



Find the Low-Hanging Fruit: Efficiency Supply Curves as a Means to Understanding and Targeting Efficiency Savings

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Overview

- Utilities and program administrators are facing aggressive savings goals.
- Question: What are the best strategies for meeting aggressive goals?
- Answer: Learn from administrators with successful, aggressive portfolios.
 - Sectors
 - End uses
 - Measures
 - Program



Why Analyze Energy-Efficiency Portfolios?

- Example: Minnesota and Illinois

Year Commencing	Energy Savings Goal
June 1, 2008	0.2% of total sales
June 1, 2009	0.4% of total sales
June 1, 2010	0.6% of total sales
June 1, 2011	0.8% of total sales
June 1, 2012	1% of total sales
June 1, 2013	1.4% of total sales
June 1, 2014	1.8% of total sales
June 1, 2015 and thereafter	2.0% of total sales



Key Analysis Questions

- *How are the utilities/consortiums achieving savings?*
 - The analysis examines savings across a number of dimensions, including program type and measure end-use.
- *What are the costs to achieve the savings?*
 - The analysis examines cost per kWh and cost per therm, identifying which programs/measures tend to be the most cost-effective.

Methodology

- Organize data by program or end-use.
 - Not by detailed measure; program level provides insights into measure categories and end-uses.
- Assign / allocate total program / end-use costs.
 - Includes marketing, advertising, outreach costs, evaluation, and other administrative expenditures.
- Normalize costs and savings.
 - Calculate costs per unit energy savings and total net savings per annual retail sales.
- Create supply curves comparing normalized costs and savings.

Data

- Electric Portfolios
 - Efficiency Vermont (2007)
 - Southern California Edison (2006-07)
 - San Diego Gas & Electric (2006-07)
- Natural Gas Portfolios
 - Southern California Gas (2006-07)
 - San Diego Gas & Electric (2006-07)

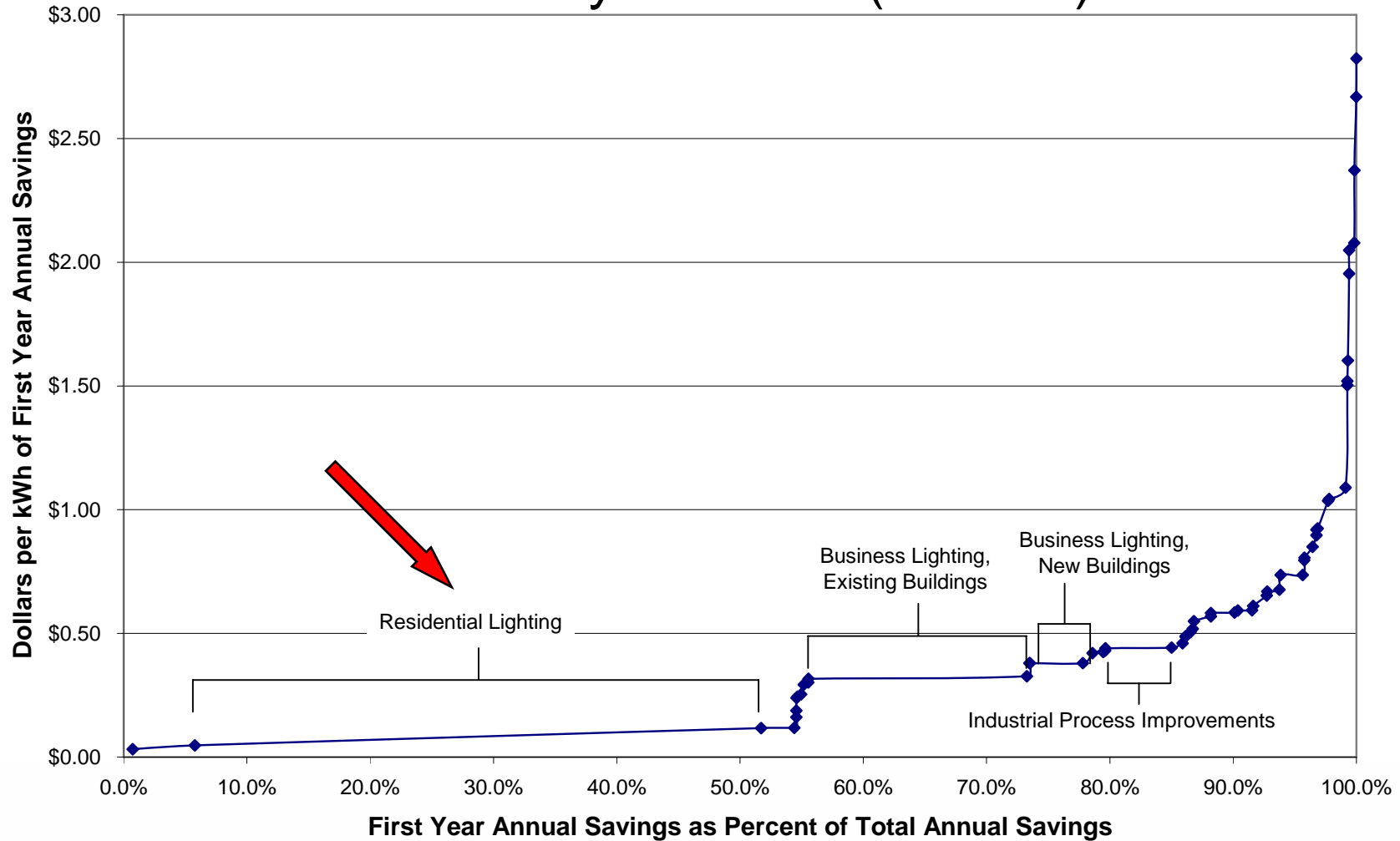
Electric Supply Curves: Lessons Learned

- CFLs make or break results, but...
- Additional large, cost-effective programs are also important (e.g., SDG&E's Energy Savings Bid Program).



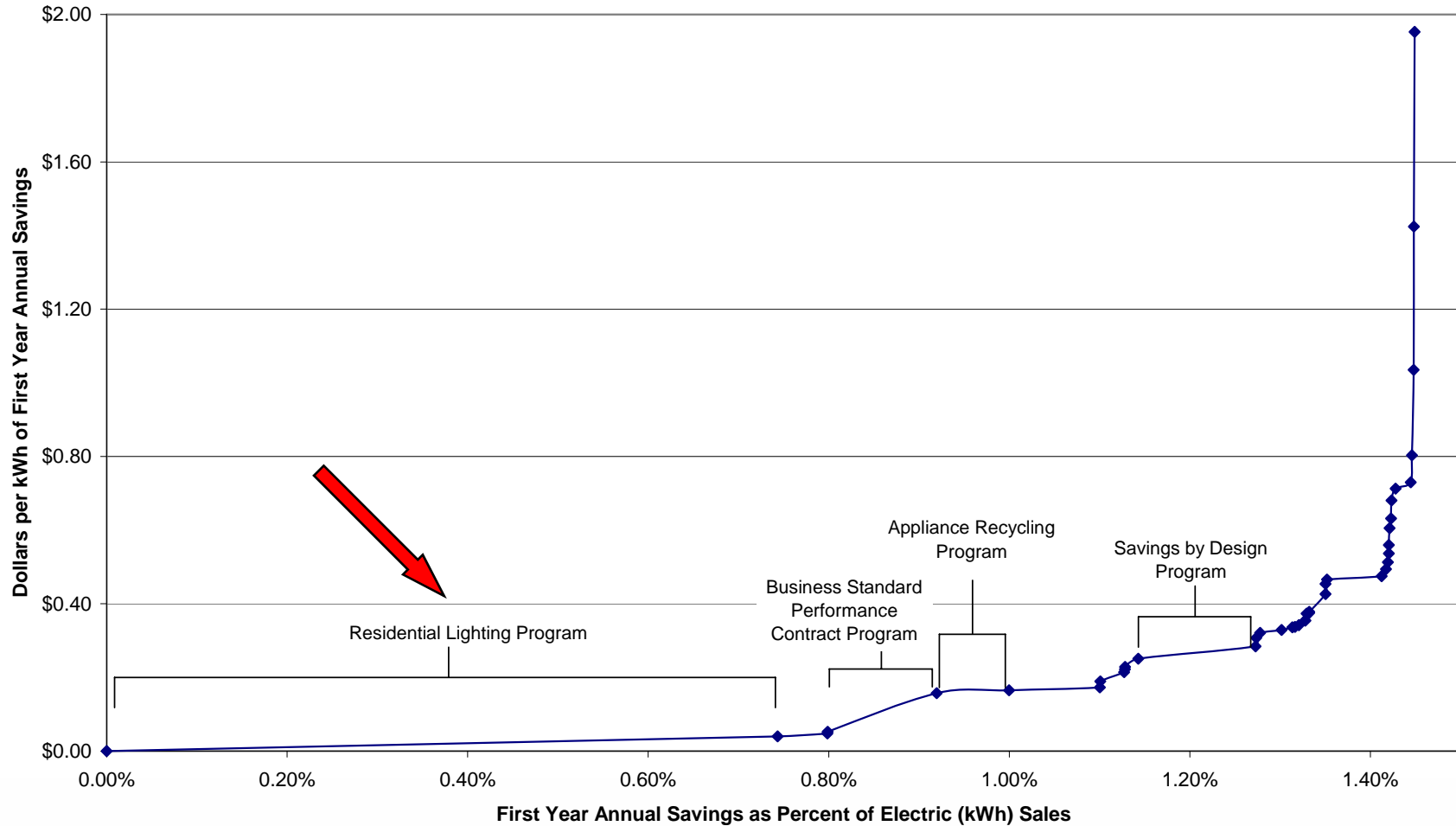
Comparing Supply Curves

Efficiency Vermont (Electric)



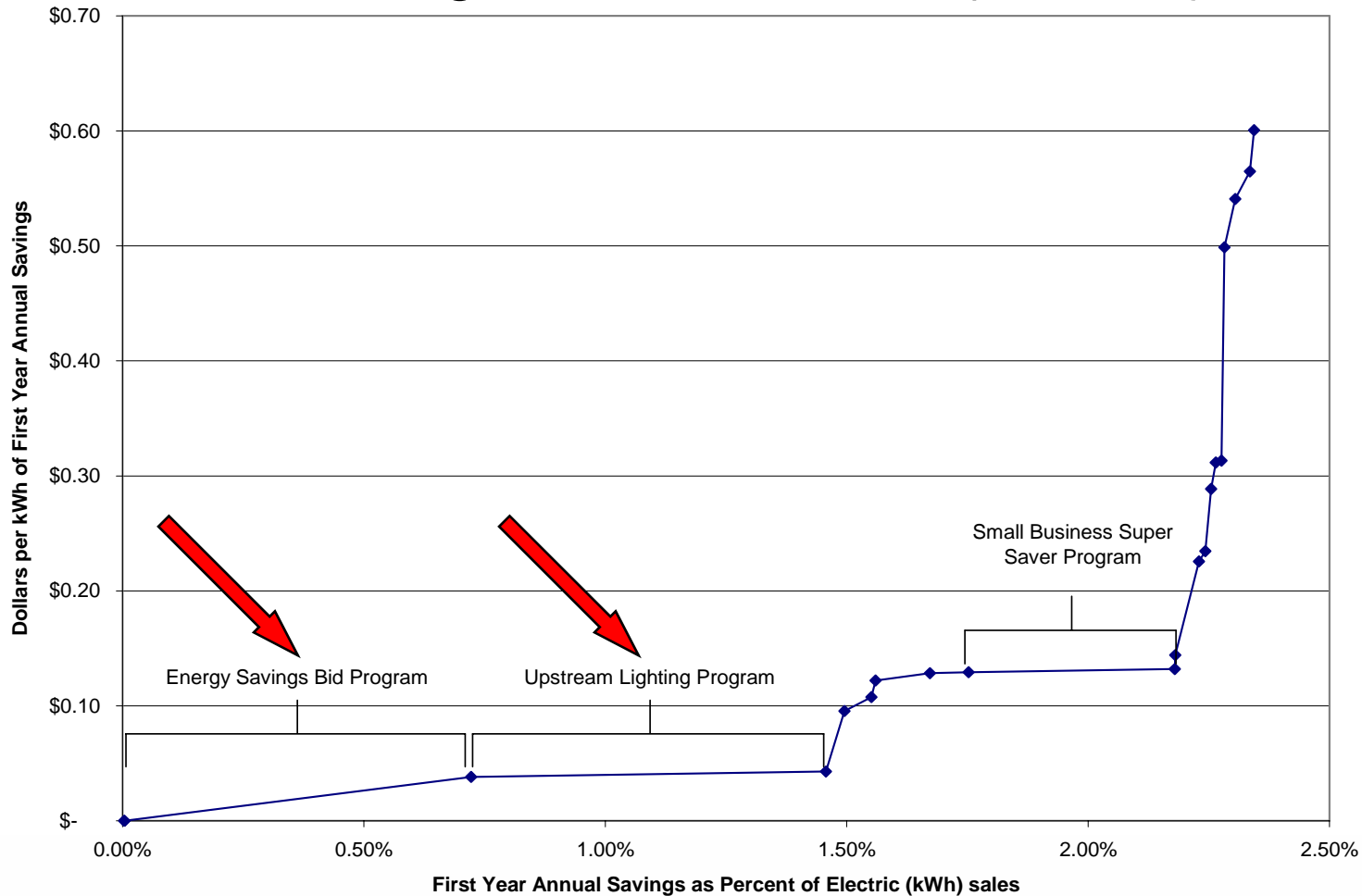
Comparing Supply Curves

Southern California Edison (Electric)



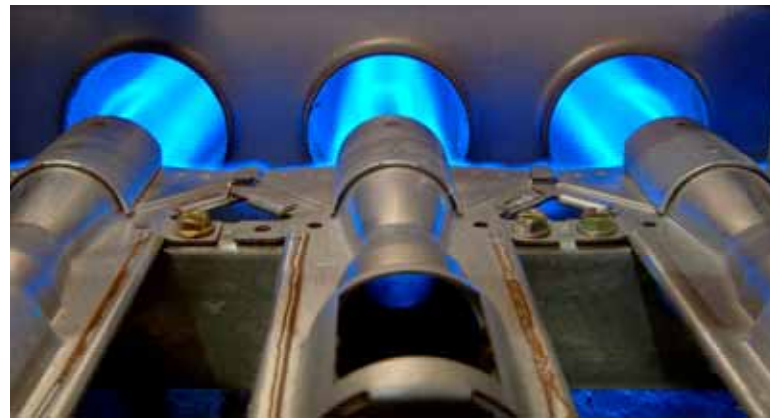
Comparing Supply Curves

San Diego Gas & Electric (Electric)



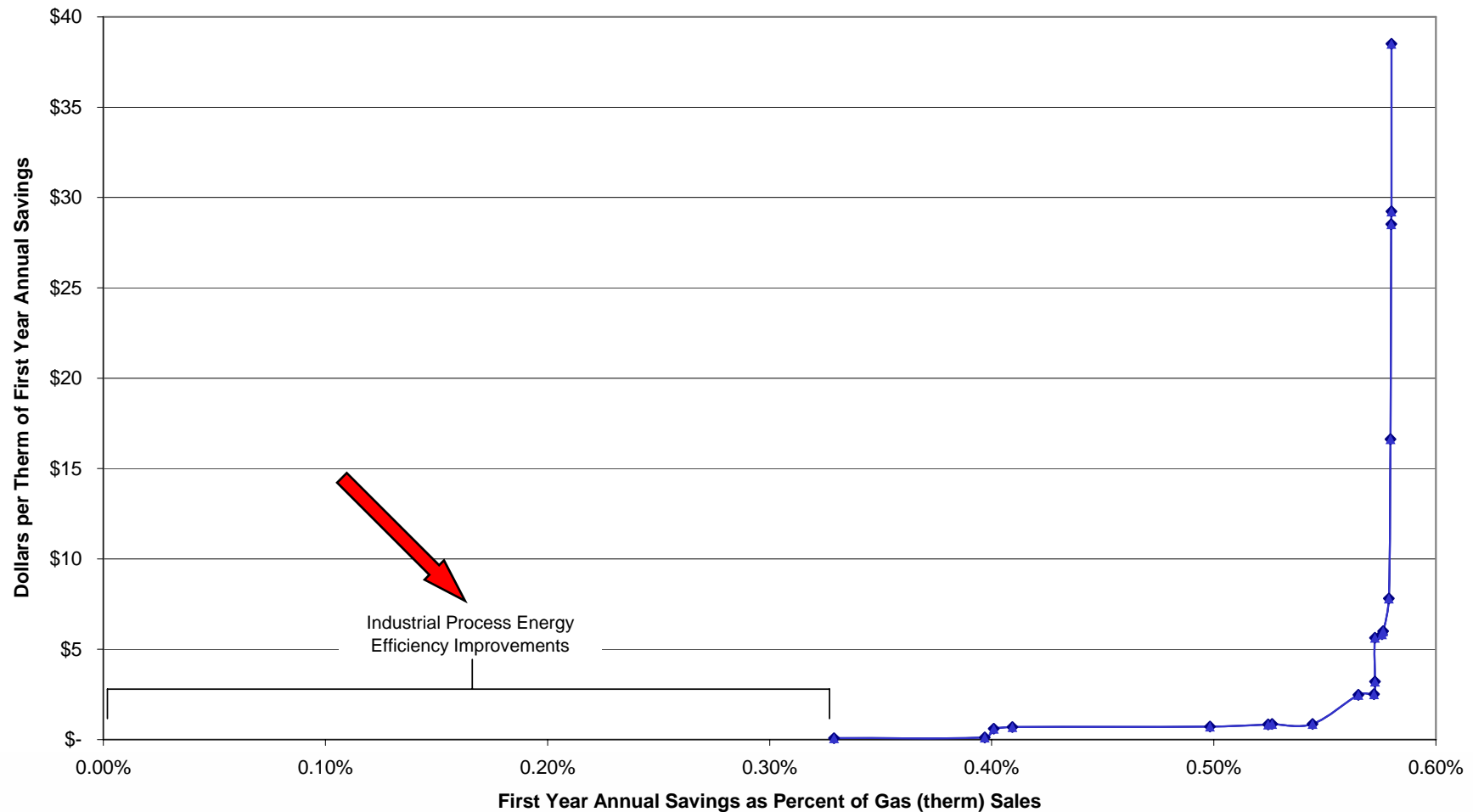
Gas Supply Curves: Lessons Learned

- Focus on large, cost-effective, large-customer programs:
 - SDG&E: Energy Savings Bid
 - SCG: Industrial Process Improvements



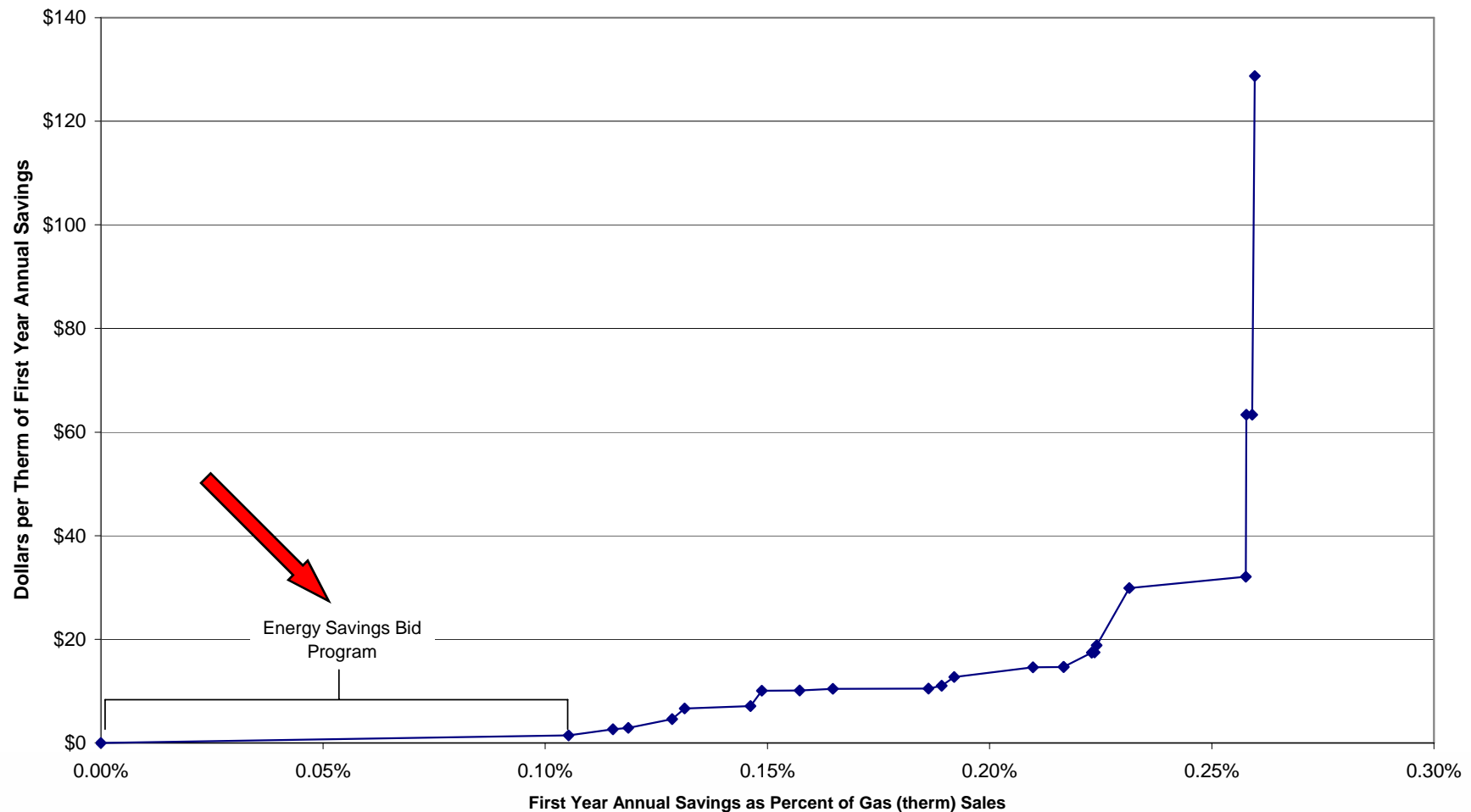
Comparing Energy-Efficiency Supply Curves

Southern California Gas



Comparing Energy-Efficiency Supply Curves

San Diego Gas & Electric (Gas)



Next Steps

- Add portfolios
 - Geographical regions
 - Large/small utilities
 - Customer bases
 - Fast/slow growing territories
 - Add metrics
 - Levelized costs over measure lives
 - Disaggregate data by measures
 - Disaggregate costs by cost type
- Need for quality, uniform data sources...***



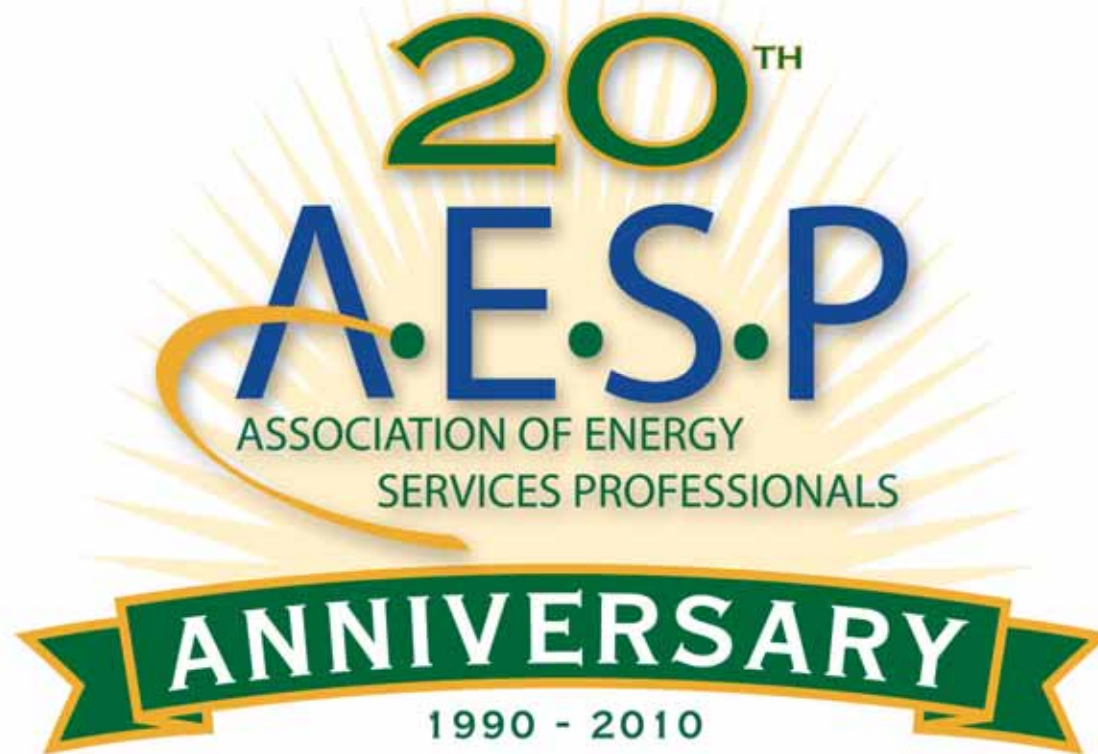
Benefits To Client

- Cost of energy-efficiency measures tends to follow a step function.
 - When should client jump to next step?
- Utilities rely heavily on CFLs to meet their energy-efficiency goals.
- Strategies for achieving cost-effective, high-impact savings exist outside of CFLs.
 - Example: ESBP of SDG&E

Conclusions

- Energy-efficiency supply curves
 - Are useful tools for visual comparisons and summaries.
 - Useful to managers, regulators, and interveners.
 - Enable meta-level analysis of portfolios (**overall** energy efficiency strategy and cost-effectiveness)





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