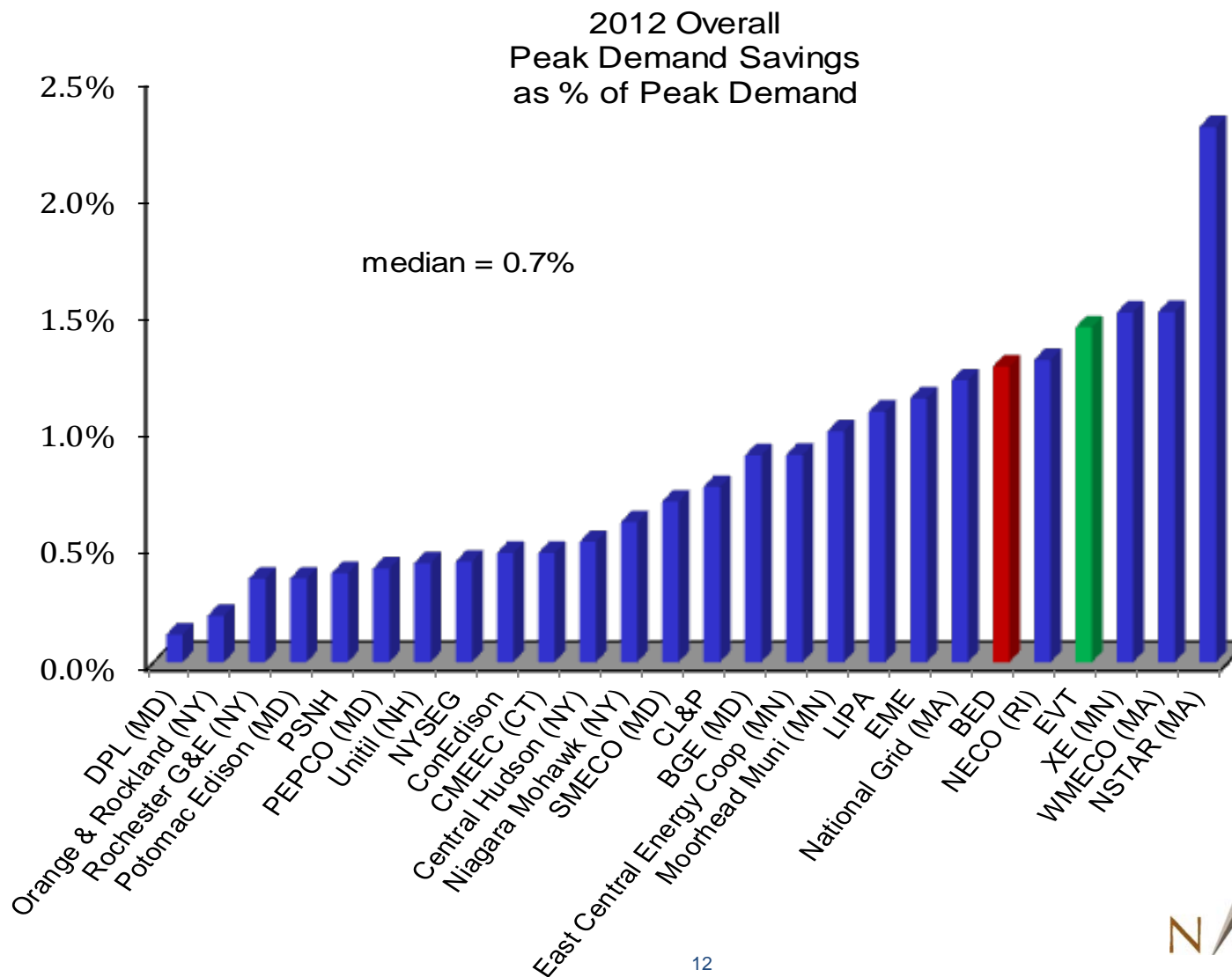
# 2012 Energy Savings as % of Sales and Cost of First Year Energy Savings, \$/kWh



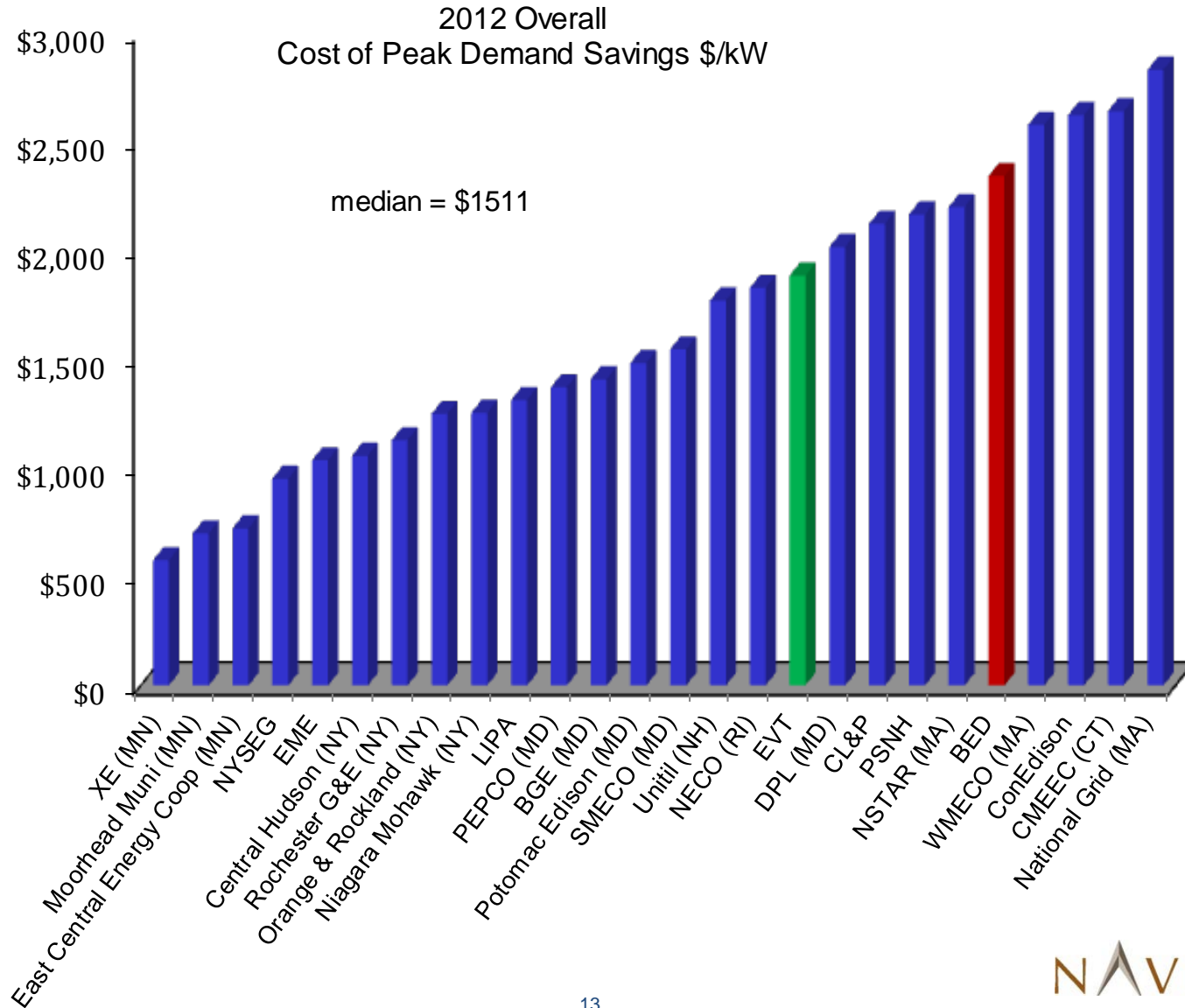
Median ratio of overall spending as a percentage of revenue to energy savings as a percentage of sales is 2 to 1.



**Median peak demand savings was 0.7% of peak demand.**



**Median 2012 cost of peak demand savings are \$1,511/kW.**

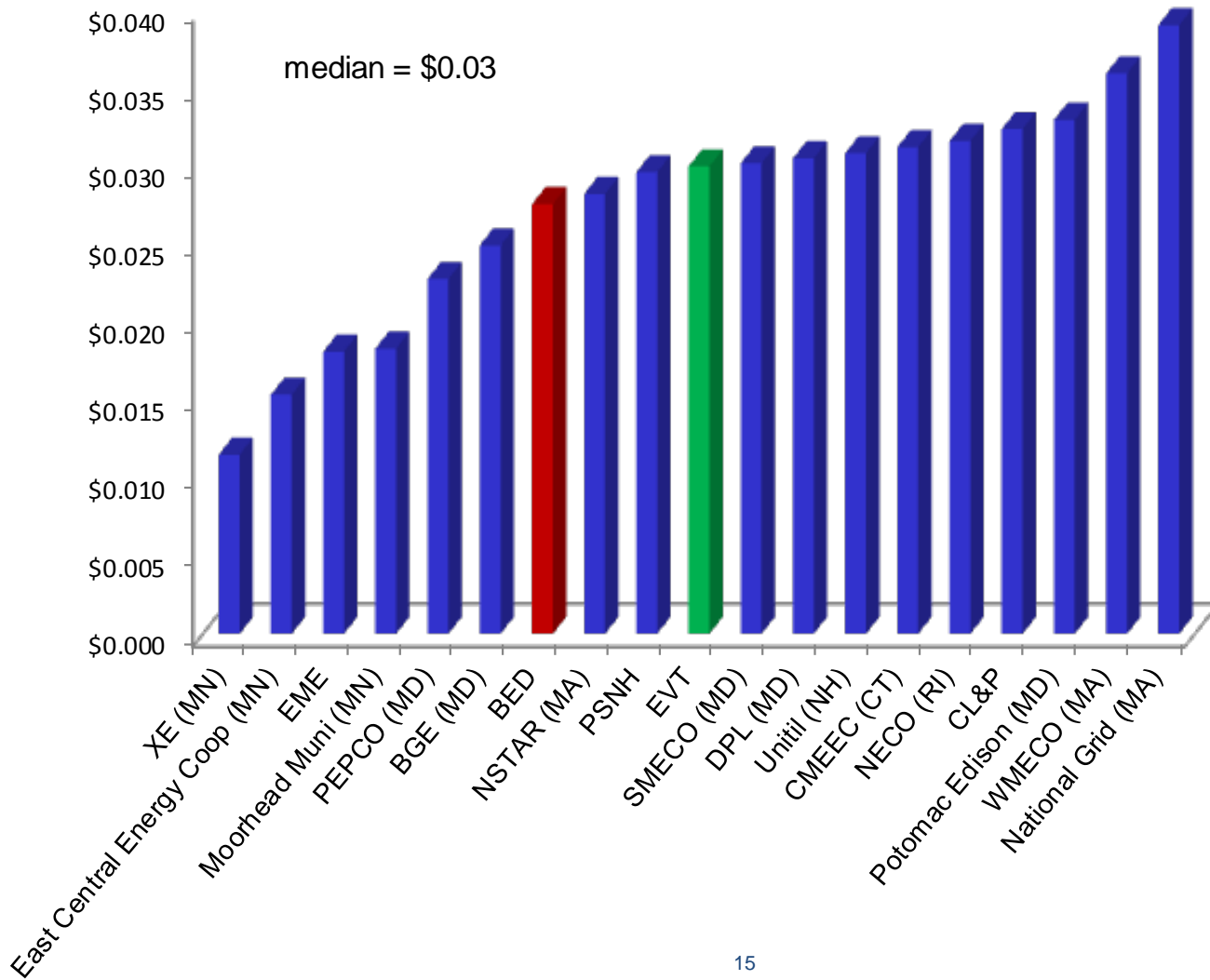


# 2012 Overall Summer Peak Demand Savings as % of Peak Demand and Cost of Summer Peak Demand Savings, \$/kW



**EVT's and BED's 2012 levelized cost of energy are both \$0.03/kWh which is also the median of the group.**

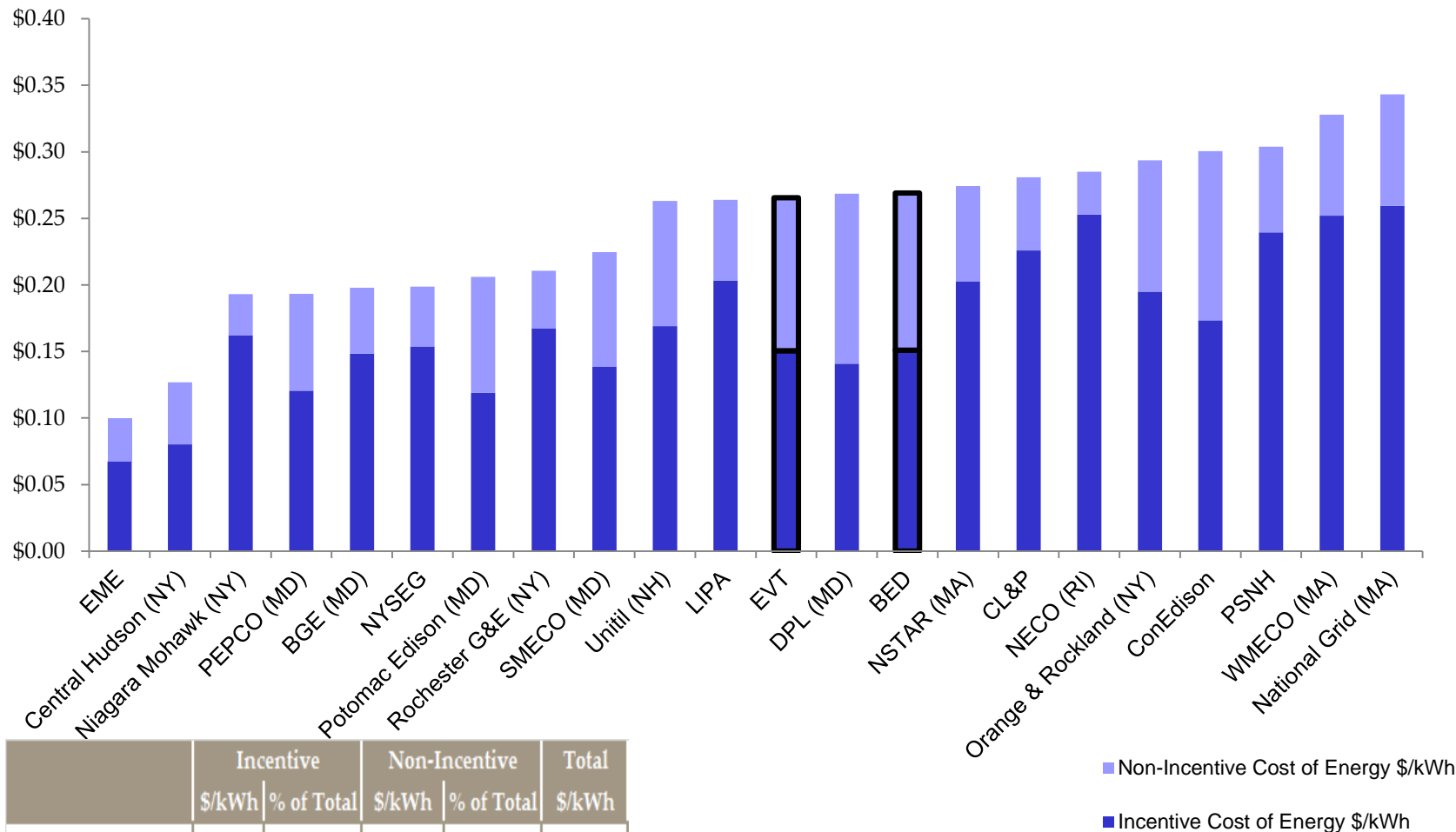
2012 Overall  
Levelized Cost of Energy \$/kWh





**In 2012, EVT spent ~57% of their budget on incentives which is less than the median of the group, 71%.**

**2012 Total Portfolio Cost Detail (First Year)**



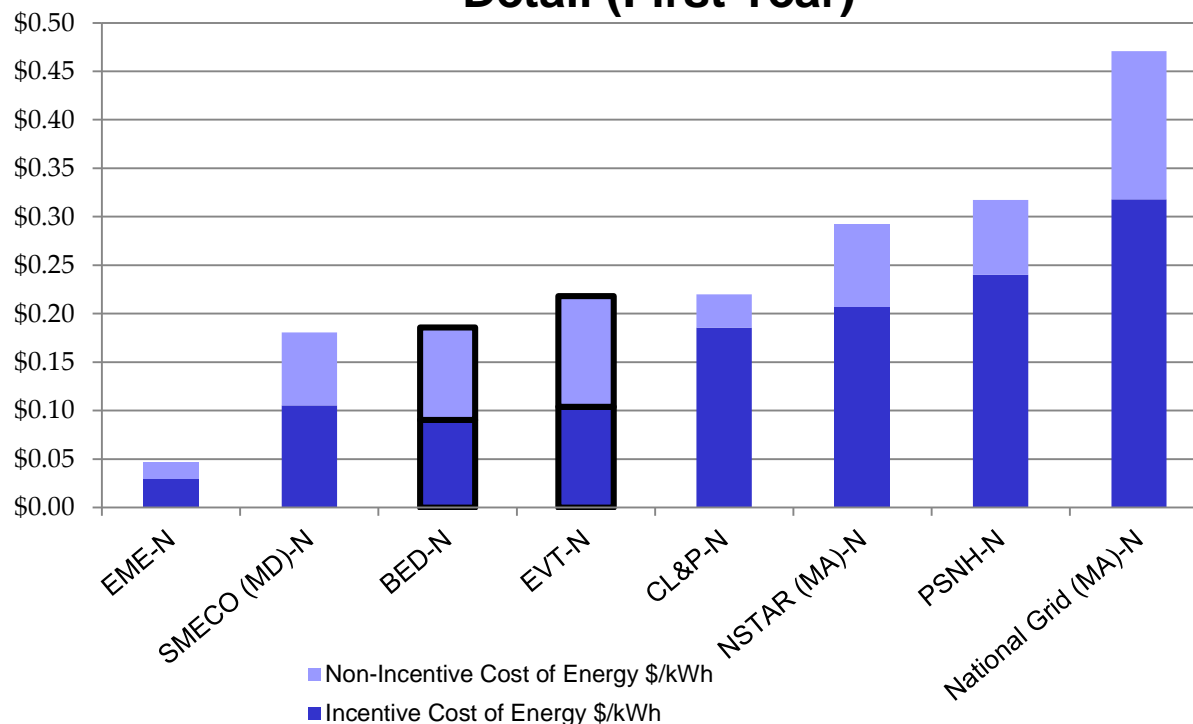
	Incentive		Non-Incentive		Total
	\$/kWh	% of Total	\$/kWh	% of Total	
All Benchmarked Median	\$0.16	71%	\$0.07	29%	\$0.24
EVT	\$0.15	57%	\$0.11	43%	\$0.27
BED	\$0.15	56%	\$0.12	44%	\$0.27

## What Factors Drive 2012 Performance Among the Select Group?

- » To better understand the 2012 performance of EVT and other select utilities Navigant completed interviews with the following organizations:
  - Efficiency Vermont
  - Burlington Electric Department
  - Efficiency Maine
  - Connecticut Light & Power
  - NSTAR
  
- » **Key Questions**
  - Which of your programs do you consider to be working well in terms of program delivery?
  - Which of your programs are having some difficulty in terms of program delivery?
  - Overall, what do you consider to be the key factors that contributed to your 2012 portfolio results?

**EVT's residential spending on incentives (about 49%) are less than the median of the group's (65%).**

### 2012 Residential Incentive/Non-Incentive Cost Detail (First Year)



	Incentive		Non-Incentive		Total \$/kWh
	\$/kWh	% of Total	\$/kWh	% of Total	
<b>All Benchmarked Median</b>	\$0.15	65%	\$0.08	35%	\$0.23
EVT	\$0.10	48%	\$0.11	52%	\$0.22
BED	\$0.09	49%	\$0.10	51%	\$0.19

## Burlington Electric Department, VT



### » Success Areas

- CFLS !

### » Challenges

- Split incentive challenge still exists with rental property upgrades (70% of commercial space is leased).
- Engaging with small residential contractors active with Burlington's residential retro-fit market.

### » Key Factors for 2012 and Innovations

- BED uses extensive C&I account management to gain trust and early access in the design stages.
- To increase participation, BED increased incentives by ~25% in 2012.
- Increasingly BED is starting to use "continuous building improvement" software systems to monitor commercial building performance and identify savings opportunities.

## Efficiency Vermont



### » Success Areas

- EVT's regulatory framework allows the organization more flexibility than most IOUs.
- Prioritize achieving multiple objectives – energy savings, job creation, low income benefits
- Active with upstream efficient product development.
- Leverages significant high-touch C&I account management.

### » Challenges

- Achieving significant savings with small to medium size business customers.

### » Key Factors for 2012 and Innovations

- Investing in staff resources to better understand niche markets- and optimize measure and program design offerings (e.g. snow making industry).
- Getting to market what customers want and need!

## Efficiency Maine Trust (EMT)



### » Success Areas

- CFLs!
- Discontinued res. lighting marketing efforts, and instead increased incentives to cover up to 100% of incremental cost. Sales increased dramatically.
- Major retailers, pro-actively, created end-cap displays for CFL products- with no additional financial or motivational support from EMT.
- Business Incentive Program, another success area. EMT's objective is to maximize incentive payments to customers, and minimize administrative and program delivery costs.

### » Challenges

- EMT discontinued the Appliance Recycling program in 2012 due to benefit-cost concerns.

### » Key Factors for 2012 and Innovations

- EMT prioritized low-cost EE resource acquisition in 2012.
- Comprehensive (and more expensive) savings were not prioritized in 2012.

# Formerly Connecticut Light & Power /

## » Success Areas

- Residential retail lighting, residential new construction program, C&I Large Retrofit Program.
- Home Energy Solutions program
  - \$75 customer cost for a home energy audit and immediate direct install of CFLs as well as blower door guided air sealing, duct sealing, low flow shower heads and facet aerator as well as the recommendation of add on measures for additional energy savings.

## Challenges

- Increasing residential conversion rate for major retrofit work (19% as of 2013)
  - In 2012 approximately 15% (in 2013 – 19%) of customers participating in the Home Energy Solutions program take follow-up action for additional major EE upgrades. A challenge is increasing the conversion rate for major add on measures (insulation, HVAC, etc.).
- Generating more savings from retro-commissioning program

## » Key Factors for 2012 and Innovations

- Ramping up residential Behavioral Pilot Program
- CL&P offers on-bill 0% financing for up to 4 years for the Small Business Direct Install program.
- Clean Energy Communities “Challenge Program”. Friendly competition between towns for energy savings and renewable energy purchases with cash awards for winners.

## Formerly NSTAR /



### » Success Areas

- Focus on “go-to-market” strategies that extensively research customers and offer tailored participation options.
- It’s customer “markets” not “programs”
- Generous rebates.
  - o For example, free home energy audit with direct install and free air-sealing. Additional incentives provided for insulation, up to 75% of installed cost capped at \$2,000. This statewide program and generous incentives account for higher than median residential savings costs.

### » Challenges

- Commercial rental real-estate market is a challenge.
- How to solve the “split-incentive” challenge.

### » Key Factors for 2012 and Innovations

- Customer market research and key account segmentation and targeted EE offerings are highlighted as reasons for success.
- NSTAR works to “pre-sell” EE with senior staff first at key large C&I accounts, followed up with detailed promotion with building managers.



# Key CONTACTS



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