

## EDWARD WEAVER

**First Tracks Consulting Service, Inc.**  
**President**

**Nederland, CO**  
**2000 - present**

Founder of management consulting company serving clients in the utility, energy service, and energy technology industries. Specializing in strategic consulting services to managers of utility demand-side management programs, including long-term planning, business-cycle planning, organizational development, and regulatory support. Also providing key account support to energy utilities, including direct work with industrial customers to develop strategic energy plans. Also providing business planning and market development services to clients in the energy service and energy technology industries.

**PG&E Energy Services, Inc.**  
**Director, Strategy & Planning (and other titles)**

**San Francisco, CA/Boulder, CO**  
**1997 - 2000**

Reported directly to the CEO of retail service company selling electricity, natural gas, and other energy services to commercial and industrial customers throughout the United States. Responsible for business planning, including forecasts and tracking of product-line profitability, as well as company-wide product development process. Responsible for commodity market strategy, including tracking utility deregulation efforts and making market entry and exit decisions for each state/jurisdiction. Responsible for developing strategic alliances with companies such as mechanical contractors, electrical contractors, lighting vendors, and engineering firms to deliver energy services. Responsible for managing risks associated with guarantees and other risk structures embedded within complex energy service contracts.

**Barakat & Chamberlin, Inc.**  
**Principal/Partner (and other titles)**

**Oakland, CA/Boulder, CO**  
**1988 - 1997**

Managed multi-million dollar practice within international management consulting firm. Specialized in projects involving energy efficiency planning, implementation, and evaluation; energy service company development; integrated resource planning; power supply procurement; and business planning. Developed over two dozen business plans, integrated resource plans, and energy efficiency plans for utilities and energy service companies located throughout North America. Helped utility clients plan, implement, and evaluate hundreds of energy efficiency programs. Helped clients develop and implement competitive acquisition approaches for power supplies and energy efficiency resources. Developed training programs in business planning, integrated resource planning, communications, and risk management for the Electric Power Research Institute, Canadian Electrical Association, and private clients. Testified before state public utility commissions.

**Burlington Electric Department**  
**Demand-Side Planner**

**Burlington, VT**  
**1987 - 1988**

Developed first integrated resource plan for municipal electric utility. Worked with program managers to implement energy efficiency programs. Responsible for rate department in addition to planning activities. Testified before Vermont Public Service Board.

**Vermont Department of Public Service**  
**Electricity Planner**

**Montpelier, VT**  
**1985 - 1987**

Responsible for statewide energy planning. Primary author of 1997 State Electricity Plan. Testified before Vermont Public Service Board.

**Energy Systems Research Group (Now Tellus Institute)**  
**Research Assistant**

**Boston, MA**  
**1982 - 1985**

Contributed to projects involving energy efficiency, resource planning, and litigation support.

### EDUCATIONAL RECORD

Massachusetts Institute of Technology, Bachelor of Science, 1984  
Graduate courses in economics and statistics, University of Vermont, 1986-87

## SELECTED CLIENTS

Alberta Power	Los Angeles Department of Water & Power
Ameren	Midwest Gas
Arizona Public Service	Midwest Power
Atmos Energy	MidAmerican Energy
BC Hydro	National Grid
Burlington Electric Department	Newfoundland & Labrador Hydro
Boulder County, CO	New York Power Authority
Canadian Electrical Association	Nicor Gas
Cinergy	North Shore Gas
Chevron Energy Solutions	Pacific Gas & Electric
City Public Service (San Antonio)	Peoples Gas
City of Boulder, CO	PSI/Energy
Commonwealth Edison	Public Service Company of Colorado
County of Boulder, CO	Public Service Company of New Mexico
Colorado Natural Gas	PSEG
Colorado Public Utilities Commission	Salt River Project
Colorado Springs Utilities	SourceGas
Electric Power Research Institute	Southwestern Public Service
E Source	Southern California Edison
Georgia Power	Texaco Ovonic Battery Systems
Hawaii Department of Business, Economic Development & Tourism	Texaco Ovonic Hydrogen Systems
Iowa Power	Vectren Retail
IPS Electric	
Lower Colorado River Authority	

## TESTIMONY BEFORE STATE PUBLIC UTILITIES COMMISSIONS

2008: Iowa Utilities Board, Docket EEP-08-2  
2007: Illinois Commerce Commission, Docket 07-0165  
2003: Iowa Utilities Board, Docket EEP-03-1  
1994: Iowa Utilities Board, Docket ECR-94-1  
1994: Hawaii Public Utilities Commission, Docket 94-0206  
1994: Iowa Utilities Board, Docket ECR-93-2  
1993: Hawaii Public Utilities Commission, Docket 7257  
1993: Colorado Public Utilities Commission, Docket 91A-481EG  
1992: Iowa Utilities Board, Dockets EEP-91-8/92-1  
1991: Iowa Utilities Board, Docket EEP-91-3  
1988: Vermont Public Service Board, Docket 5270  
1987: Vermont Public Service Board, Docket 5177

## SELECTED PAPERS AND PUBLIC REPORTS

*Attribution Issues, the Net Versus Gross Savings Debate.* E Source Focus Report EDRP-F-35. Boulder, CO. May 30, 2010.

“Where are CFLs Going; Where are They Taking Energy-Efficiency Programs?” *Proceedings of the AESP 20<sup>th</sup> Annual Energy Services Conference and Expo.* Tuscon, AZ. February 2010.

“Energy Efficiency Goals: Are They Attainable?” *ACEEE’s 5th National Conference on Energy Efficiency as a Resource.* Chicago, IL. September, 2009.

“Find the Low Hanging Fruit: Efficiency Supply Curves as a Means to Understanding and Targeting Efficiency Savings.” *Proceedings of the AESP 19<sup>th</sup> Annual Energy Services Conference and Expo.* San Diego, CA. February 2009.

“Leveraging Customer Satisfaction through Energy Efficiency.” *Proceedings of the ACEEE 2006 Summer Study on Energy Efficiency in Buildings.* Pacific Grove, CA. August 2006.

"A Competitive Bidding Program to Encourage Industrial Energy Efficiency." *Proceedings of the ACEEE 2005 Summer Study on Energy Efficiency in Industry*. West Point, NY. July 2005.

"Appropriate Treatment of Freeriders in Impact Evaluation." *Proceedings of the ACEEE 1994 Summer Study on Energy Efficiency in Buildings*. Pacific Grove, CA. August 1994.

"Dispatch from the Gas War Front: Issues in Calculating Fuel-Switching Cost-effectiveness." *Proceedings of the ACEEE 1994 Summer Study on Energy Efficiency in Buildings*. Pacific Grove, CA. August 1994.

"DSM as an Option for Relieving Distribution Capacity Constraints: The Labrador City Experience." *Proceedings of the DA/DSM Conference*. Orlando, FL. June 1994.

"Evaluation Under the Microscope of a Collaborative Process." *Proceedings of the 1993 Chicago Conference on DSM Program Evaluation*. Chicago, IL. August 1993.

"Lessons Learned from the Jasper Project." *Best Current Practices in Integrating DSM into T&D Planning: Proceedings from the Second Annual Workshop*. Electric Power Research Institute. August 1992.

"Environmental Impact of Residential Fuel Switching." *Proceedings of the ACEEE 1992 Summer Study on Energy Efficiency in Buildings*. Pacific Grove, CA. August 1992.

Direct Environmental Impacts of End-Use Technologies." *Proceedings of the DSM and the Global Environment Conference*. April 1991.

*Michigan Regulatory Incentives Study for Electric Utilities*. Michigan Regulatory Incentives Study. April 1991.

*Environmental Impacts of End Use Technologies*. Electric Power Research Institute. January 1991.

*End-Use Technical Assessment Guide (End-Use TAG), Volume 4: Fundamentals and Methods*. Electric Power Research Institute. Palo Alto, CA. April 1991.

*Burlington Electric Department Long-Range Power Plan, 20-Year Plan*. Burlington Electric Department. July 1988.

*Long Range Electric Load Forecast and analysis of Options and Costs*. Vermont Department of Public Service. May 1987.

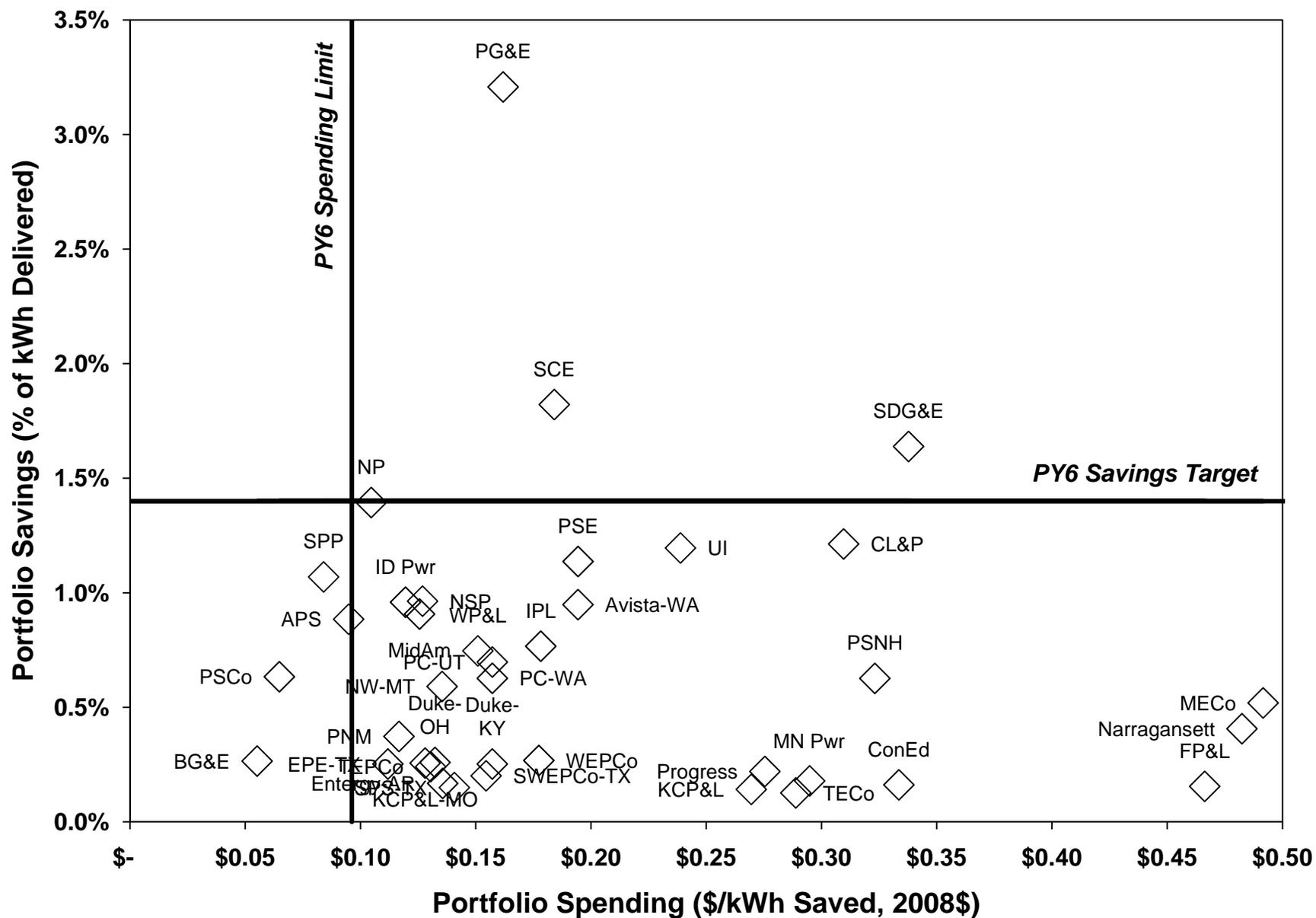
*Vermont Twenty-Year Electric Plan, 1987 Revision*. Vermont Department of Public Service. March 1987.

Summary of Targets Set Forth in the Act and Portfolio Projections

	PY4	PY5	PY6
<b>Targets Set Forth in the Act</b>			
<b>Incremental Savings Targets (MWh)</b>			
Ameren Illinois	247,786	314,112	446,230
DCEO	61,946	78,528	111,557
<b>Total</b>	<b>309,732</b>	<b>392,640</b>	<b>557,787</b>
<b>Total Portfolio Spending Limitation</b>			
Ameren Illinois	\$44,446,217	\$45,071,300	\$45,549,987
DCEO	\$14,815,406	\$15,023,767	\$15,183,329
<b>Total</b>	<b>\$59,261,622</b>	<b>\$60,095,066</b>	<b>\$60,733,316</b>
<b>Ameren/DCEO Portfolio Projections</b>			
<b>Incremental Energy Efficiency Savings Targets (MWh)</b>			
Ameren Illinois	208,525	195,973	181,044
DCEO	42,026	42,399	42,496
<b>Total</b>	<b>250,551</b>	<b>238,372</b>	<b>223,540</b>
<b>Annual Spending</b>			
Ameren Illinois	\$ 44,199,039	\$ 44,846,501	\$ 45,099,568
DCEO	\$ 14,590,000	\$ 14,800,000	\$ 14,880,000
<b>Total</b>	<b>\$ 58,789,039</b>	<b>\$ 59,646,501</b>	<b>\$ 59,979,568</b>
<b>Demand Response Spending</b>			
Ameren Illinois	\$ 1,059,357	\$ 1,194,957	\$ 1,179,357
DCEO	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 1,059,357</b>	<b>\$ 1,194,957</b>	<b>\$ 1,179,357</b>
<b>Energy Efficiency Program Spending</b>			
Ameren Illinois	\$ 43,139,682	\$ 43,651,544	\$ 43,920,211
DCEO	\$ 14,590,000	\$ 14,800,000	\$ 14,880,000
<b>Total</b>	<b>\$ 57,729,682</b>	<b>\$ 58,451,544</b>	<b>\$ 58,800,211</b>
<b>Energy Efficiency Spending Limitation</b>			
Total Portfolio Limitation	\$ 59,261,622	\$ 60,095,066	\$ 60,733,316
Demand Response Budget	\$ 1,059,357	\$ 1,194,957	\$ 1,179,357
<b>Available for Energy Efficiency</b>	<b>\$ 58,202,265</b>	<b>\$ 58,900,109</b>	<b>\$ 59,553,959</b>

	PY4	PY5	PY6
<b>Adjustment Factors</b>			
Projected Energy Deliveries (MWh)	38,716,487	39,263,963	39,841,950
Inflation Adjustment (2008=1.000)	1.0769	1.1038	1.1314
Inflation Adjustment (2009=1.000)	1.0506	1.0769	1.1038
<b>Targets Set Forth in the Act</b>			
Savings as % of Deliveries	0.80%	1.00%	1.40%
Maximum Spending per kWh Saved			
<i>Nominal \$</i>	\$0.191	\$0.153	\$0.109
<i>2008\$</i>	\$0.178	\$0.139	\$0.096
<i>2009 \$</i>	\$0.182	\$0.142	\$0.099
<b>Ameren Illinois/DCEO Portfolio Metrics</b>			
Savings as % of Deliveries	0.65%	0.61%	0.56%
Spending per kWh Saved	\$0.23	\$0.25	\$0.26
Spending per MWh Delivered			
<i>Nominal \$</i>	\$1.49	\$1.49	\$1.48
<i>2009 \$</i>	\$1.42	\$1.38	\$1.34

### 2008 Portfolio Savings and Spending



## Energy Efficiency Portfolio Benchmark Data: 2008 Program Year

Benchmark Performance Year: 2008

Sample Definition: *Utilities filing FERC Form 861*

*Energy deliveries over 4 GWh/in 2008*

*Energy efficiency savings over 0.1% of deliveries*

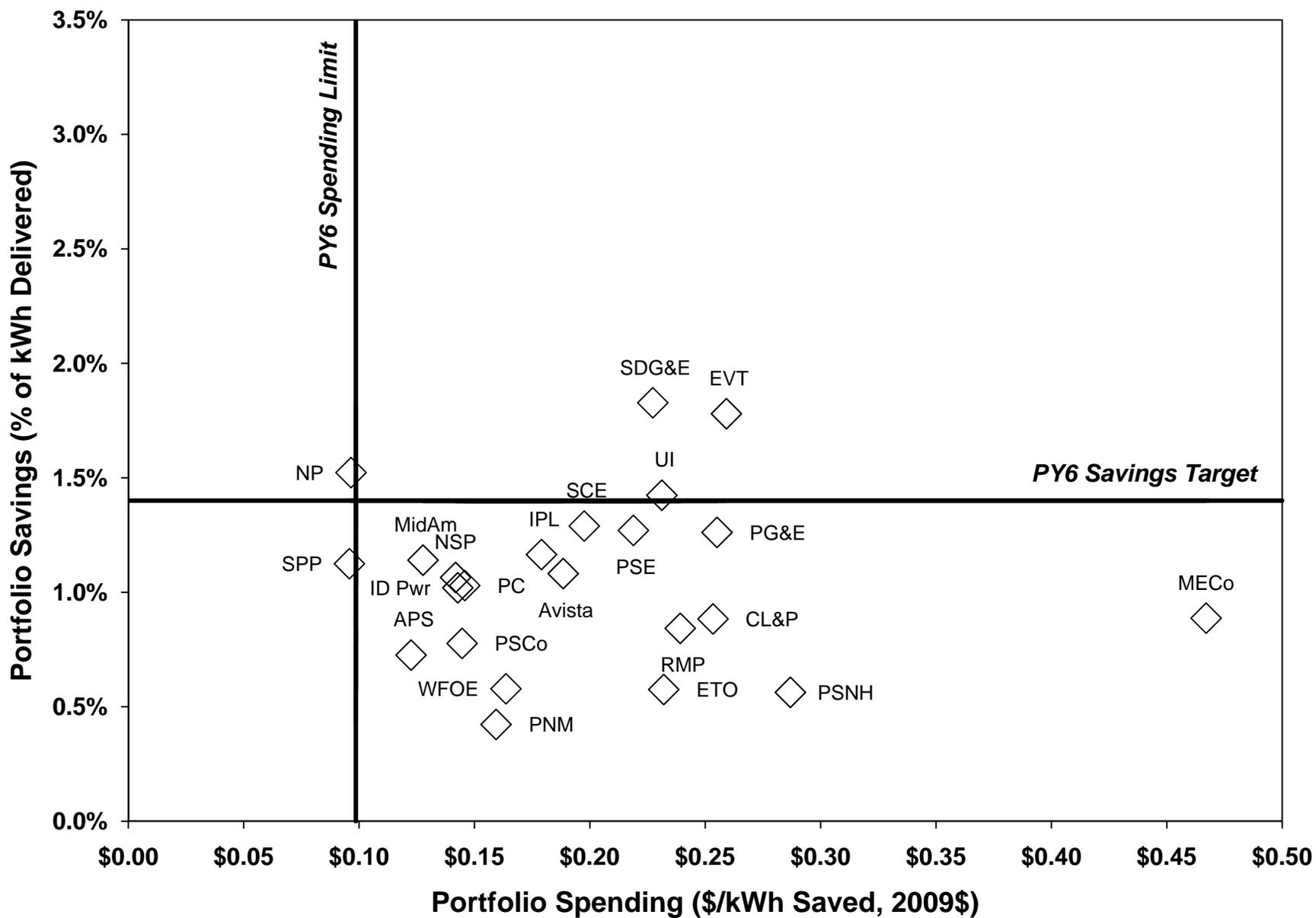
Costs Calculated: *per Unit of Energy Saved*

Savings Calculated: *per Unit of Energy Delivered*

Utility	State	Acronym for Chart	Expenditure per Unit Energy Saved	Savings per Unit Energy Delivered
			(\$/kWh)	(% of Deliveries)
Pacific Gas & Electric Co	CA	PG&E	\$0.16	3.21%
Southern California Edison Co	CA	SCE	\$0.18	1.82%
San Diego Gas & Electric Co	CA	SDG&E	\$0.34	1.64%
Nevada Power Co	NV	NP	\$0.10	1.39%
Connecticut Light & Power Co	CT	CL&P	\$0.31	1.21%
United Illuminating Co	CT	UI	\$0.24	1.20%
Puget Sound Energy Inc	WA	PSE	\$0.19	1.14%
Sierra Pacific Power Co (NV)	NV	SPP	\$0.08	1.07%
Northern States Power Co (MN)	MN	NSP	\$0.13	0.96%
Idaho Power Co (ID)	ID	ID Pwr	\$0.12	0.96%
Avista Corp (WA)	WA	Avista-WA	\$0.19	0.95%
MidAmerican Energy Co (IA)	IA	MidAm	\$0.13	0.91%
Arizona Public Service Co	AZ	APS	\$0.09	0.88%
Interstate Power and Light Co (IA)	IA	IPL	\$0.18	0.77%
Wisconsin Power & Light Co	WI	WP&L	\$0.15	0.75%
PacifiCorp (UT)	UT	PC-UT	\$0.16	0.70%
Public Service Co of Colorado	CO	PSCo	\$0.06	0.63%
PacifiCorp (WA)	WA	PC-WA	\$0.16	0.63%
Public Service Co of NH	NH	PSNH	\$0.32	0.63%
NorthWestern Corporation (MT)	MT	NW-MT	\$0.14	0.59%
Massachusetts Electric Co	MA	MECo	\$0.49	0.52%
The Narragansett Electric Co	RI	Narragansett	\$0.48	0.41%
Public Service Co of NM	NM	PNM	\$0.12	0.37%
Wisconsin Electric Power Co (MI)	MI	WEPCo	\$0.18	0.27%
Baltimore Gas & Electric Co	MD	BG&E	\$0.06	0.27%
Duke Energy Ohio Inc	OH	Duke-OH	\$0.13	0.26%
Kansas City Power & Light Co (MO)	MO	KCP&L-MO	\$0.13	0.26%
El Paso Electric Co (TX)	TX	EPE-TX	\$0.11	0.25%
Duke Energy Kentucky, Inc.	KY	Duke-KY	\$0.16	0.25%
Tucson Electric Power Co	AZ	TEPCo	\$0.13	0.24%

Utility	State	Acronym for Chart	Expenditure per Unit Energy Saved	Savings per Unit Energy Delivered
			(\$/kWh)	(% of Deliveries)
Progress Energy Florida Inc	FL	Progress	\$0.28	0.22%
Southwestern Electric Power Co (TX)	TX	SWEPco-TX	\$0.15	0.20%
Minnesota Power Inc	MN	MN Pwr	\$0.29	0.18%
Entergy Arkansas Inc (AR)	AR	Entergy-AR	\$0.14	0.17%
Consolidated Edison Co-NY Inc	NY	ConEd	\$0.33	0.16%
Florida Power & Light Co	FL	FP&L	\$0.47	0.16%
Southwestern Public Service Co (TX)	TX	SPS-TX	\$0.14	0.15%
Kansas City Power & Light Co (KS)	KS	KCP&L	\$0.27	0.14%
Tampa Electric Co	FL	TECo	\$0.29	0.13%
<b>Targets Set Forth in the Act</b>				
PY6 (2013\$)			\$0.11	1.40%
PY6 (2008\$)			\$0.10	1.40%

### 2009 Portfolio Savings and Spending



## Energy Efficiency Portfolio Benchmark Data: 2009 Program Year

Benchmark Performance Year: 2009

Sample Definition: *Utilities with public annual reports*

*Energy deliveries over 4 GWh/in 2008*

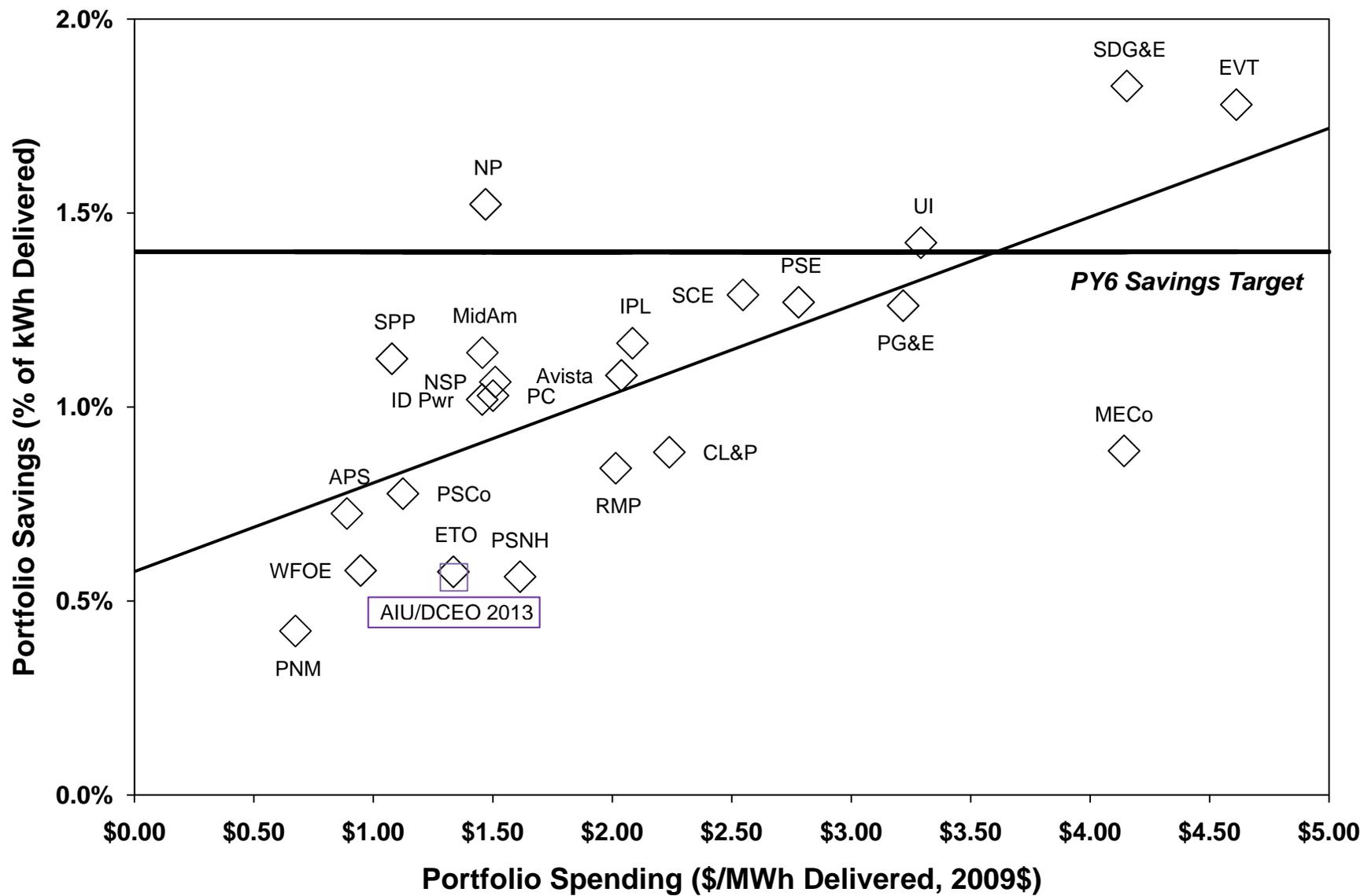
*Energy efficiency savings over 0.4% of deliveries*

Savings Calculated: *per Unit of Energy Delivered*

Costs Calculated: *per Unit of Energy Saved*

Program Administrator	State	Acronym for Chart	Portfolio Metrics, All Programs	
			Expenditure per Unit Energy Saved	Savings per Unit Energy Delivered
			(\$/kWh)	(% of Deliveries)
<b>Utility Administrators</b>				
Pacific Gas & Electric	CA	PG&E	\$0.26	1.26%
Southern California Edison	CA	SCE	\$0.20	1.29%
San Diego Gas & Electric	CA	SDG&E	\$0.23	1.83%
Puget Sound Energy	WA	PSE	\$0.22	1.27%
PacifiCorp	WA	PC	\$0.15	1.03%
Avista Corp	WA	Avista	\$0.19	1.08%
Idaho Power	ID & OR	ID Pwr	\$0.14	1.02%
Nevada Power	NV	NP	\$0.10	1.52%
Sierra Pacific Power	NV	SPP	\$0.10	1.12%
Arizona Public Service	AZ	APS	\$0.12	0.73%
Public Service Co of New Mexico	NM	PNM	\$0.16	0.42%
Rocky Mountain Power (PacifiCorp-UT)	UT	RMP	\$0.24	0.84%
Public Service Company of Colorado	CO	PSCo	\$0.14	0.78%
MidAmerican Energy	IA	MidAm	\$0.13	1.14%
Interstate Power and Light	IA	IPL	\$0.18	1.16%
Northern States Power	MN	NSP	\$0.14	1.06%
Public Service Company of New Hampshire	NH	PSNH	\$0.29	0.56%
Massachusetts Electric Company	MA	MECo	\$0.47	0.89%
Connecticut Light & Power	CT	CL&P	\$0.25	0.88%
United Illuminating	CT	UI	\$0.23	1.42%
<b>Nonutility Administrators</b>				
Energy Trust of Oregon	OR	ETO	\$0.23	0.58%
Wisconsin Focus on Energy	WI	WFOE	\$0.16	0.58%
Efficiency Vermont	VT	EVT	\$0.26	1.78%
<b>Targets Set Forth in the Act</b>				
PY6 (2013\$)			\$0.11	1.40%
PY6 (2009\$)			\$0.10	1.40%

### Portfolio Savings and Spending Total Portfolio



## Energy Efficiency Portfolio Benchmark Data: 2009 Program Year

Benchmark Performance Year: 2009

Sample Definition: *Utilities with public annual reports*

*Energy deliveries over 4 GWh/in 2008*

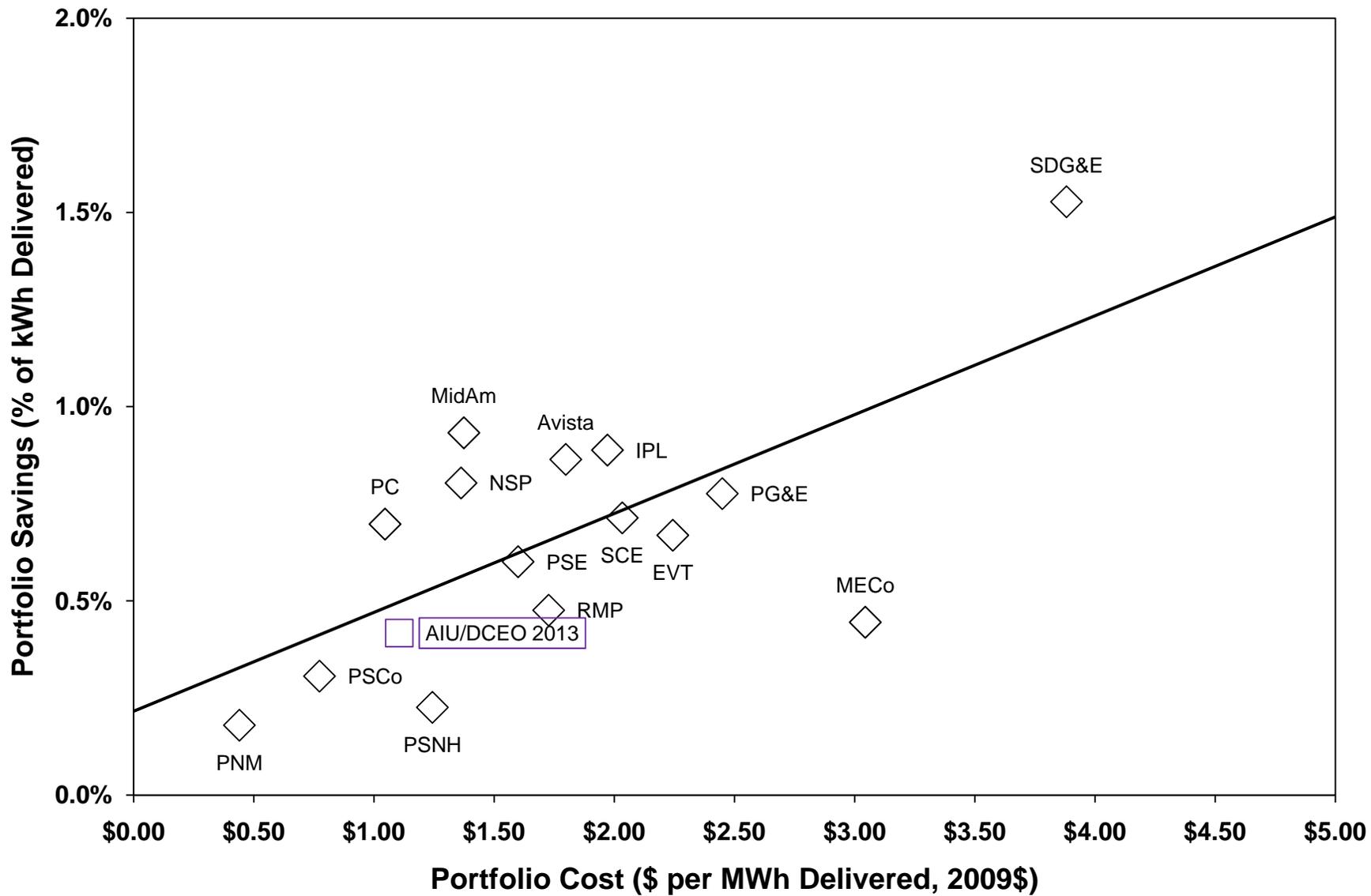
*Energy efficiency savings over 0.4% of deliveries*

Savings Calculated: *per Unit of Energy Delivered*

Costs Calculated: *per Unit of Energy Delivered*

Program Administrator	State	Acronym for Chart	Portfolio Metrics, All Programs	
			Expenditure per Unit Energy Delivered	Savings per Unit Energy Delivered
			(\$/MWh)	(% of Deliveries)
<b>Utility Administrators</b>				
Pacific Gas & Electric	CA	PG&E	\$3.22	1.26%
Southern California Edison	CA	SCE	\$2.55	1.29%
San Diego Gas & Electric	CA	SDG&E	\$4.15	1.83%
Puget Sound Energy	WA	PSE	\$2.78	1.27%
PacifiCorp	WA	PC	\$1.50	1.03%
Avista Corp	WA	Avista	\$2.04	1.08%
Idaho Power	ID & OR	ID Pwr	\$1.46	1.02%
Nevada Power	NV	NP	\$1.47	1.52%
Sierra Pacific Power	NV	SPP	\$1.08	1.12%
Arizona Public Service	AZ	APS	\$0.89	0.73%
Public Service Co of New Mexico	NM	PNM	\$0.67	0.42%
Rocky Mountain Power (PacifiCorp-UT)	UT	RMP	\$2.01	0.84%
Public Service Company of Colorado	CO	PSCo	\$1.12	0.78%
MidAmerican Energy	IA	MidAm	\$1.46	1.14%
Interstate Power and Light	IA	IPL	\$2.08	1.16%
Northern States Power	MN	NSP	\$1.51	1.06%
Public Service Company of New Hampshire	MN	NSP	\$1.61	0.56%
Massachusetts Electric Co.	MN	NSP	\$4.14	0.89%
Connecticut Light & Power	CT	CL&P	\$2.24	0.88%
United Illuminating	CT	UI	\$3.29	1.42%
<b>Nonutility Administrators</b>				
Energy Trust of Oregon	OR	ETO	\$1.33	0.58%
Wisconsin Focus on Energy	WI	WFOE	\$0.95	0.58%
Efficiency Vermont	VT	EVT	\$4.61	1.78%

### Portfolio Savings and Spending *Excluding Prescriptive Lighting Programs*



**Energy Efficiency Portfolio Benchmark Data: 2009 Program Year,  
Excluding Prescriptive Lighting**

Benchmark Performance Year: 2009

Sample Definition: *Administrators with public portfolio results*

*Administrators reporting prescriptive lighting results*

*Energy deliveries over 4 GWh/in 2008*

*Energy efficiency savings over 0.4% of deliveries*

Costs Calculated: *per Unit of Energy Saved*

Savings Calculated: *per Unit of Energy Delivered*

Program Administrator	State	Acronym for Chart	Portfolio Metrics, Excluding Prescriptive Lighting Programs	
			Expenditure per Unit Energy Delivered	Savings per Unit Energy Delivered
			(2009\$/MWh)	(% of Deliveries)
<b>Utility Administrators</b>				
Pacific Gas & Electric	CA	PG&E	\$2.45	0.78%
Southern California Edison	CA	SCE	\$2.03	0.71%
San Diego Gas & Electric	CA	SDG&E	\$3.88	1.53%
Puget Sound Energy	WA	PSE	\$1.60	0.60%
PacifiCorp	WA	PC	\$1.05	0.70%
Avista Corp	WA	Avista	\$1.80	0.86%
Public Service Co of New Mexico	NM	PNM	\$0.44	0.18%
Rocky Mountain Power (PacifiCorp-UT)	UT	RMP	\$1.73	0.48%
Public Service Company of Colorado	CO	PSCo	\$0.77	0.31%
MidAmerican Energy	IA	MidAm	\$1.37	0.93%
Interstate Power and Light	IA	IPL	\$1.97	0.89%
Northern States Power	MN	NSP	\$1.36	0.80%
Public Service Company of NH	NH	PSNH	\$1.24	0.23%
Massachusetts Electric Company	MA	MECo	\$3.04	0.44%
<b>Nonutility Administrators</b>				
Efficiency Vermont	VT	EVT	\$2.24	0.67%

Ameren Illinois/DCEO, For Comparison				
		AIU/DCEO 2011	\$1.07	0.44%
		AIU/DCEO 2012	\$1.10	0.43%
		AIU/DCEO 2013	\$1.10	0.42%