



Best Practices for Midwest Electric C&I DSM Programs

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Agenda

- Introduction
- Commercial and industrial DSM benchmarking results
- Commercial and industrial best practice DSM programs
- Conclusions

DSM Benchmarking Analysis

- Summit Blue conducted the analysis presented as part of several DSM potential studies. Analysis used publicly available data, primary utility DSM annual regulatory reports, as well as FERC Form 861 baseline sales data.
- Collected 2005-2006 utility and agency DSM program results and baseline sales information from 18 organizations across North America, with a focus on the Midwest (11 organizations).
- Normalized DSM program results using baseline sales data to determine the percentages of baseline sales and peak demands conserved through DSM programs.
- Also calculated costs of conserved energy and demand on a first year basis.
- Summit Blue used these analysis results to set DSM potential and program cost benchmarks.

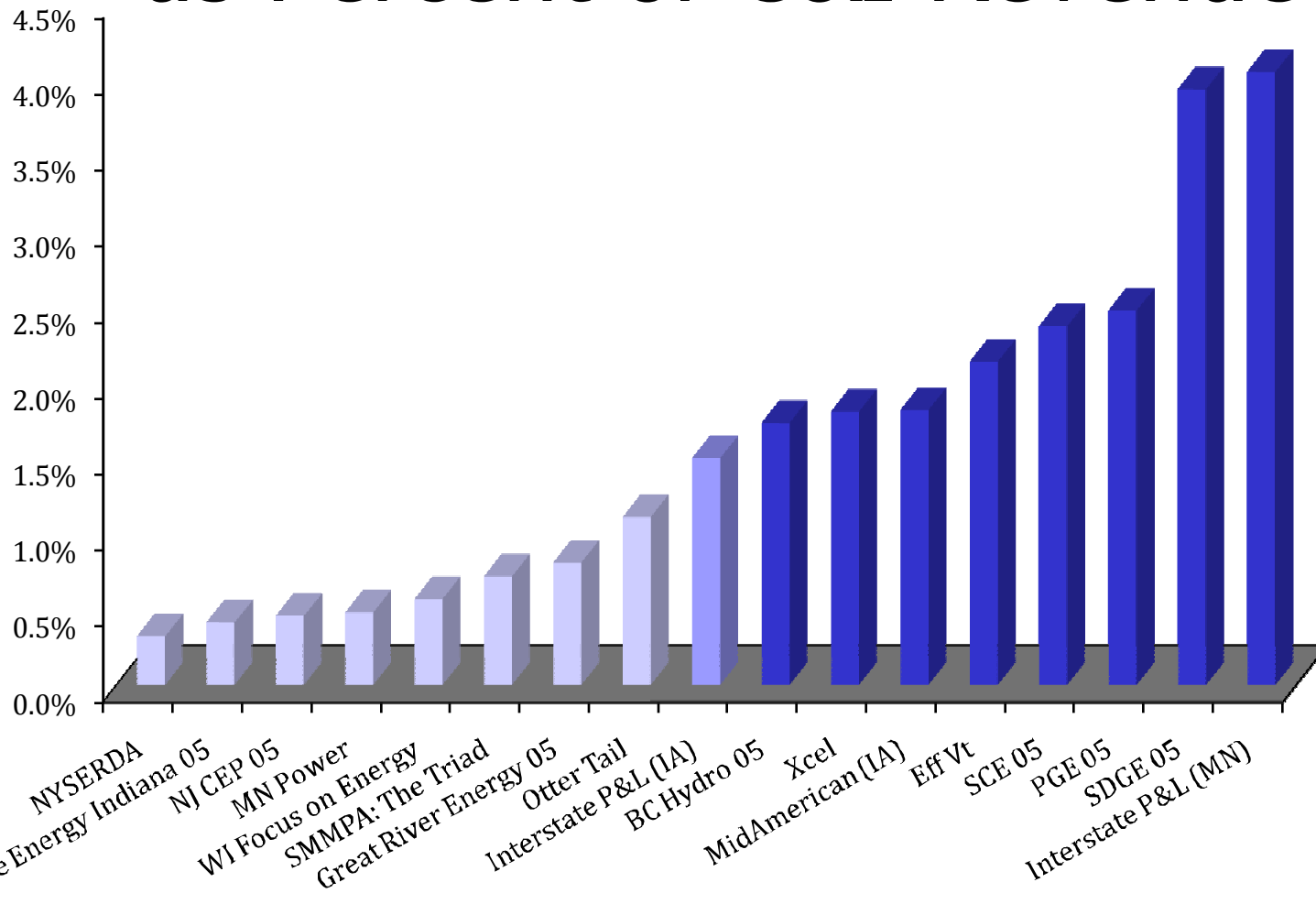
Organizations Benchmarked

Midwest	Northeast
Duke Energy	Efficiency Vermont
Great River Energy	New Jersey Clean Energy Program
Indianapolis Power & Light	New York State Energy Research and Development Authority
Interstate Power & Light (IA)	West
Interstate Power & Light (MN)	Pacific Gas & Electric
MidAmerican Energy (IA)	San Diego Gas & Electric
Minnesota Power	Southern California Edison
Otter Tail Power	Canada
Southern Minnesota Municipal Power Agency: The Triad	BC Hydro and Power Authority
Wisconsin Focus on Energy	
Xcel Energy	

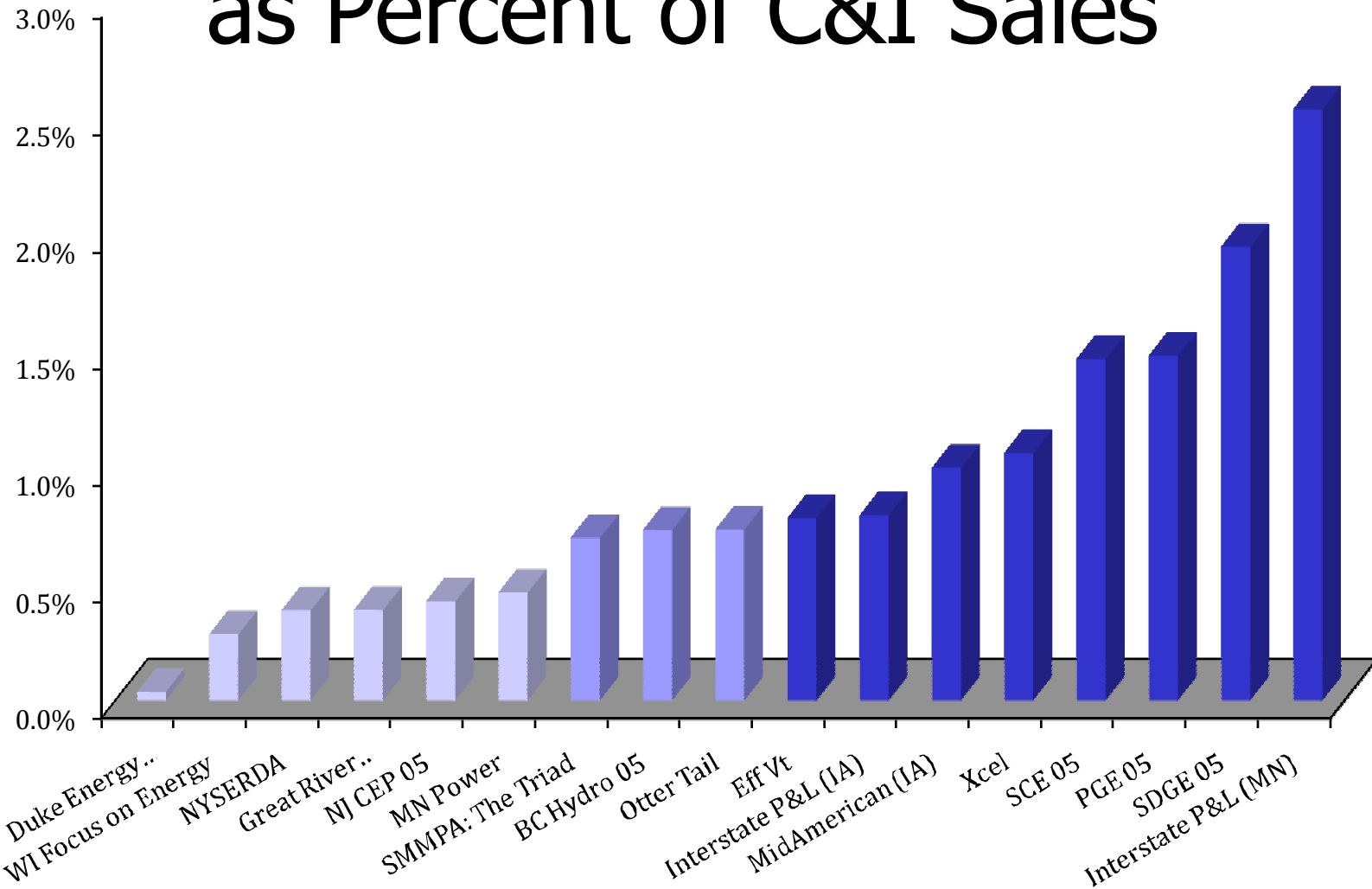
DSM Benchmarking Context

- DSM requirements and regulatory treatment have significant influences on overall program results.
- In Minnesota, electric utilities currently must spend 1.5%-2% of their revenues on EE/DR. Program cost recovery is guaranteed, and performance-based EE/DR financial incentives can be up to 30% of program costs.
- Indiana grants EE/DR cost recovery, but it sets no requirements, nor does it offer any financial incentives. Indiana is the only jurisdiction reviewed that focuses C&I EE programs on small businesses.

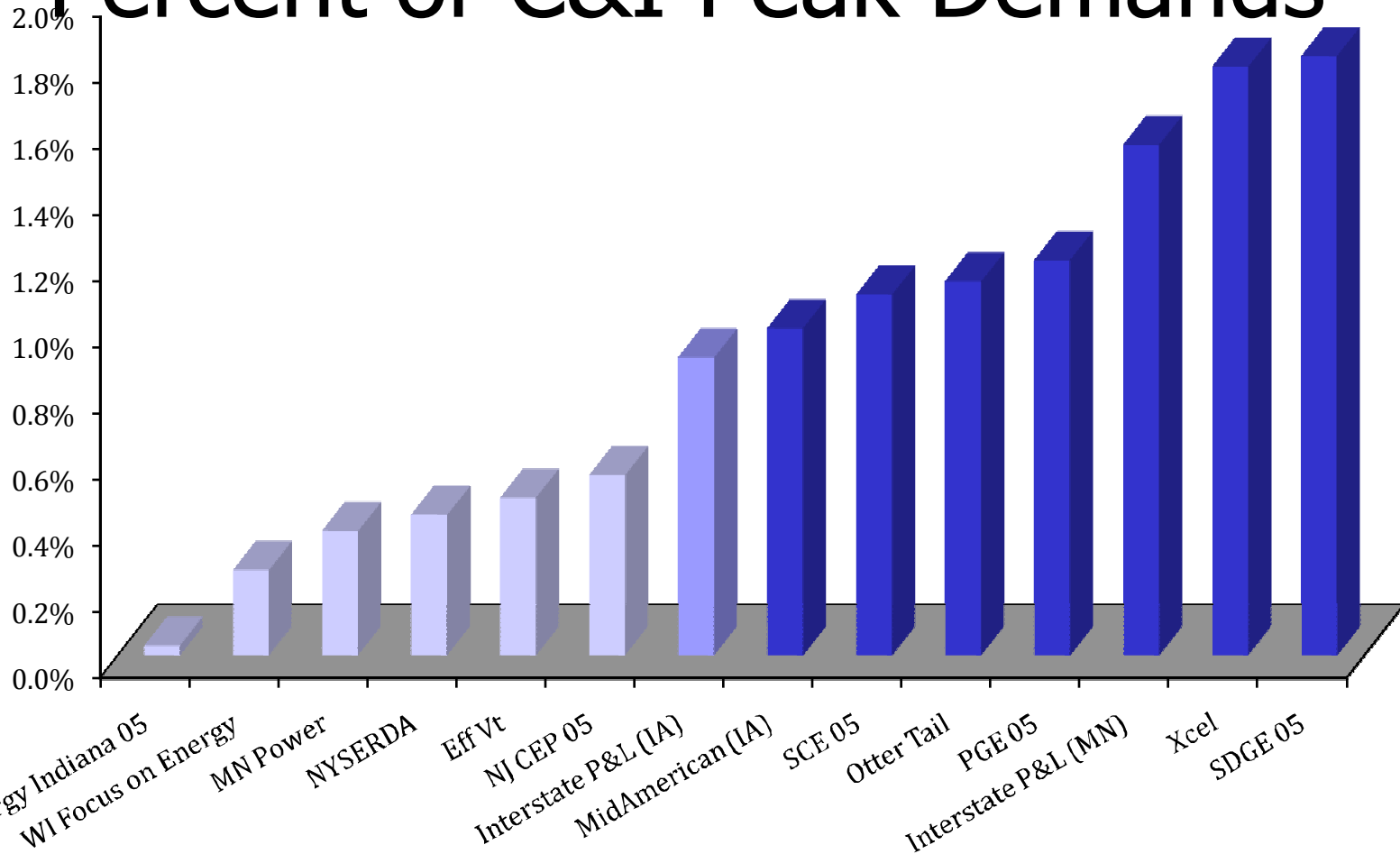
C&I DSM Spending as Percent of C&I Revenue



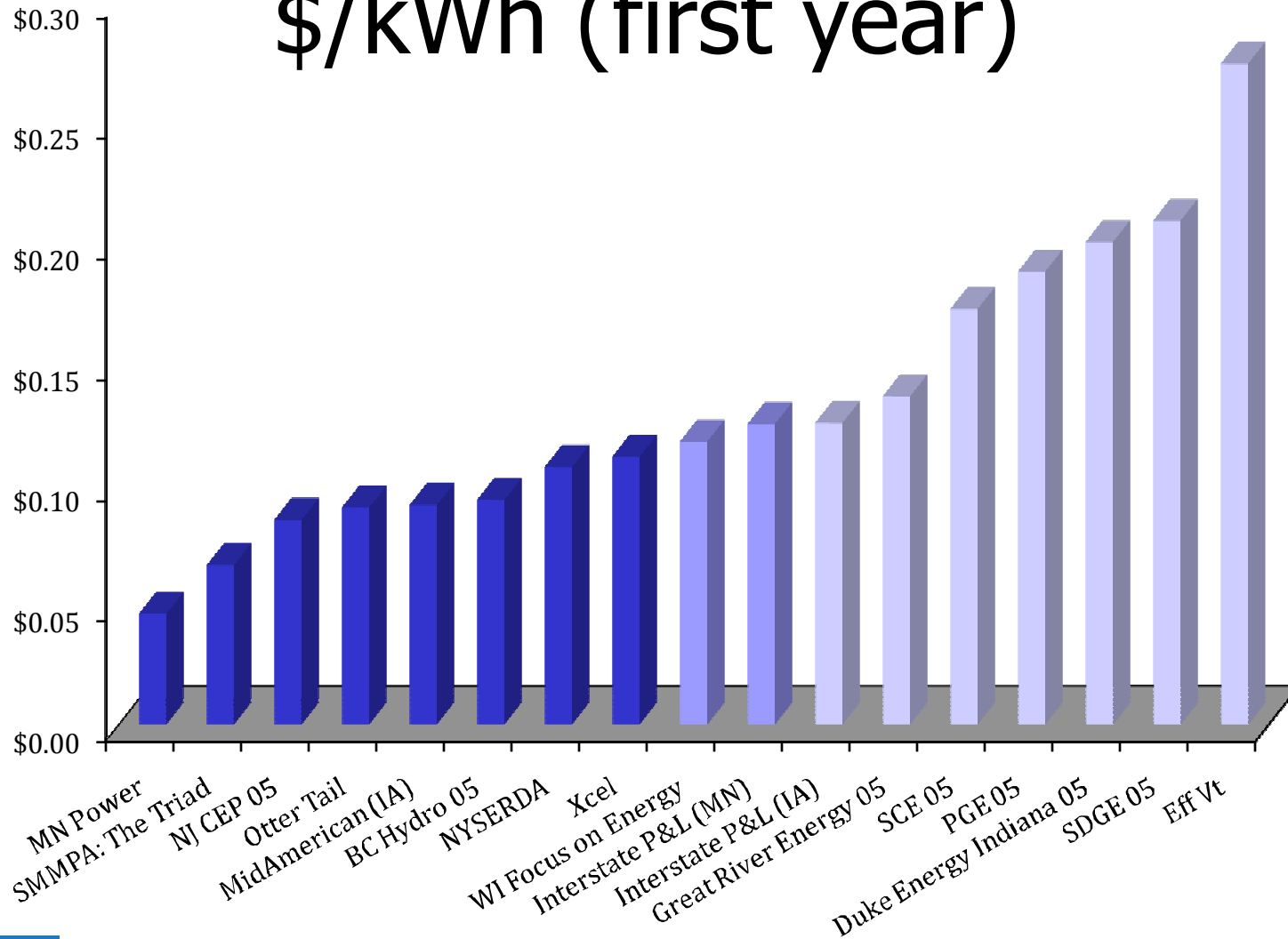
C&I DSM Energy Savings as Percent of C&I Sales



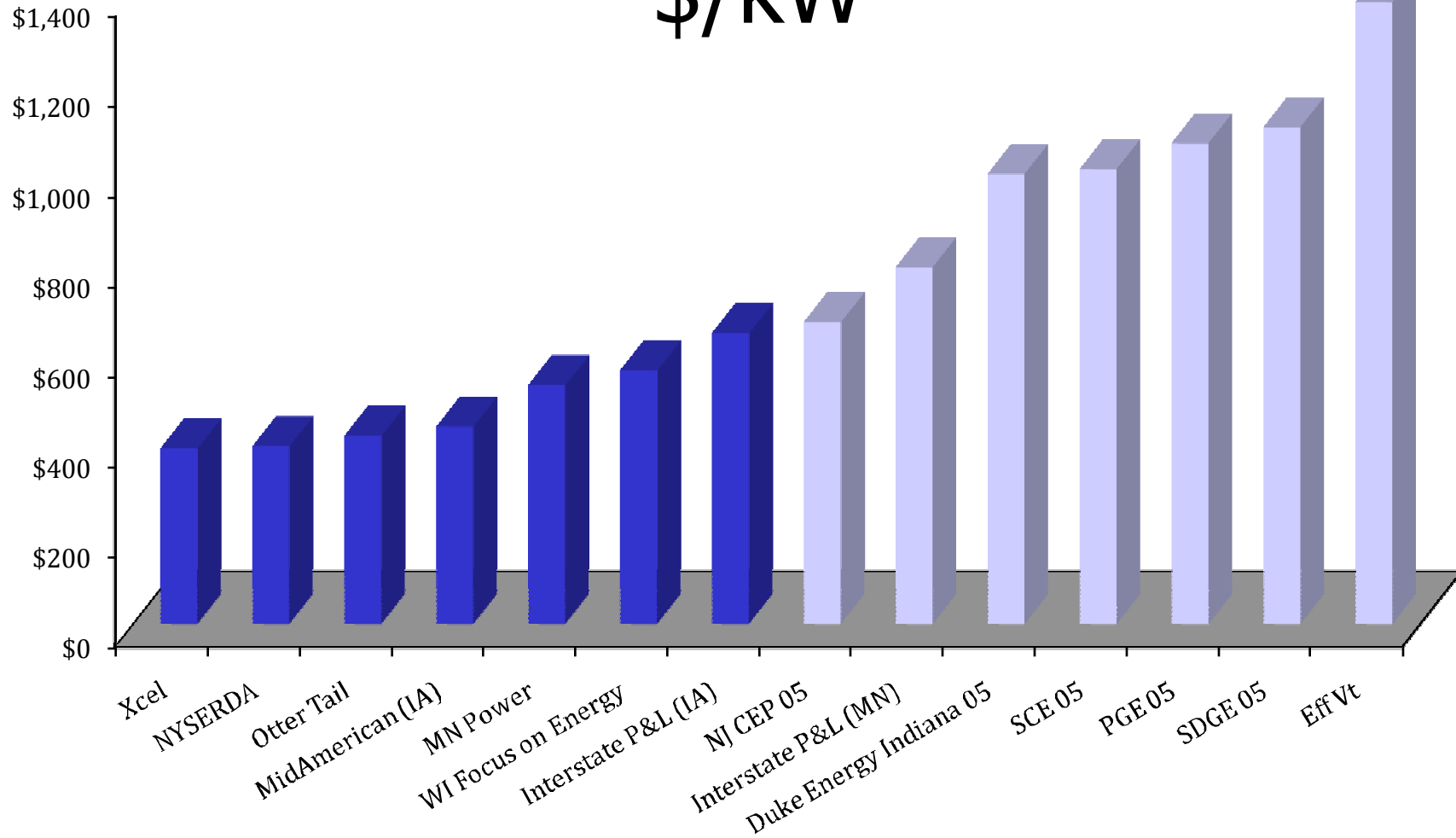
C&I Peak Demand Savings as Percent of C&I Peak Demands



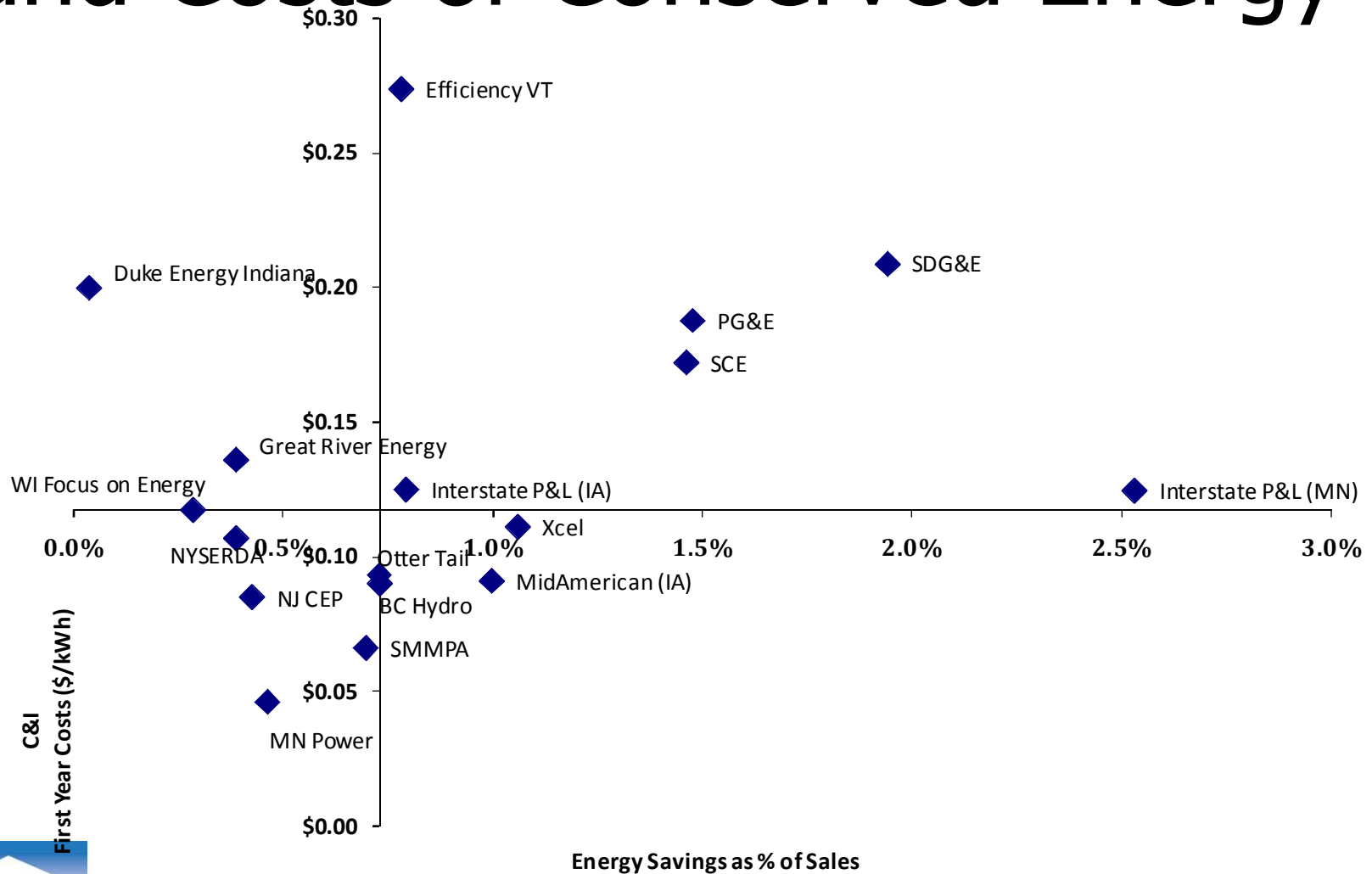
Costs of Conserved C&I Energy \$/kWh (first year)



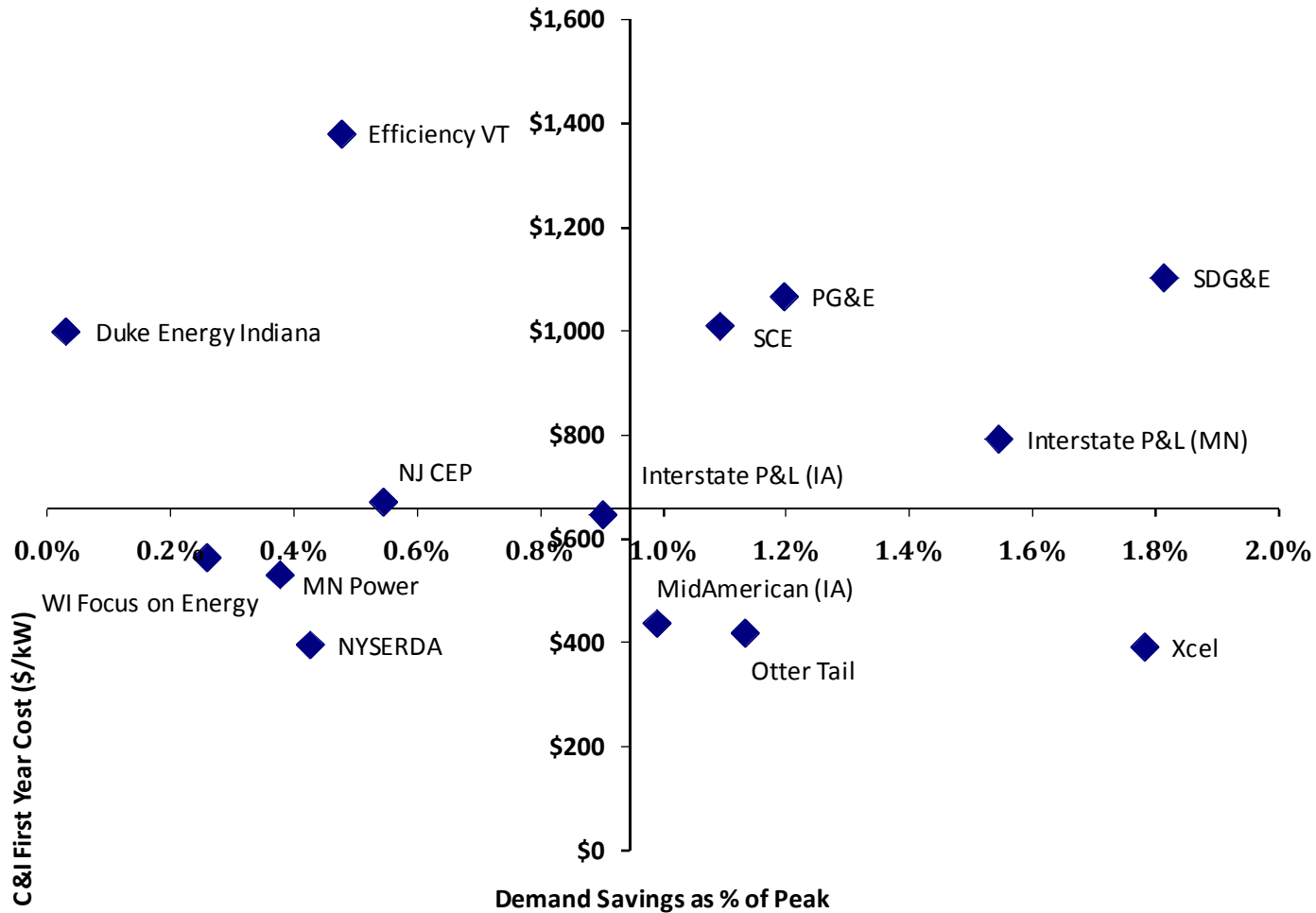
Cost of Conserved C&I Peak Demand \$/kW



Plot of C&I Conserved Energy and Costs of Conserved Energy



Plot of C&I Peak Demand Reductions and Costs of Conserved Demand



Key Programs to High Impact Midwest C&I DSM Portfolio

- Prescriptive Rebates
- New Construction
- Custom

C&I Prescriptive Rebates

- Prescriptive rebate programs generally cover standard lighting, HVAC, and sometimes motor DSM measures.
- C&I Lighting programs/measures are often the largest single element of DSM program savings for many utilities. C&I lighting program results are about 0.3% to 0.6% of C&I baseline sales for top-performing Midwest utilities.
- C&I HVAC programs/measures generally have limited energy and demand savings impacts, around 0.1% of baseline C&I sales annually, or from 2% to 10% of total C&I energy or demand savings for top-performing Midwest utilities.
- C&I Motors programs/measures generally have limited energy and demand savings impacts, of about 0.1% of baseline C&I sales annually, or about 10% of total C&I energy or demand savings for top-performing Midwest utilities.

C&I Prescriptive Rebates Program Best Practices

Best practice programs defined as higher than median savings and lower than median program costs.

- Conduct significant direct marketing to customers, primarily through direct mail and utility account reps.
- It is equally important to conduct significant marketing to contractors, vendors, and distributors. This is done primarily through personal contacts and periodic seminars.
- Selected Iowa and Minnesota utilities had the highest impact and lowest cost programs in the region.

C&I New Construction

- These program focus on customers that are building larger C&I new buildings. Often the core participants are buildings 50,000 sq.ft. and larger. Often a less intensive “plan review” service is offered for smaller buildings.
- These programs often are of the greatest achieving categories of DSM program results. For best practice Midwest utilities, new construction programs account for 20% - 40% of total C&I energy or demand savings impacts.
- These program are also important from a “lost opportunities” perspective: it’s a lot easier and cheaper to build a building right the first time than to go back and try to “fix” it later.
- However, savings from these programs usually take several years to reach significant levels, due to the length of commercial construction cycles and the time for the markets to become familiar and comfortable with this type of program.

C&I New Construction Program Best Practices

- Building simulation modeling such as eQuest should be done to quantify energy and demand savings aspects for 2-3 “bundles” of DSM measures. These bundles of measures should save about 20%, 30%, or 40% of baseline energy and demand use compared to similar buildings that just meet state building energy codes. Customers and A/E firms will choose the bundle that is most attractive to them.
- Utilities often outsource the building simulation modeling, and possibly the direct interaction with the A/E firms designing the buildings, due to the technical skills required.
- Selected Iowa and Minnesota utilities have the highest impact and lowest cost programs in the Midwest.

C&I Custom DSM Programs

- Custom programs cover innovative DSM measures with energy and demand savings that can vary considerably from application to application.
- Program types include standard custom rebate programs, which have a long history in the industry, to newer “Shared Savings” and “DSM Bidding” approaches.
- The type of measures covered by such programs varies quite a bit from program to program but often includes industrial process measures, HVAC total system conversions, commercial refrigeration system measures, and sometimes even innovative lighting measures such as lighting controls.
- Custom program impacts vary considerably, even between best practice C&I DSM utilities, from about 10% up to 90% of total C&I energy or demand savings. Total 2006 program impacts for these best practice programs vary from 0.1% up to 2.4% of C&I baseline sales.

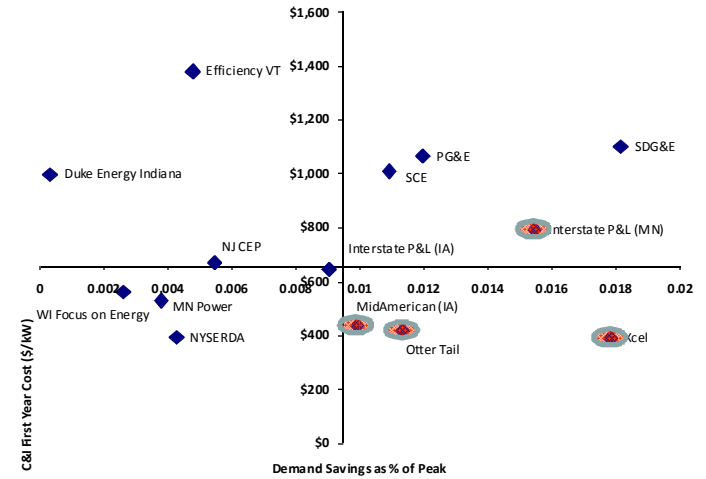
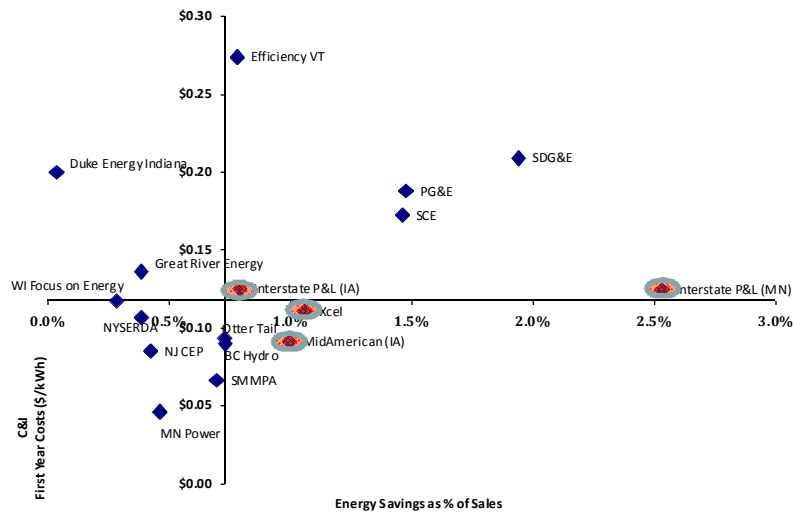
C&I Custom Programs Best Practices

- Promote the program about equally to
 - Energy engineers and consultants,
 - Industrial and commercial equipment suppliers, and
 - Large commercial and industrial customers.
- Programs usually offer customers an engineering study for which the utility pays at least 50% of the cost. Some programs cover 100% of the audit costs if the customers implement the measures recommended by the study.
- Program accounting and measurement and verification are usually quite important for these programs. Getting these procedures established early and effectively reduces questions about actual program savings.
- Interstate Power and Light, MidAmerican Energy, Otter Tail Power Company, and Xcel Energy have the high impact and low cost Midwest Custom Rebate type programs.

Summary of Best Practices for Midwest Electric C&I DSM Programs

DSM Spending:	Generally 2% of C&I revenues
DSM Savings:	Energy savings at 1-2% of C&I sales Demand savings from 1-1.5% of C&I peak demand
DSM Costs:	Energy savings generally cost less than 11 ¢/kWh Demand savings cost from \$400 to \$650/kW (first year costs)
Top programs:	Prescriptive Rebates New Construction Custom
Some common features of BP for these programs:	Promote equally to customers and to trade allies. Provide streamlined options for small customers and more intensive support to large customers. Outsource special technical skills.

Summary of Best Practices for Midwest Electric C&I DSM Programs





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