

FRAMING THE QUESTION: How Much Energy Efficiency is Achievable?

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“The Truth? You can’t handle the truth.”

- Jack Nicholson

‘A Few Good Men’

THE QUESTION

How much energy efficiency is achievable?

MY FAVORITE ANSWER

**How much energy efficiency....
are you willing to pay for?**

KEY OBSERVATION #1

The **limiting factor** in utility or public benefits energy efficiency programs to date has never been the lack of cost-effective savings opportunities....

Rather, it has always been a strategic/political decision on **what energy efficiency spending levels and/or rate surcharge levels would be tolerated.**



SEEKING A MORE QUANTITATIVE ANSWER

There are 2 basic ways to approach a quantitative response to the question of how much energy efficiency is achievable:

- Examine existing studies of energy efficiency potential
- Look at actual results achieved to date

METHOD 1: STUDIES OF ENERGY EFFICIENCY POTENTIAL

We've identified about a dozen state, regional, or national studies of energy efficiency program potential conducted since 2000.

Primary source:

The Technical, Economic, and Achievable Potential for Energy Efficiency in the U.S.: A Meta-Analysis of Recent Studies

Nadel, Shipley & Elliott, 2004

<http://aceee.org/conf/04ss/rnemeta.pdf>



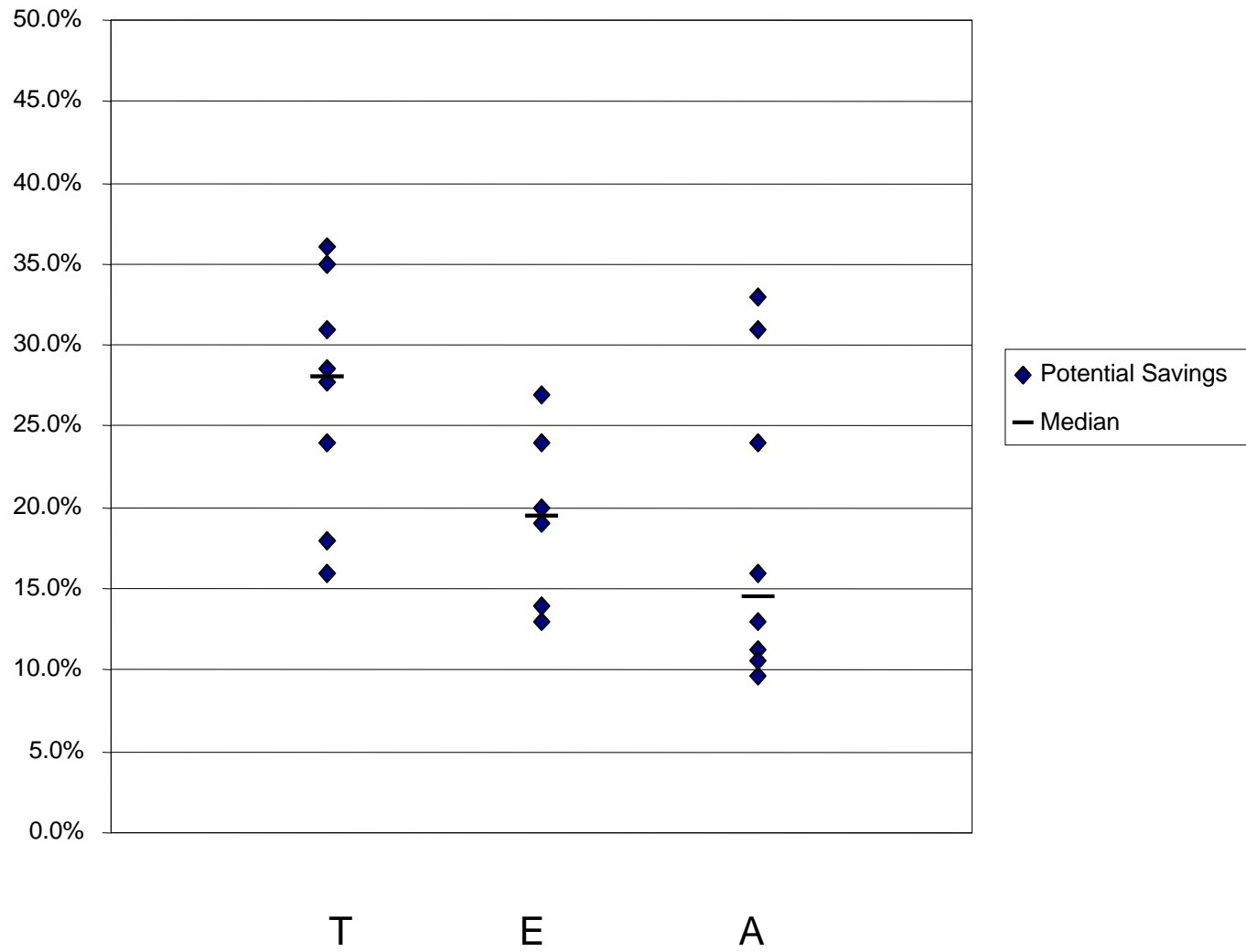
IMPORTANT STUDY DIMENSIONS

- Type of potential
 - Technical
 - Economic
 - Achievable
- Timeframe
 - Typically in 5-year increments
(5, 10, 15, 20 years)
- Sectors
 - Residential, Commercial, Industrial, Total

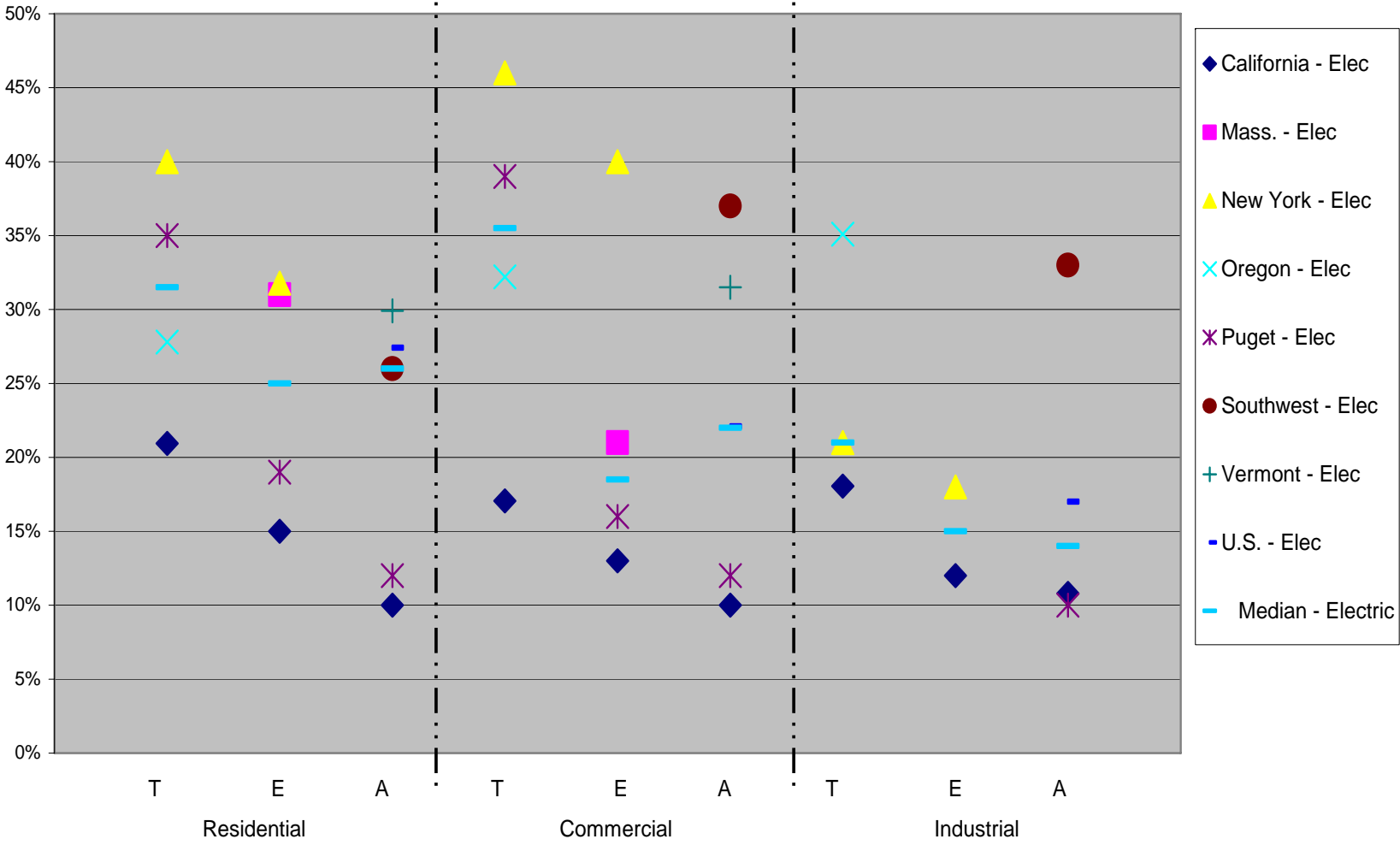


Summary of Results from Recent Technical, Economic and Achievable Electric Savings Potential Studies					
				Potential (%)	
Region	Year	# Years	Technical	Economic	Achievable
California	2003	10	18%	13%	10%
Connecticut	2003	10	24%		13%
Iowa 1	2003	10	28%		
Iowa 2	2002	10	28%	20%	10%
Massachusetts	2001	5		24%	
New York 1	2003	20	36%	27%	
New York 2	2003	20			16%
Oregon	2003	10	31%		
Puget	2003	20	35%	19%	11%
Southwest	2002	17			33%
Vermont	2003	10			31%
Minnesota	2003	20	16%	14%	
U.S.	2000	20			24%
Median			28.0%	19.5%	14.5%

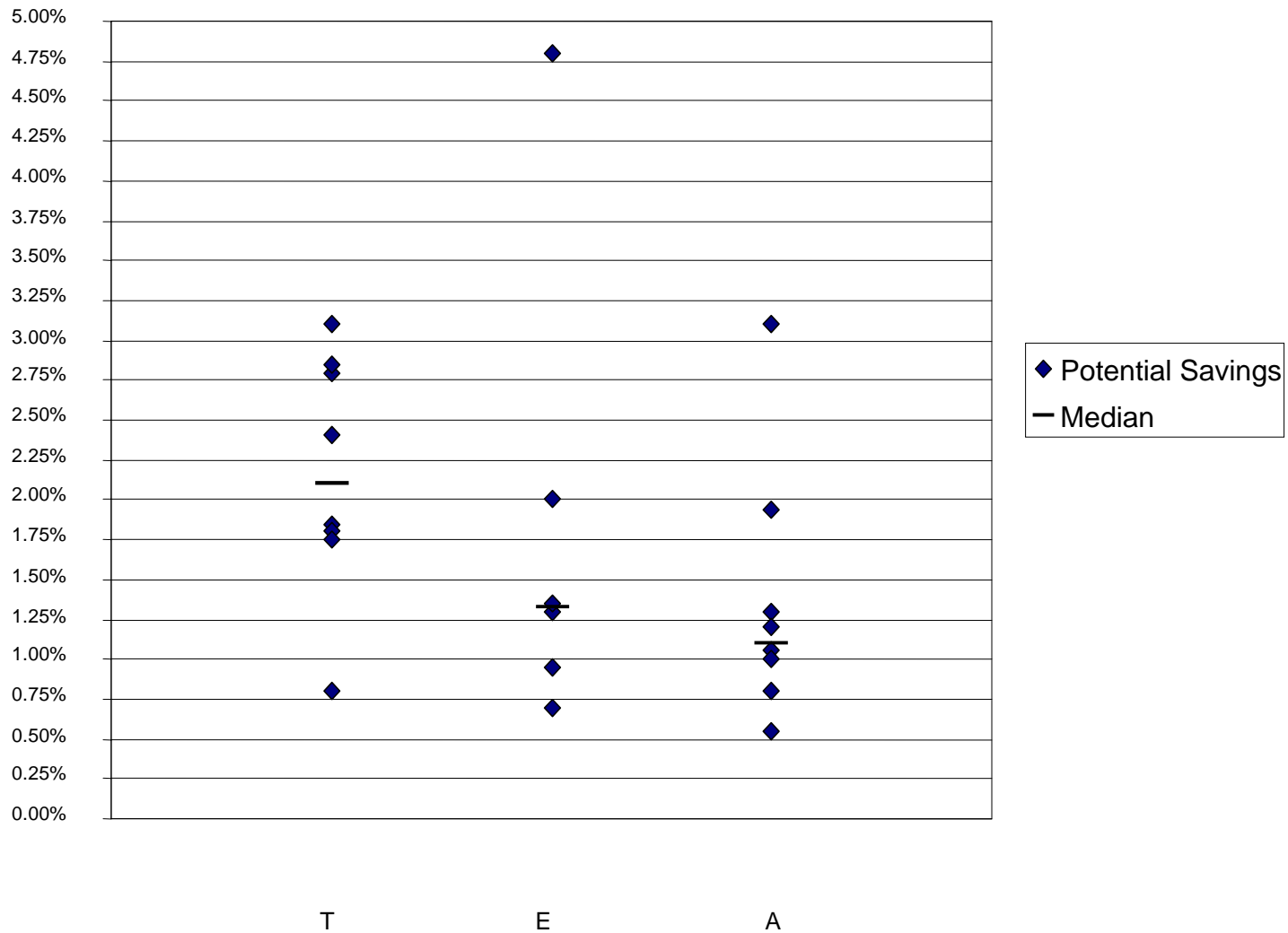
Summary of Electricity Savings Potential



Summary of Electricity Savings Potential by Sector



Electricity Savings Per Year by Type of Potential



KEY OBSERVATION #2

Energy efficiency potential studies don't drive energy efficiency **funding levels**. I'm not aware of any state or utility that has set their EE funding levels in order to acquire the identified achievable potential.

Funding is always less, usually considerably less.



CASE IN POINT: TEXAS

Texas requirement: save 10 percent of load **growth** each year

That equates to perhaps 0.2 percent of current consumption

[or a savings goal of about **one-sixth** of the nearly 1.2% per year **median** savings potential identified in the EE potential studies]

METHOD 2: ACTUAL EXPERIENCE

Actual state/utility experience in terms of energy savings impact has varied considerably

- The all-time champ is California, in the energy crisis of 2001, where a total statewide annual reduction in electricity use of 6.7% was achieved
(approx. 1/3 hardware, 2/3 behavioral)
- Several states have achieved impressive annual savings in the range of 0.8% to 1.0% of total electricity consumption
- Most states have saved a lot less....primarily because they've spent a lot less.



Electricity Savings Achieved Per Year in Leading States

	Year	Mills/kWh Funding Level Equivalent	Savings/Year (%)
California	2001	5.1*	2.0%
	2002	1.3+*	0.6%
Connecticut	2001	3.0	1.0%
	2002	3.0	0.8%
Massachusetts	2001	2.5	0.6%
	2002	2.5	0.7%
Rhode Island	2001	2.6	0.8%
	2002	2.7	0.8%
Vermont	2001	2.6	0.7%
	2002	2.7	0.8%
	2003	2.7	1.1%
Median of ~ 20 States	---	1.0	---
Texas	2003	0.3	0.2%

Source: Data provided to ACEEE by officials in each state.

A RELATED QUESTION

Haven't we already captured most of the available energy efficiency?

KEY OBSERVATION #3

No state or utility has yet even remotely approached a point of “running out of” cost-effective energy efficiency opportunities

Even CA, with a 30-year history of the most aggressive package of energy efficiency policies and programs in the nation still has found large amounts of remaining cost-effective EE potential

Why?

- > Huge technical potential
- > EE costs have declined over time
- > New EE technologies emerge



CONCLUSIONS

- The real constraints on EE potential have been practical/ political limits on the willingness to fund EE programs
- Nearly all states could cost-effectively spend much more than they are currently spending on EE
- For a variety of reasons (soaring fuel prices, system reliability concerns, growing environmental risks, etc.) the prospects of expanding the practical/ political limits on EE funding have never been better.



CONCLUSIONS

- Policymakers and regulators may be getting closer to the day where they are ready to “handle the truth” and provide funding authority to pursue the full achievable energy efficiency potential
- So go for it!