

# DR/EE WORKING GROUP REPORT

## Sustainable Energy Plan Initiative

### I. Preface

On February 11, 2005, Governor Rod Blagojevich sent a letter to Chairman Edward Hurley, asking the Illinois Commerce Commission (“ICC”) to conduct an investigation as to the most effective way to implement a Sustainable Energy Plan (“Plan”) for Illinois. Along with the letter, Governor Blagojevich submitted a set of goals to be achieved with this Plan, through a Renewable Portfolio Standard (“RPS”) and an Energy Efficiency Portfolio Standard. Chairman Hurley asked Commissioner Robert Lieberman to spearhead the ICC’s efforts to develop the Plan. To facilitate discussions on the goals outlined in the Plan, Commissioner Lieberman chose to divide the issues into two working groups, the RPS Working Group and the Demand Response/Energy Efficiency (“DR/EE”) Working Group. This report summarizes the DR/EE Working Group discussions.

### II. Purpose of this Report

The purpose of this report is to provide an overview of the DR/EE working group discussions. The conveners wish to acknowledge all comments submitted by various stakeholders. The ICC Staff will review these comments and provide a report with recommendations to the Commission.

### III. Working Group Participants

Many interested parties participated in and/or attended the DR/EE working group discussions, including the ICC Staff, electric utilities, alternative retail electric suppliers (“ARES”), consumer advocates, governmental agencies, energy service companies (“ESCO”), non-profit organizations and consultants. Below is a comprehensive list of the organizations and individuals who participated in the DR/EE working group.

#### A. Stakeholder Organizations

Alliant Energy	Illinois Community Action Association (ICAA)
Ameren Companies	Illinois Energy Association (IEA)
BAI	Illinois Industrial Energy Consumers (IIEC)
Center for Neighborhood Technology	Illinois Landfill Gas Coalition (ILGC)
Chicago Climate Exchange	Illinois Public Interest Research Group
Chicago Department of the Environment	Institute for Regulatory Policy Studies (IRPS)
Chicago Green Power Foundation	International Brotherhood of Electrical Workers (IBEW)
Citizens Utility Board (CUB)	Lieutenant Governor Pat Quinn’s Office
City of Chicago	Low Income Utility Advocacy Project

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Commonwealth Edison (ComEd)	Mainstay Energy
Community Energy Cooperative	MidAmerican Energy Company (MEC)
Comverge Enterprises	Midwest Energy Efficiency Alliance (MEEA)
Constellation New Energy	MidWest Generation
Consulting Energy Economist	MidWest Independent System Operator (MidWest ISO)
Department of Commerce and Economic Opportunity (DCEO)	Navitas Energy
Demand Response & Advanced Metering Coalition	
DLA Piper Rudnick Gray Cary	Nexant, Inc.
Dynegy, Inc.	Peoples Energy Services
Energy Management Inc./ISEA	PJM
Enescon	PPM Energy
Environmental Law and Policy Center (ELPC)	Primary Energy
Energy Systems Group	RETX
Evolution Markets, LLC	Sieban Energy Associates
Exelon Energy	SenreQ
Gas Technology Institute	Sexton Energy
GE Energy	Shaw Group
GEV Corp.	Spire Solar Chicago
Giordano & Neilan, Ltd.	Summit Blue Consulting
Governor Rod Blagojevich's Office	Trintek Energy Consulting
GSG Wind	University of Illinois at Chicago Energy Resources Center
Haller Wind Consulting	WM Renewable Energy
Harmony Funding	
Illinois Attorney General's Office (AG)	Zilkha Renewable Energy
Illinois Commerce Commission (ICC)	

#### B. Individual Participants

Abolt, Bill	Kimminski, Mark
Leuthauser, Rick	Kretschmer, Ruth
Baker, David	Kurth, Henry
Barbieri, Bill	Libson, Tim
Barrett, Ronit	Lidisky, Dan
Bechen, Denise	Lieberman, Bob
Bieniak, Janet	Loomis, David
Bordan, Mike	Lovett, Greg
Borden, Michael	Lynch, Kevin
Borders, Will	Mallinckrodt, John
Brandt, Mike	Matchett, Barry
Budd, Charley	Mathias, Rich

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Campbell, Norm	McClain, Katie
Cherry, Allan	McClure, Scot
Clow, Bryan	Melloch, Tim
Colgan, John	Nemar, Kurt
Column A	Norbeck, Michael
Column B	Ornelas, Antonia
Dale, Janice	Pabian, Michael
Delurey, Dan	Persky, Dan
Eber, Jim	Porterfield, John
Ebnar, Nadar	Procyk, Kalyna
Ericson, Christine	Pusemp, Christina
Eslinger, David	Scarpelli, Pete
Gallagher, Betty	Schudewberg, Craig
Garg, Rishi	Star, Anthony
Gunn, Randy	Stephenson Schroeder, Mary
Hedman, Susan	Stoller, Harry
Hoppe, Dan	Thomas, Chris
Huddleston, Barry	Vogl, Bob
Hui, Bill	Vogl, Sonia
Iannello, Charlie	Walker, Richard
Jaehn, Wendy	Wigg, Becky
James, Leonard	Wilson, Jim
Juracek, Arlene	Wood, Don
Kelley, Shauna	Yotas, Rick
Kennedy, Tom	

#### C. Working Group meetings

Commissioner Lieberman conducted two meetings of the DR/EE working group.

April 6, 2005, in Chicago, and on  
April 20, 2005, in Springfield.

#### D. Conveners

Charles Iannello, Senior Policy Advisor to Commissioner Wright, Illinois  
Commerce Commission

Mary Stephenson Schroeder, Senior Policy Advisor to Commissioner Ford,  
Illinois Commerce Commission

Harry Stoller, Director, Energy Division, Illinois Commerce Commission

#### IV. **April 6, 2005 Meeting**

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On April 6, 2005, the DR/EE working group heard presentations regarding energy efficiency and demand response policies and programs in Illinois and other jurisdictions.

A. **Panel One**

- ◆ Alecia Ward, Midwest Energy Efficiency Alliance (“MEEA”)

Ms. Ward discussed energy conservation efforts in the Northwest, the Northeast, Minnesota, Wisconsin, and Iowa. In the Northwest, conservation measures met approximately 25% of the Regional Load Growth from 1980 through 2002 and significantly reduced projected electricity sales. In the Northeast, ratepayers contribute approximately \$595 million per year for conservation measures. Over the next ten years, these ratepayers should consume 30,000 gigawatt hours less, reduce their demand by 8000 megawatts and realize almost \$3 billion in savings.

Turning to individual state programs, Minnesota legislation requires utility investment in energy efficiency programs with state oversight of planning and evaluation. Electric utilities invest a minimum of 1.5% to 2% of their gross operating revenues. Natural gas utilities invest a minimum of 0.5% of their gross operating revenues.

In Wisconsin, the state-administered "Focus on Energy" is a public benefits program funded by a fixed charge on customer bills. Utilities pay into a separate account administered by the Wisconsin Department of Administration. Wisconsin electric utilities invested \$47.6 million in 2003. Wisconsin gas utilities invested \$13.9 million in 2003. As a result, estimated annual savings are \$57.57 per household and \$1,406.82 per business.

In Iowa, regulated utilities are required to file energy efficiency plans with the Iowa Utilities Board. Utilities are allowed cost recovery through an automatic adjustment mechanism. Iowa electric utilities invested \$40 million in 2004. Iowa gas utilities invested \$20 million in 2004.

Illinois could benefit through energy efficiency efforts. Energy efficiency efforts could help to avoid building more power plants, reduce current energy usage, help alleviate transmission and distribution constraints, reduce pollution, create a more sustainable future, and raise the awareness level of energy consumers. Further, energy efficiency can help revitalize the economy by stimulating investments in manufacturing of energy efficient products and energy efficient services.

Successful programs focus on long-term results, provide flexibility for utilities and program administrators to meet the goals and allow for unbiased evaluation. Other elements of success include consistent funding over multiple years and a basis in the marketplace.

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An energy efficiency standard could include programs for all customer classes. Residential product programs generally involve products designed to meet energy efficiency standards. The suite of ENERGY STAR<sup>1</sup> qualified products is specifically designed to meet energy efficiency needs and goals. ENERGY STAR products include lighting, appliances, room air-conditioning (“AC”), and heating, ventilation, and air-conditioning (“HVAC”) systems. Use of these more efficient products is encouraged through customer incentive programs, retailer and manufacturer participation and leverage, consumer and retailer outreach and education programs. These programs also include the recycling of older, less efficient products.

ENERGY STAR offers the Residential Homes Programs to target both new and existing homes. New homes are built to meet ENERGY STAR home specifications and existing homes are targeted to improve efficiency. This multi-faceted program covers everything from training contractors to conduct whole home audits to providing homeowners with financing and other incentives to follow-through with energy efficiency measures.

For commercial and industrial programs, a hybrid approach that includes consultation as well as incentives to cover partial incremental costs of upgrades should be used. Small business programs should target specific technologies such as lighting, water heaters, HVAC, refrigeration and motors. Program sponsors should fund the majority of improvement costs and offer low to no-interest financing for remaining expenses. Outside of utility key market account representatives, the sponsor should market via direct mail and telemarketing. Incentives, including financing, can also be used to encourage commercial customers to use more energy efficient lighting, fixtures, and controls.

HVAC programs should focus on high efficiency units and include contractor training, support and education. Standard programs can include performance contracting with incentives for ESCOs. Incentives may be based on the energy efficiency measures undertaken with higher incentive values for smaller customers. Monetary gains from energy efficiency and other criteria can be specified in the program design.

A key component of a program is evaluation, which should be performed on a statewide basis. A third-party expert rather than the plan administrator should perform evaluation. Five percent of total program investments should be used to pay for independent program evaluations.

Ms. Ward offers a number of methods for structuring the energy efficiency administration. The ICC should administer the collection and distribution of funds and should set forth guidelines/criteria for qualifying programs. Utilities and/or the Department of Commerce and Economic Opportunity (“DCEO”) should manage qualifying programs. Measurement, verification, and evaluation of the programs, should

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<sup>1</sup> ENERGY STAR is a federal program for residences and business to engage in energy efficiency through the purchase of energy efficient appliances, homes and energy management strategies.

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reside with the ICC, the DCEO, or a third party. Evaluation could be shared between ICC and DCEO except where DCEO is the program administrator.

◆ Norm Campbell, Energy Systems Group (“ESG”)

Mr. Campbell described ESCOs and what ESCOs do. ESCOs are businesses that develop, install and finance projects designed to improve the energy efficiency and maintenance costs for facilities over a period of time. ESCOs generally act as project developers for a wide range of tasks and assume technical and performance risk associated with the projects. While the focus is on energy and operational efficiency with guaranteed results, ESCOs also deploy new and effective energy technology, and build long-term client projects and relationships. ESCOs have been active in Illinois for many years helping clients improve energy efficiency at their facilities. Mr. Campbell listed a number of successful projects that resulted from partnerships between ESCOs and private and public entities including: Fairfield Community High School District, Northern Illinois University, City of East Saint Louis, North Chicago VA and Jesse L. Brown VA, and the Chicago Sun-Times. Benefits from these projects include reduced energy and water use, financing over the life of the project, improved facilities for working and learning, improved indoor air quality, rejuvenated facilities, and long-term energy strategy. Along with benefits come challenges. Among those being the time for return on investment, lack of knowledge of the opportunity, a sense of urgency for energy efficiency by end users and financing options.

An Energy Efficiency Portfolio Standard (“EEPS”) is a sound approach. Energy efficiency projects should target more than just the “low hanging fruit” or projects with higher expected payouts. An EEPS should identify realistic goals that are measurable and verifiable. Performance and innovation should be rewarded. ESCOs should be involved to see how far performance-based contracting can go.

◆ Dick Walker, MidAmerican Energy Company (“MEC”)

Mr. Walker discussed MEC’s energy efficiency programs in Iowa. Iowa mandates<sup>2</sup> energy efficiency efforts for investor-owned utilities, with oversight by the Iowa Utilities Board. MEC recovers its costs for these programs through rates. Energy efficiency activities delay the need for constructing new power plants, provide value-opportunities for ratepayers, and help protect the environment.

MEC's energy efficiency programs began in 1990<sup>3</sup>. MEC offers Energy Audit Programs for homes, small businesses, commercial customers and industrial customers. These programs include free on-site home and small business energy audits, free direct installation of qualifying measures, and special incentives for insulation and windows. MEC also has efficiency equipment programs for residential, commercial and industrial customers that focus on heating and cooling equipment, water heaters, windows, lighting,

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<sup>2</sup> Also, Iowa law requires investor-owned utilities to fund organizations that study energy efficiency and renewable resource programs.

<sup>3</sup> MEC attributes 600 million kWh of saving in electricity and 29 million therms of savings to its programs since the beginning.

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motors, and custom systems. New construction programs provide rebates to builders if various requirements are met. Rebates pay the majority of the incremental cost to upgrade heating and cooling systems insulation levels and windows and doors. Energy design assistance is provided to new/renovated commercial projects. Rebates are issued when projected energy use is better than building code. In 2004, MEC introduced a pilot Efficiency Bid Program. This program is offered to the largest industrial customers that define the project, installation period and financing. An RFP bid evaluation and scoring system is used to fund the best projects. Fifteen projects were funded in 2004. MEC also uses load management programs to reduce peak demand on the transmission and distribution systems.

MEC, through its Energy Advantage Financing Program, partners with First American Bank to finance labor and material costs of energy efficient upgrades and removal and disposal of less efficient equipment. MEC also offers a Home Weatherization Program to low-income customers. Eligible homeowners receive free home energy audits and other energy savings measures including insulation, lighting, and possible appliance replacement. MEC's Trees Please! Program provides grant money to eligible communities for tree planting, maintenance, education and safety.

- ◆ Anthony Starr, Assistant Manager, Community Energy Cooperative

Mr. Starr discussed Community Energy Cooperative ("CEC") Demand Response Programs and the benefits or price responsive behavior. These benefits include increases in system reliability, reductions in the cost of electricity to all customers through reducing the need for expensive peak power, lower risk management costs for suppliers, environmental benefits associated with more efficient use of power, market power mitigation, and incentives for technical innovation.

The CEC administered the Energy-Smart Pricing Plan, which was a three-year pilot program provided through a partnership with Commonwealth Edison ("ComEd"). Through voluntary participation, approximately 1,500 customers received interval metering<sup>4</sup> and were charged the hourly electricity price. CEC provided pricing information and high price alerts via phone and e-mail. Additionally, CEC educated participating customers by offering information on usage, instructions on how to reduce peak usage, and general energy efficiency information.

The Energy-Smart Pricing Plan demonstrated that participants reduced electricity consumption during high-priced periods. Peak demand was reduced by as much as 20%. Participants also saved as much as 12% on electricity in 2003 and 2004. In addition to saving money and reducing peak demand, the program resulted in increased investments in energy efficiency and a better understanding of the impacts of energy usage.

Illinois utilities should look to include both optional market-based energy pricing and energy efficiency incentives in their sustainable energy programs. Part of these programs would include effective energy education.

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<sup>4</sup> Interval metering tracks customer usage over specified periods of time.

◆ Craig Sieben, Sieben Energy Associates

Mr. Sieben discussed lighting technology and retrofits. A successful demand side management plan is one that educates customers, provides financial incentives with full cost recovery, and delivers creative, intelligent programs through professional entities that are skilled in providing such services. Numerous forms of energy management services can provide end-users with energy-related savings. Significant demand reduction has been achieved by replacing legacy lighting with newer, more efficient lighting technology. However, substantial amounts of low efficiency lighting still permeate the marketplace. The potential for replacement of such lighting represents additional sources of energy-related savings. Lighting technology has undergone seminal changes since 1960 that have resulted in more energy efficient lighting.<sup>5</sup> This trend continues with further innovations in lamp and ballast designs. Mr. Sieben expects incandescent lights and some florescent lights to be replaced with more efficient LED<sup>6</sup> lights. The addition of dimmer switches to florescent lights will also result in more efficient lighting systems.

◆ David Eslinger, Senior Research Engineer, Energy Resources Center (“ERC”), University of Illinois, Chicago

Mr. Eslinger discussed the ERC’s function and some of its significant projects. The ERC conducts interdisciplinary technology, research, and education initiatives to improve energy efficiency in Illinois. ERC’s strategic areas include industrial, commercial and residential energy efficiency as well as distributed energy resources, energy supply management and energy policy analysis. Energy savings opportunities exist in the chemical, pulp and paper, and metal die-casting industries. These opportunities can be realized through more efficient motor, steam, and combined heat and power (“CHP”) systems. The benefits of improved industrial energy conservation include lower production costs, reduced waste, improved productivity, and a cleaner environment. Mr. Eslinger described various industrial programs in Illinois, the City of Chicago, and at the federal level. Mr. Eslinger also described the Midwest CHP Application center, which is funded by the Department of Energy (“DOE”) and conducts research on all facets of CHP technology.

Market barriers may affect industrial energy conservation. Industrial customers may lack the engineering expertise necessary to weigh the benefits and costs of energy

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<sup>5</sup> In the 1970s, 34 Watt "energy saver" lamps replaced the 40 Watt bulbs used in the 1960s. In the 1980s, there were major advances in florescent lamp design. Electronic ballasts were introduced, improving lamp operation, eliminating lamp flicker and ballast "hum". These lamps used approximately 80 Watts depending on ballast type. Compact Fluorescent Lamps ("CFL") enabled retrofit of fluorescent bulbs to incandescent lamps. In the 1990s, computers were widely deployed in the workplace and lighting level standards were in the 35-60 foot candle range (vs. 100 to 150 in 1960s), new fixture designs offered direct or indirect lighting. Dimming features were introduced. Further innovations in ballast design have lead to even more efficient operation. CFLs are becoming better in design and color quality and are more widely accepted.

<sup>6</sup> LED = light emitting diodes.

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conservation measures. Some industrial customers lack knowledge of energy inputs to industrial processes and are unfamiliar with new energy saving technologies. Access to capital also creates problems for industrial customers considering energy efficient solutions.

A successful industrial efficiency program educates and creates awareness, provides technical assistance, offers incentives, and measures and verifies actual savings associated with energy saving efforts.

#### V. **April 20, 2005 Meeting**

On April 20, 2005, the DR/EE Working Group heard presentations from ComEd and the Ameren companies. The companies set forth their proposals to implement the DR/EE initiative as outlined in the Governor's letter. These plans are a work in progress and the companies await comments from the stakeholders.

##### A. **ComEd**

Helen Howes, Vice President, Corporate Environment, Health, and Safety, presented ComEd's implementation plan. ComEd supports the Governor's energy efficiency and demand response goals, but recognizes the specific challenges in implementing them successfully. Some of the implementation challenges include: minimizing the impact on customers' bills; maintaining consistency with Illinois law; cost recovery, recognition of existing demand-side programs, designing programs for all customer classes, and creating an independent evaluation process.

Under the Governor's proposal, demand reduction goals are based upon growth and escalate over time from 10% of projected load growth in years 2006 through 2008 to 25% of load growth in 2015 through 2017. ComEd proposed several measures to meet these goals:

**-Continue to implement tariff-based Demand Response (DR) programs using current ComEd channel and PJM DR framework.** The energy impacts of existing DR programs must count toward EEPS GWh targets. DR growth assumes PJM provides a market value payment to ComEd as a funding source for customer incentives.

**-Expand DR via approved competitive bidding process.** ComEd envisions an RFP for new DR blocks of nega-watts to further target improvement of system load factor as a goal of the EEPS.

**-Acquire energy efficiency services via an approved competitive bidding process.** RFPs should be segmented into key customer segments (e.g. residential, low income, non-residential) or key end uses (e.g. lighting, HVAC).

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**-“Regulatory out” contract clauses will be necessary.** “Regulatory out” contract clauses will protect ComEd and its customers from risks associated with changes in regulations that are beyond the control of the company.

**-Energy impacts of DCEO programs should count toward EEPS GWh target.** ComEd’s portion is \$6.9 million.

**-The overall competitive procurement process should be managed within a rate impact-based funding limit.** ComEd suggests a 0.6% increase on a residential single-family customer bill as a reasonable limit. ComEd expects its proposal to be within the reasonable range of cost-effectiveness when comparing results from other states.

**-Energy efficiency and demand-response programs and impacts should be evaluated by a working group that would include the implementing utility as well as entities that are independent of the implementing utility, DCEO, vendors, and others directly associated with implementing programs.** Evaluation should focus on improving future programs and performance. Program evaluation should not be used as a tool to perform hindsight prudence or disallow cost recovery. An upper limit of 3% of total program investments should be allocated to cover evaluation and should be fully recoverable. The ICC should establish an Evaluation Working Group of interested parties to manage the evaluation.

**-ICC approval of a rate mechanism, such as a rider, is essential to provide full and timely recover of utility costs.** Program goals and the implementation process should be pre-approved. The ICC should find that the proposed DR and EE programs constitute an accepted “utility function”. Accounting should be established to track program expenditures and DCEO disbursements. EEPS funds should be accounted for separately and used only for EEPS purposes.

The next steps that need to be taken by ComEd: obtain feedback from stakeholders; engage stakeholders on further discussion of program design; develop a program evaluation and measurement process; develop an RFP process; develop standard contracts and back office requirements; develop a cost recovery approach; file standard contracts, an RFP process, and tariffs with the ICC; and conduct the RFP once all regulatory approvals are obtained.

**B. Ameren**

Greg Lovett, Managing Supervisor of Products and Services, and Rick Voytas, Manager Corporate Analysis, presented Ameren's implementation plan. Ameren supports the Governor's intent for utilities to implement demand response and energy efficiency programs, although Ameren acknowledges several challenges in meeting the goals of the Sustainable Energy Plan and the Public Utilities Act. Some of these challenges include: recognition of the fundamental differences between demand-response and energy efficiency and the need for separate metrics, recovery of costs associated demand side programs, difficulties in meeting the 2006 goal, avoiding subsidies, and assigning responsibilities between utilities and ARES and combining the procurement of renewable generation with the Post '06 procurement process may not be the best way to obtain these resources.

Ameren is still in the process of developing its implementation plan but provides the following key points for consideration:

**-Energy Efficiency and demand response are distinct and separate concepts that require different metrics.** Megawatt hours may not be the appropriate metric for measuring the performance of energy efficiency programs. Energy efficiency programs could potentially be designed to educate customers and retailers rather than subsidize one group of consumers. A "customer energy efficiency awareness index" may be better suited to inform customers of options that reduce their energy needs. Demand response metrics should offer customers the option of reducing their electric bills by either reducing or shifting electric usage.

**-"Price is powerful information."** Providing customers with market-based options is preferable to command and control approaches. Customers should be offered options to reduce their electric bills by either reducing or shifting electric usage.

**-Full recovery of program costs is warranted from all delivery service customers.** The Governor's plan applies to both utilities and ARES. Customer switching will result in a constant moving target for utilities and ARES if both are required to meet the goals. Assigning full responsibility for meeting energy efficiency and demand response goals to utilities would alleviate this responsibility for ARES.

**-Long-term contracts with efficiency service providers should be used as the primary method to meet the annual goals. However, utilities should also have the ability to conduct such programs as long as they are competitive with third-party suppliers.** Ameren questions whether the "promotion" of such programs by the utility conflict with Illinois Independent Distribution Company rules under IL Adm.Code Part 452.

**-Full recovery of program costs from delivery service customers is warranted.** Compliance costs should be fully recoverable in rates if they are shown to

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be competitive with traditional forms of generation and delivery resources. ICC pre-approval of programs to determine whether the programs qualify for cost recovery before implementation is desirable.

The next steps that need to be taken by Ameren: obtain feedback from stakeholders; collaborate with energy efficiency experts; develop a program evaluation and measurement process; develop programs with competitive costs; develop an RFP process; obtain ICC approval for program acceptance and cost recovery; and provide customer choice to meet the goals of the program.

## **APPENDIX A**

**Demand Response/Energy Efficiency Working Group**  
**Meeting Minutes**  
**April 6, 2005**

**Panel One**

1) General Overview of Energy Efficiency Programs

Alicia Ward, Midwest Energy Efficiency Alliance

- i) Midwest Energy Efficiency Alliance (“MEEA”) is a collaborative network whose purpose is to advance energy efficiency in the Midwest in order to support sustainable economic development and environmental preservation.
- ii) There are many benefits of energy efficiency for Illinois.
- iii) There are many programs for the Residential, Commercial and Industrial sectors.

b) Questions-

- i) Could you make a general comment about utility administered programs vs. third party administered programs.
  - 1) MEEA does not take a position if there should be a third party administrator. The administration of funds should go into a place where the funds can be safe.

2) Energy Efficiency Service Companies

Norm Campbell, Energy Systems Group

- i) ESCOs are businesses that develop, install and finance projects designed to improve the energy efficiency and maintenance costs for facilities over a period of time.
- ii) ESCOs also deploy new and effective energy technology which build long term client projects and relationships.
- iii) ESCOs have been active in Illinois for many years.

- 1) There are a number of successful projects that have resulted from partnerships between ESCOs and private and public entities.

b) Questions-

- i) Could you give an estimate of paybacks for the projects?
  - 1) To give some examples, on the Fairfield Community High School District the savings over the contract life are about \$8.5-9 million(the net present value/net benefits at the end of the period of time of the contract). On the Northern Illinois University contract the savings will range from \$25-30 million.
- ii) If incentive is based on annual mega watt hours-can you design a program to meet such goals?
  - 1) Yes.

3) Energy Efficiency Programs in Iowa

Dick Walker, Energy Efficiency Product Management for MidAmerican Energy Co.

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- i) Iowa has mandated energy efficiency efforts for investor-owned utilities which the Iowa Utilities Board oversees.
  - ii) MidAmerican Energy Company (“MEC”) recovers its costs for these programs through rates.
  - iii) MEC’s energy efficiency activities delay the need for constructing new power plants, provide value-opportunities for ratepayers and help protect the environment.
  - iv) MEC currently has numerous projects.
- b) Questions-
- i) What is the incremental costs on a home?
    - 1) It depends on what type of home. For instance, a builder of a custom home would receive about a \$2000 rebate.
  - ii) Do you find the lowest per mega watt bid?
    - 1) No, that is just one factor.
  - iii) Have you evaluated efficiency bids yet?
    - 1) No, however, we plan to later this year.
  - iv) Regarding MEC’s summer saver program, what is the total number of residential households participating in the program?
    - 1) About 500,000.
  - v) Regarding MEC’s low income program, in terms of multi-units, who are the owners?
    - 1) Some are publicly owned while others are privately owned, with the privately owned multi-unit buildings it is harder to get the owners to participate in the programs and “do their fair share”.
  - vi) Regarding MEC’s industrial programs, last year you indicated you had fifteen projects, could you give the dollar amount that was granted for these projects last year.
    - 1) One million dollars was granted for these projects last year.
  - vii) On residential load control programs, how did you solicit customers and what has been the customers’ response?
    - 1) MEC has gone from community to community, based on the size of the community, with the goal of trying to bring in 2000 new customers per year. The customers, who are targeted by usage, are solicited by a letter.
    - 2) The customer response has been very positive.
  - viii) Do you get to “bank” your incentives when you exceed all of your goals and programs?
    - 1) No.

### Panel Two

#### 1) Residential Real Time Pricing

##### Anthony Star, Center for Neighborhood Technology

- i) Community Energy Cooperative (“CEC”) Demand Response Programs and the benefits or price responsive behavior.

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- ii) The CEC administered the Energy-Smart Plan—a three year pilot program provided through a partnership with Commonwealth Edison.
  - iii) This program showed that participants reduced electricity consumption during high-priced periods.
  - iv) In addition to saving money and reducing peak demand, the program resulted in increased investments in energy efficiency and a better understanding of the impacts of energy usage.
- b) Questions-
- i) Are any of the practice/activities automated?
    - 1) No.
  - ii) What reasons did you get for why persons did not want to join the program?
    - 1) Some persons indicated that the program required a lot of forms to be filled out in order to participate, therefore, such persons declined to participate.
  - iii) Can anyone still sign up to participate in the program?
    - 1) No. The billing cycles end in April.
- 2) Lighting Retrofit  
Craig Sieben, Sieben Energy Associates
- i) Introduced various lighting technology and retrofits.
  - ii) Numerous forms of energy management services can provide end-users with energy-related savings.
- b) Questions-
- i) Old lighting is still very prevalent—especially in leased properties, have you found a way to break through that?
    - 1) Management companies are putting new lighting into such buildings, however, there are still market barriers. There is a lot of untapped potential, yet, it is hard to tap into because most of the major companies have already done it.
- 3) Illinois Industrial Energy Efficiency Programs for Electric Demand Reduction  
David Eslinger, Senior Research Engineer, Energy Resource Center, University of Illinois at Chicago
- i) ERC conducts interdisciplinary technology, research and education initiatives to improve energy efficiency in Illinois.
  - ii) Energy savings opportunities exist in chemical, pulp and paper and metal die casting industries.
  - iii) There are various industrial programs in Illinois, City of Chicago and at the federal level.

**Demand Response/Energy Efficiency Working Group**  
**Meeting Minutes**  
**April 20, 2005**

**1. ComEd presentation**

- a. Ms. Howes used a power point slide handout. This will represent the minutes for her presentation.
- b. Questions
  - i. When would ComEd issue its RFP for energy efficiency and demand response proposals if the plans were to be in place by early 2007?
    - 1. ComEd expects that an RFP would be issues nine to twelve months prior to implementation. Given the timeline, an RFP will likely be issued in the first quarter of 2006. ComEd envisions a series of RFPs rather than one large RFP for all energy efficiency projects.
    - 2. ComEd is still considering whether ComEd or a third party arbiter should administer the RFP.
  - ii. What is happening in other jurisdictions?
    - 1. Consultants have conducted a best practices study. The consultants looked at residential and non-residential programs in Oregon, California, and Massachusetts. Consultants found a bias toward reducing kilowatt-hours rather than demand.
  - iii. What is happening with program development? There are analyses of programs that looked like a good program but were ineffective. Is ComEd planning on cherry picking the programs that have been demonstrated to be effective?
    - 1. ComEd does not plan to recreate the wheel. There will be at least an attempt to identify programs that have been effective in other jurisdictions and implement those programs in ComEd's service territory. Nevertheless, ComEd expects that some programs will be more successful than others. ComEd is considering three year terms for energy efficiency programs to provide an evaluation opportunity.

**2. Ameren Companies' Presentation**

- a. Msrs. Lovett and Voytas used a power point slide handout. This will represent the minutes for their presentation.
- b. Questions
  - i. What is Ameren's targeted costs of meeting goals related to energy efficiency and demand response?
    - 1. Ameren does not have an estimate of the costs to meet targeted energy efficiency and demand response goals at this time.

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- ii. Energy Efficiency and Demand Response contractors need long-term contracting with utilities not alternative retail electric suppliers. There is not enough stability in the market to gain certainty over project cost recovery from alternative suppliers.
- iii. What is happening in Ameren's Illinois service territories with respect to energy efficiency evaluations and recommendations?
  - 1. Ameren has not energy efficiency evaluation programs in Illinois but there are building codes that require energy efficiency measures to be undertaken.
- iv. A combination of price response and direct load control programs could be beneficial. Direct load control programs are simple to administer and result in system benefits.
- v. Under what circumstances do market price curtailment programs kick in?
  - 1. Market price curtailment kicks in when price is high enough to provide an incentive to reduce load. If prices are \$1,000 per megawatt hour, then there will likely be a corresponding demand reduction. If prices are in the \$100 per megawatt hours like last summer, then very little demand response will take place.
- vi. How will Ameren measure the response and whether demand response programs meet stated goals?
  - 1. Ameren is still in the process of determining how to develop metrics to measure the impact of demand response programs. Generally, if the system reaches a peak, then one would expect a demand reduction; however, measurement is not an exact science.

## **APPENDIX B**



# Illinois Sustainable Energy Plan Energy Efficiency Portfolio Standard

*Alecia Ward*

*Midwest Energy Efficiency Alliance*

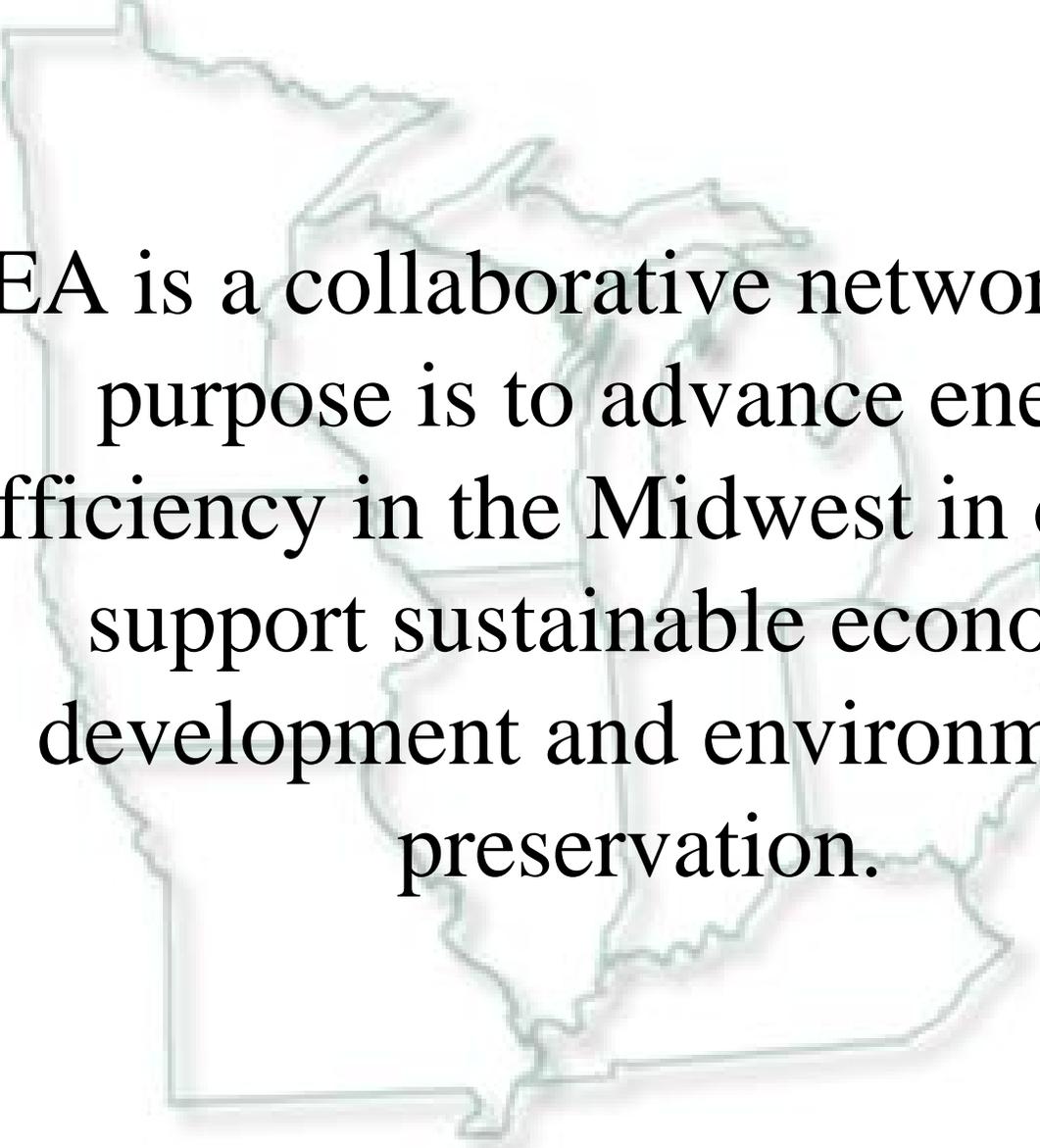
April 6, 2005

# Today's Presentation

- Who is MEEA?
- How does IL energy usage/consumption compare?
- What is the Energy Efficiency Story?
- How could IL (and all stakeholders) benefit from Energy Efficiency investments?
- What kinds of programs are we talking about?
- What are we NOT talking about?
- What is essential moving forward?

**WHO IS MEEA?**

# MEEA Mission



MEEA is a collaborative network whose purpose is to advance energy efficiency in the Midwest in order to support sustainable economic development and environmental preservation.

# Who We Are: MEEA Members

- Academic and Research Institutions
- Manufacturers and Retailers
- Utilities (IOUs, Munis and Coops)
- State and Local Governments
- Energy and Environmental Non-profits
- Energy Service Companies, Contractors and Consultants

*This diversity is critical to the coordinated success of regional efficiency programs*

# Illinois MEEA Members

- Alliant Energy
- Ameren
- Commonwealth Edison
- City of Chicago
- Department of Commerce and Econ Op (DCEO)
- Energy Resources Center at UIC
- Environmental Law and Policy Center (ELPC)
- Gas Technology Institute (GTI)
- Honeywell Solutions
- Summit Blue Consulting

# MEEA PROGRAMS

## Training Programs

- Building Operator Certification Program
- Midwest Building Solutions

## Residential Product Programs

- Illinois Residential Lighting Program
- Change A Light, Change the World
- ENERGY STAR Refrigerator Rebate and Recycling
- Double Your Savings Campaign – ENERGY STAR Qualified Clothes Washers
- Northern Illinois Energy Project

## Market Assessments

- Illinois Residential Market Assessment
- Regional Market Assessment

# Sister Organizations

- **Northwest Energy Efficiency Alliance (NEEA)**
  - Oregon, Washington, Idaho, Montana
- **Northeast Energy Efficiency Partnerships (NEEP)**
  - New England and the Northeast with some Mid-Atl
- **Southwest Energy Efficiency Project (SWEEP)**
  - Arizona, New Mexico, Colorado, Utah
- **Southeast Energy Efficiency Alliance (SEEA)**
  - Florida, Georgia, Alabama, Louisiana, Carolinas

# MW State with Highest Usage

- Illinois leads the pack
- Followed closely by OH & MI (other industrial states)

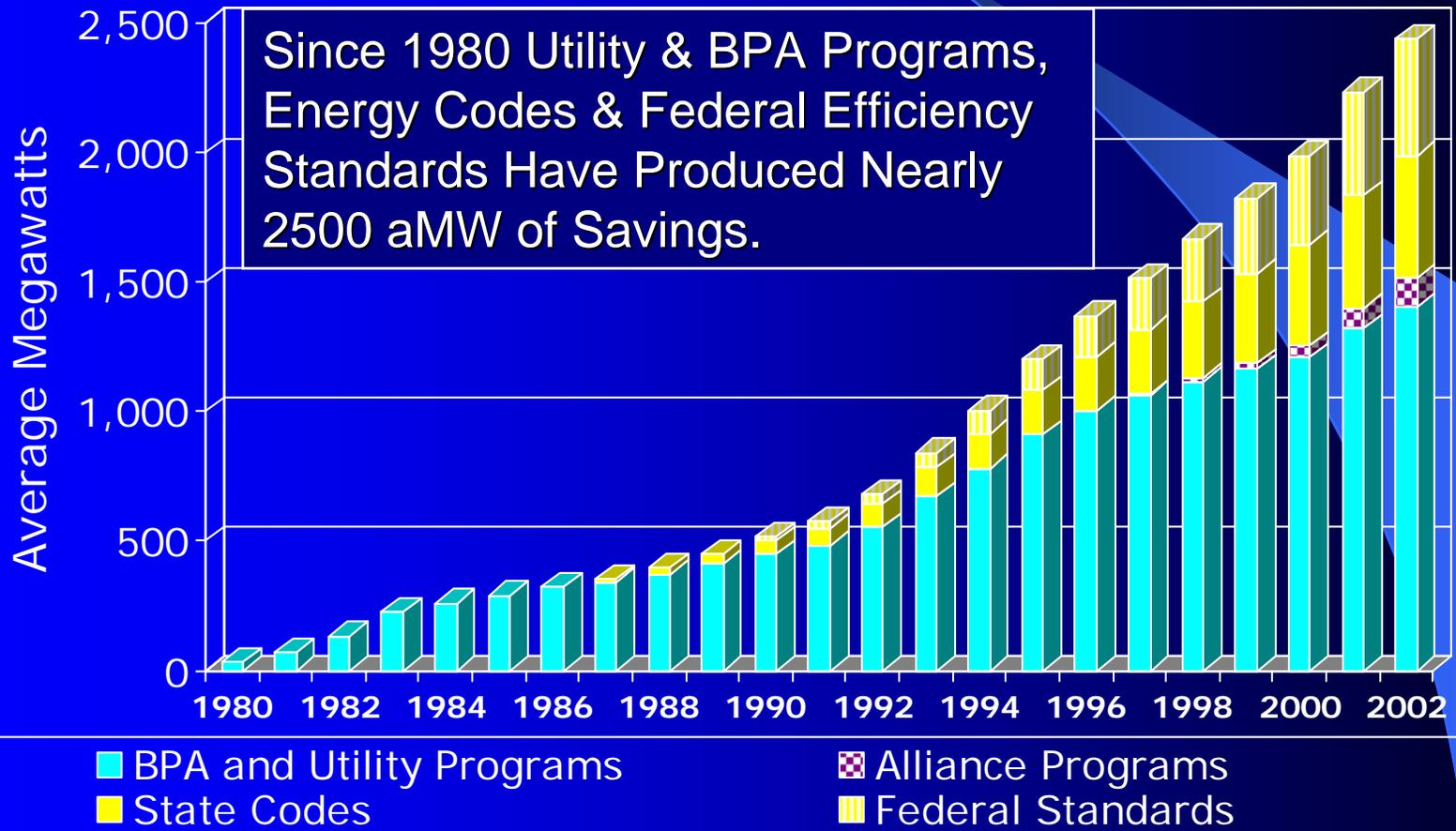
## ILLINOIS

- 2004 Electric Consumption: 127.1 million mWh
- 2002 Nat Gas Consumption: 1,036,138 (MMcf)
- 2002 Nat Gas Costs: \$6.3 Billion
- 2002 Dollar Drain: \$3.5 Billion
- 2006 Projected Dollar Drain: \$7 Billion

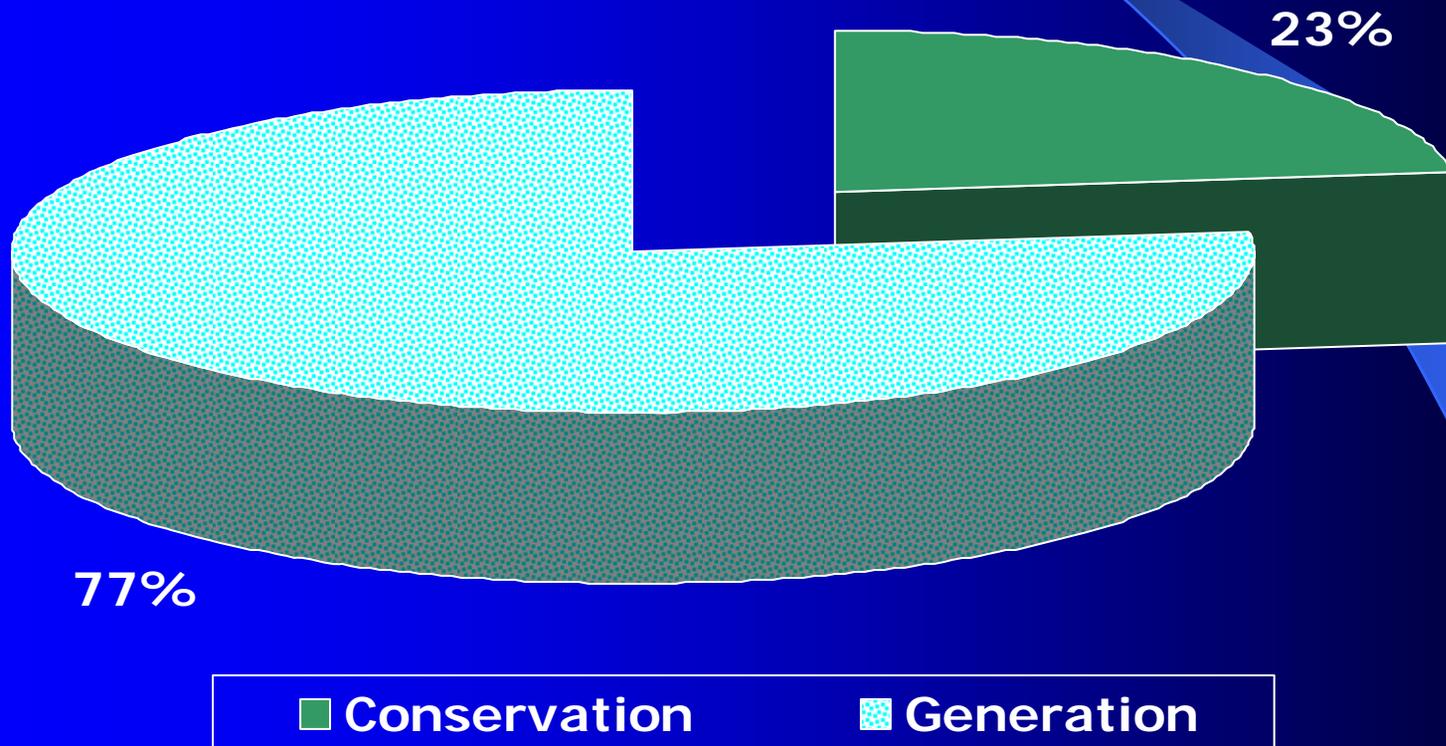


# THE NORTHWEST STORY

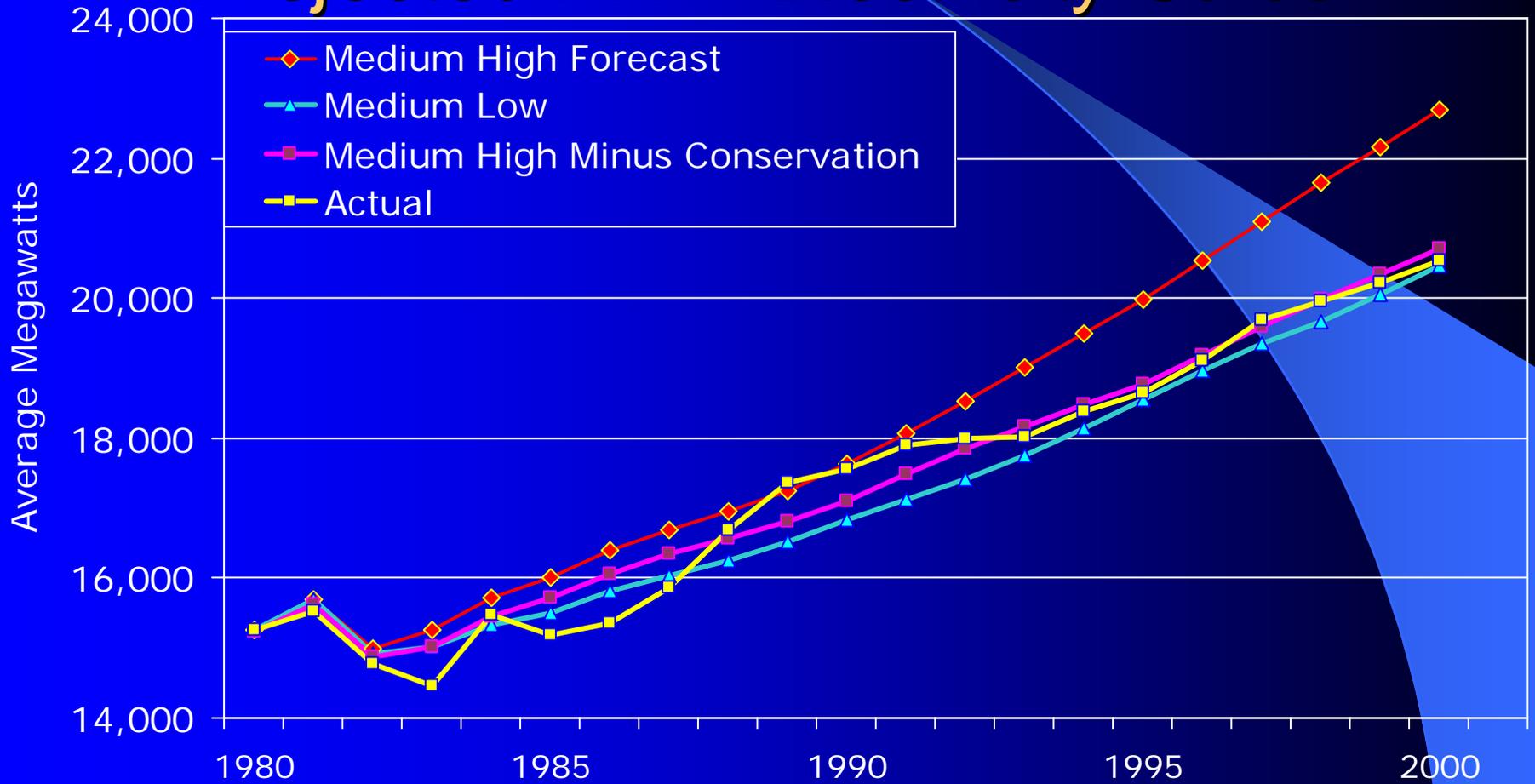
# Progress Under the Act – Total PNW Conservation Savings



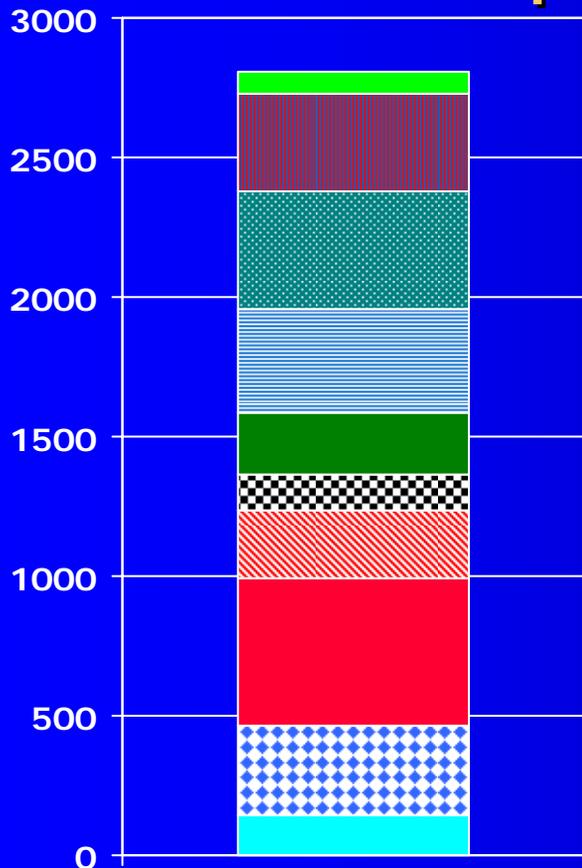
# Conservation Met Approximately 1/4 of the Regional Load Growth Between 1980 - 2002



# Conservation Significantly Reduced Projected PNW Electricity Sales



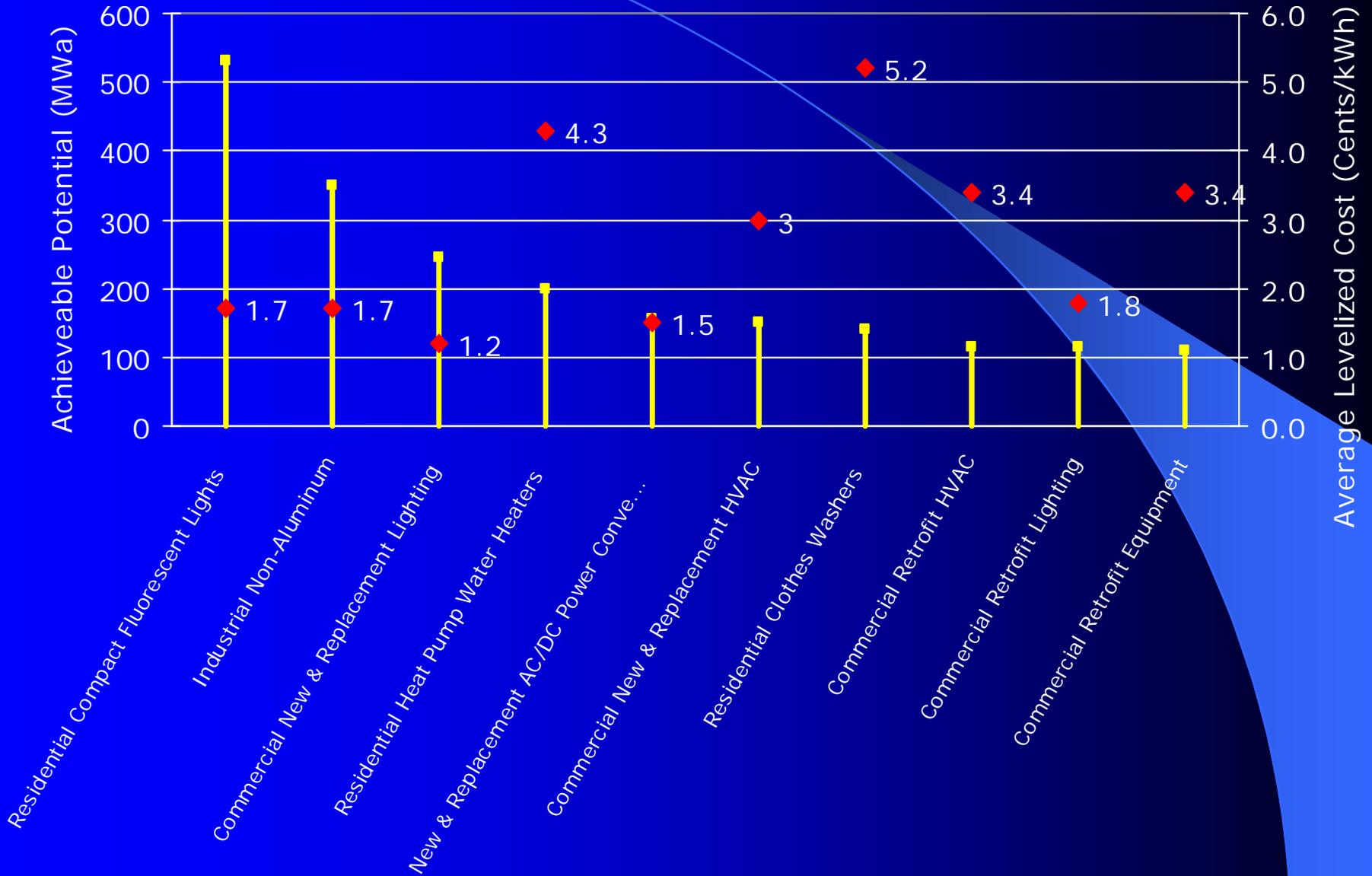
# Cost-Effective and Achievable Potential Is Equivalent to Regional Accomplishments 1980 – 2001



Cost-Effective Potential  
(aMW in 2025)

- Agricultural Sector - 80 aMW
- Non-DSI Industrial Sector - 350 aMW
- Commercial Sector Non-Building Measures - 420 aMW
- HVAC, Envelope & Refrigeration - 375 aMW
- New Commercial Building Lighting - 220 aMW
- Existing Commercial Buildings Lighting - 130 aMW
- Residential Space Conditioning - 240 aMW
- Residential Lighting - 530 aMW
- Residential Water Heating - 325 aMW
- Residential Appliances - 140 aMW

# Largest Potential by Sector & End Use



# FOR MORE INFO ON THE NW

*Tom Eckman*

Manager, Conservation Resources

**Northwest Power and Conservation Council**

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Portland, OR 97204

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503.820.2370

[TEckman@nwcouncil.org](mailto:TEckman@nwcouncil.org)



**THE  
NORTHEAST  
STORY**

# Ratepayer Funded Energy Efficiency Northeast States 2004 – Gas & Electric

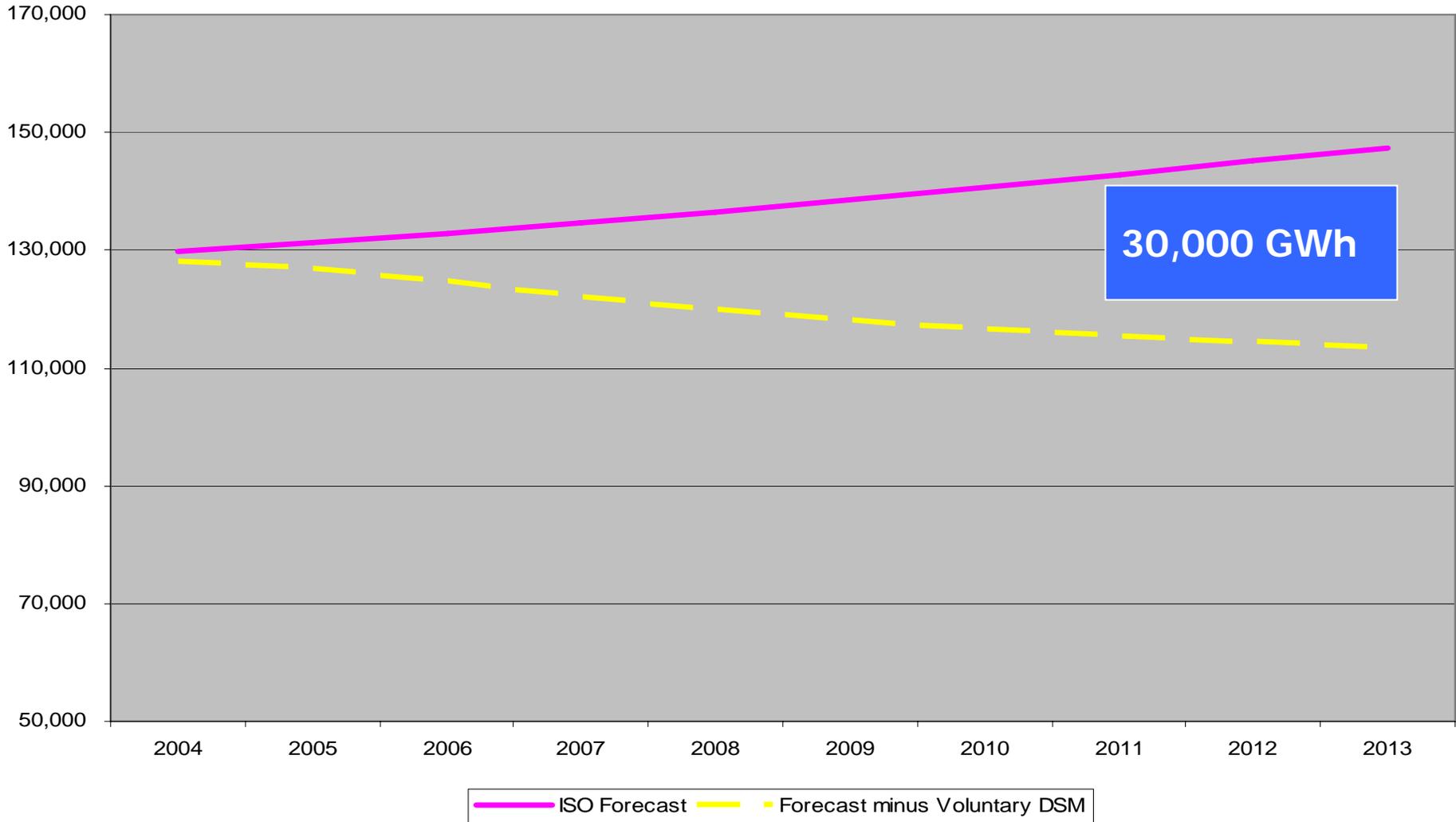
**Total Ratepayer Funding ≈ \$595 million/year**

New York	State authorities	\$240 million/year
Massachusetts	Utility programs	\$136 million/year
New Jersey	Public Utility Commission	\$108 million/year
Connecticut	Utility programs	\$49 million/year
Rhode Island	Utility programs	\$23 million/year
New Hampshire	Utility programs	\$17 million/year
Vermont	Efficiency Utility	\$14 million/year
Maine	Public Utility Commission	\$8 million/year
PA & MD:	Low income program funding only (non-SBC)	

**Market Transform = 25-75% of budgets**

# Looking to the Future: Energy Savings

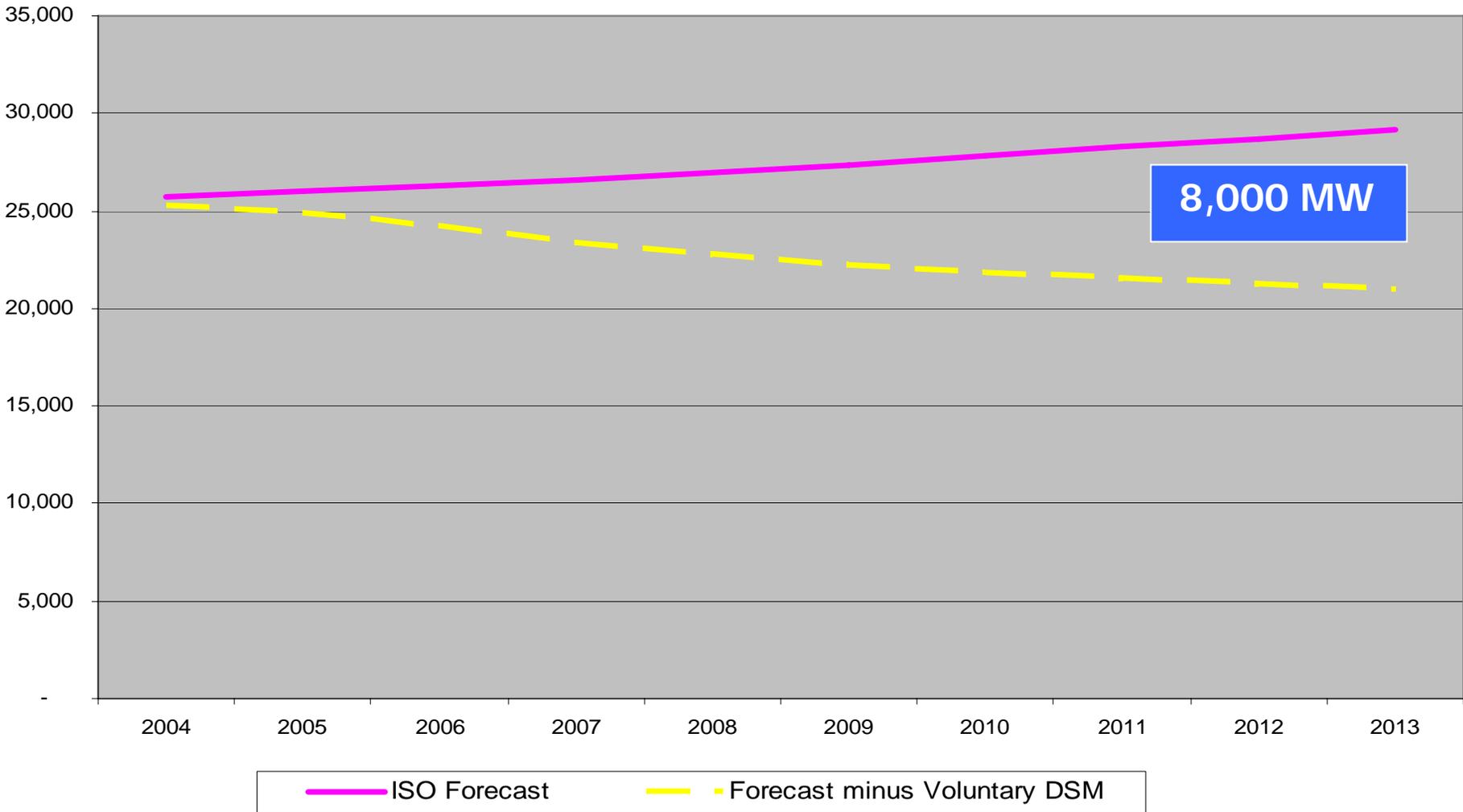
New England: GWh Forecast With and Without Achievable DSM



30,000 GWh

# Looking to the Future: Demand Reduction

## New England: Summer Peak MW Forecast With and Without Potential Savings

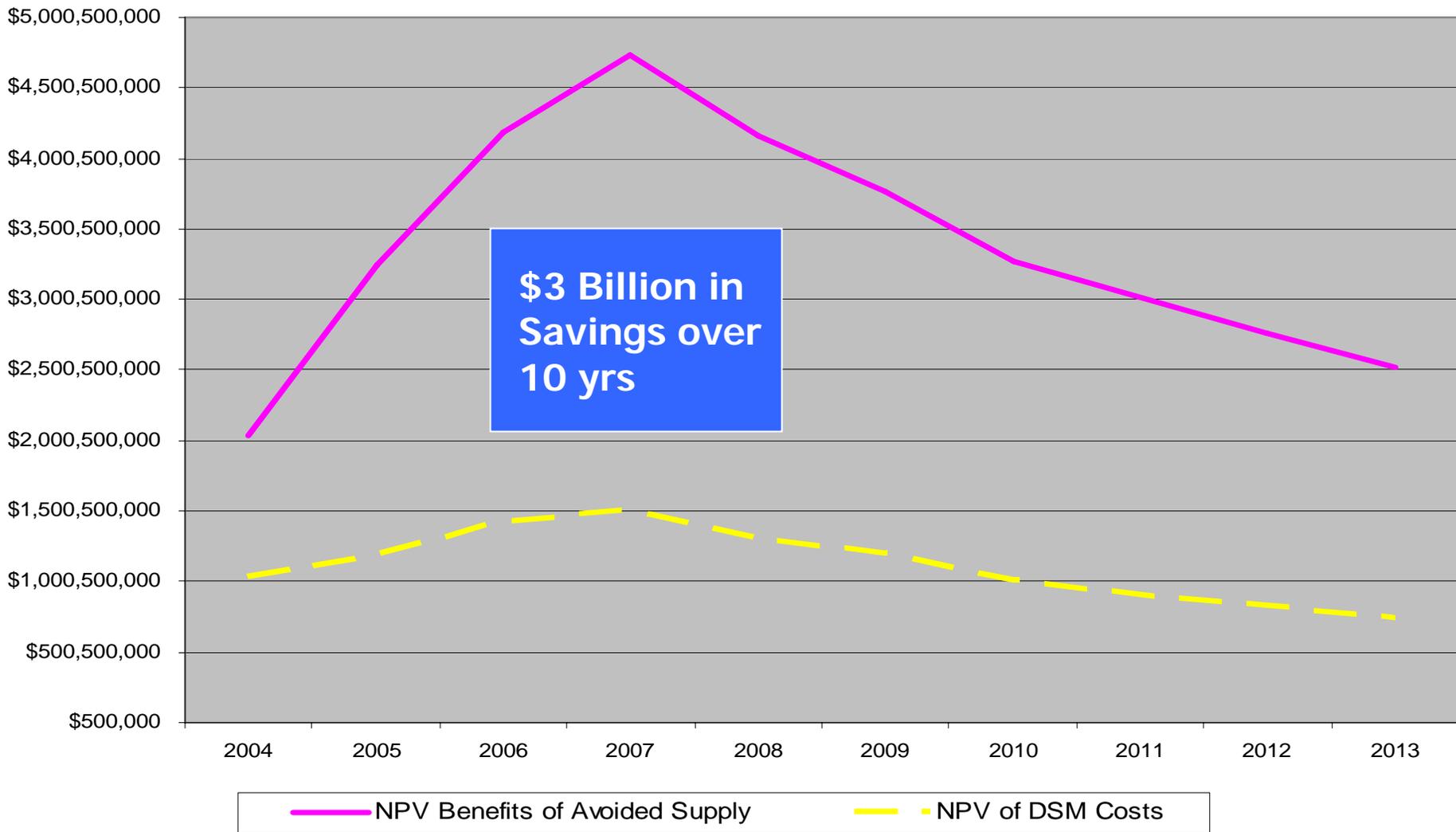


8,000 MW

ISO Forecast Forecast minus Voluntary DSM

# Looking to the Future: Cost of Efficiency

Benefits of Avoided Supply vs DSM Costs



**FOR MORE INFO ON THE NE**

*Sue Coakley*

Executive Director

**Northeast Energy Efficiency Partnerships**

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Lexington, MA 02421

781.860.9177 ext. 12

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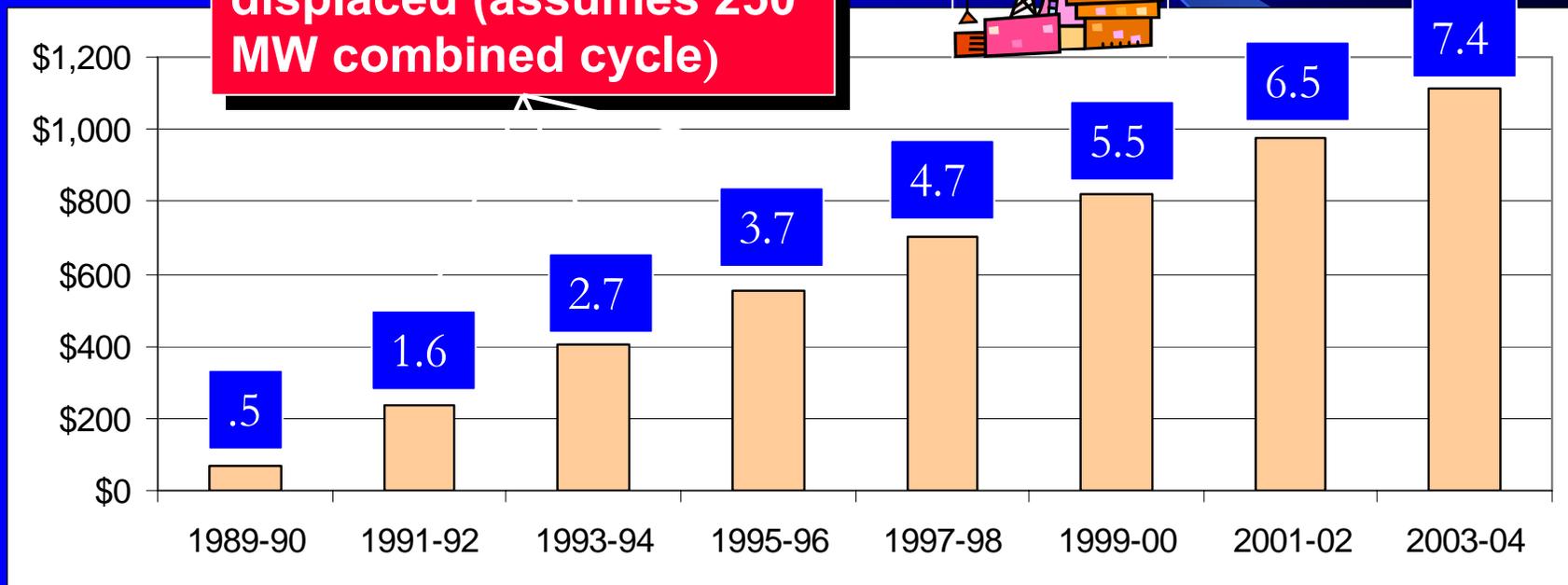
# THE MINNESOTA STORY

# MN Conservation Improvement

- **Conservation Improvement Plan (CIP)** legislation requires utility investment in energy efficiency programs with State oversight into planning and evaluation.
  - Utilities are required to file Integrated Resource Plans with the state, which are used to determine investment levels.
  - Utilities are allowed to recovery CIP expenses through annual rate adjustments and recovery is based on a performance incentive.
- Electric utilities invest a minimum of 1.5% to 2% of their gross operating revenues
  - \$51.4 million in 2003
- Natural gas utilities invest a minimum 0.5% of their gross operating revenues
  - \$12.2 million in 2003

# How have MN consumers done?

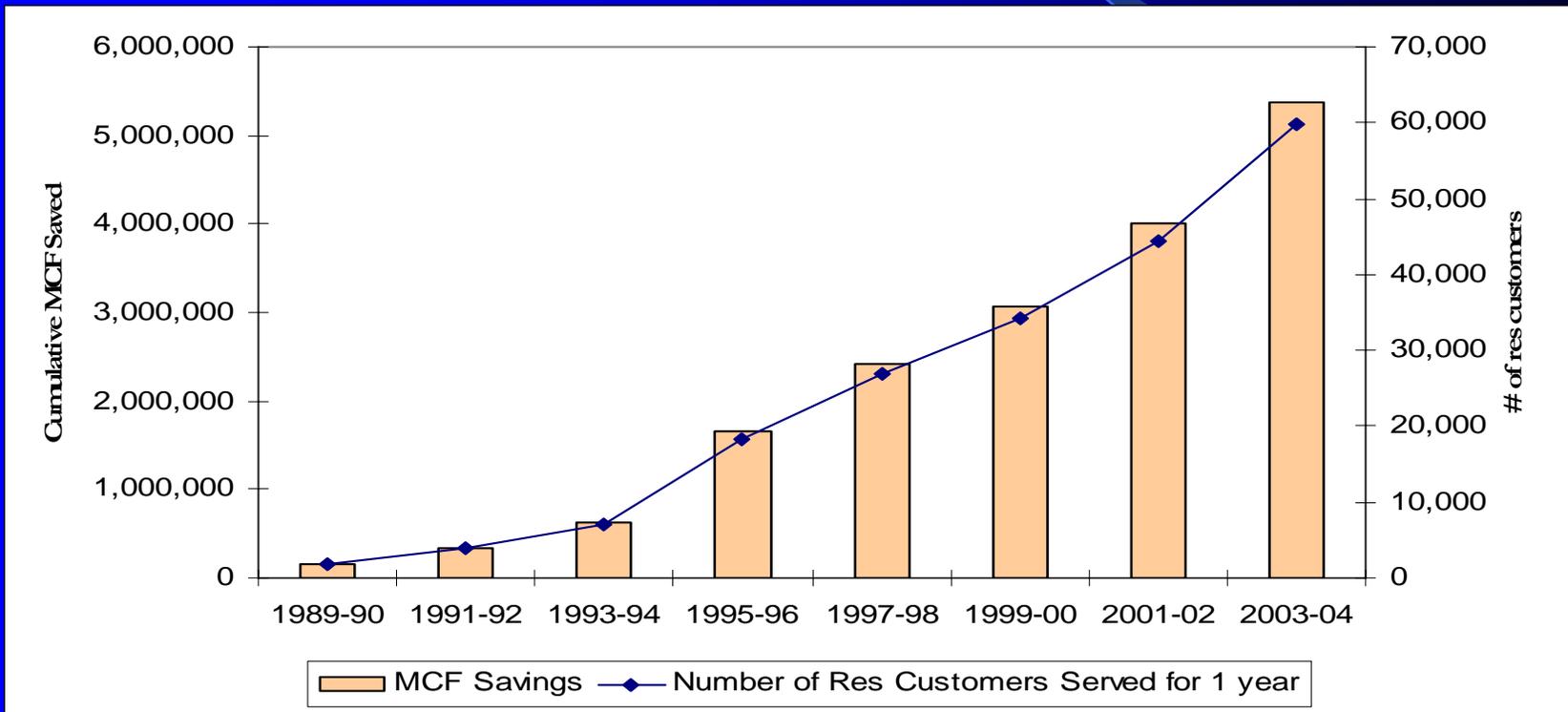
Number of plants displaced (assumes 250 MW combined cycle)



## MN Electric CIP Programs

*\*MN slides provided by Dave Sparby VP Regulatory Affairs for Xcel Energy at NARUC Natural Gas Workshop held at Carnegie Mellon University, PA in February 2004.*

# How have MN consumers done?

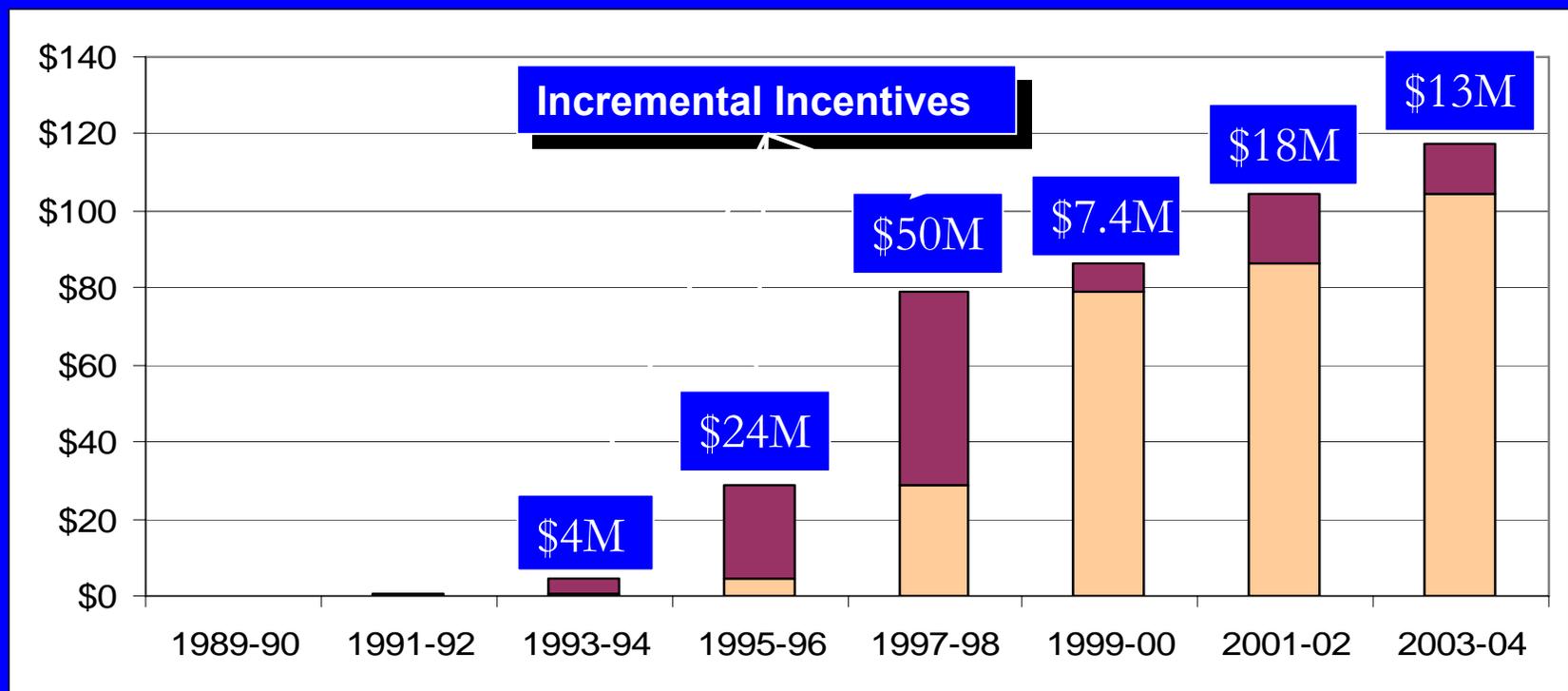


## MN Gas CIP Programs

*\*MN slides provided by Dave Sparby VP Regulatory Affairs for Xcel Energy at NARUC Natural Gas Workshop held at Carnegie Melon University, PA in February 2004.*

# How have Xcel investors done?

## Cumulative Incentives Earned

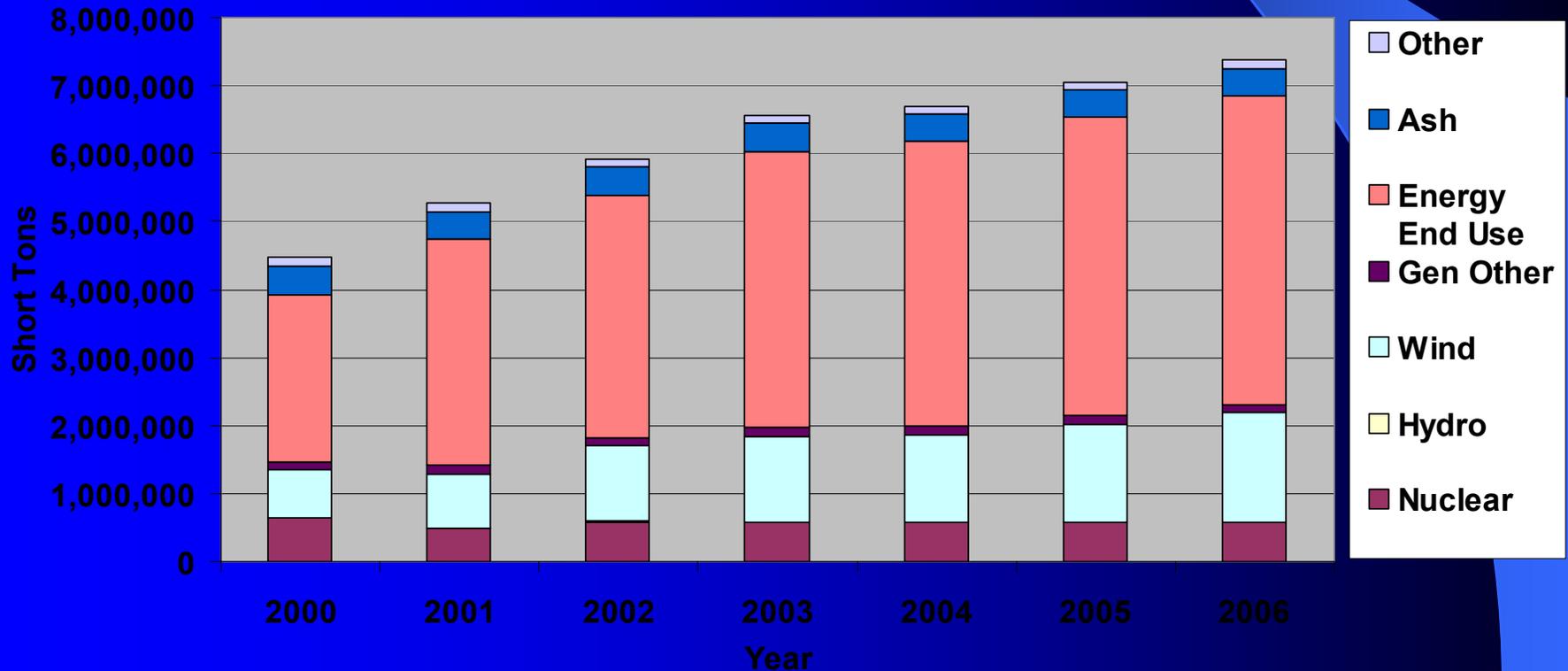


## MN Electric CIP Programs

*\*MN slides provided by Dave Sparby VP Regulatory Affairs for Xcel Energy at NARUC Natural Gas Workshop held at Carnegie Mellon University, PA in February 2004.*

# How has the MN environment done?

## Xcel Energy 1605(b) Project-Level CO<sub>2</sub>e Reductions



# FOR MORE INFO ON MN

*Chris Davis*

**MN Department of Commerce**

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St. Paul, MN 55101

(651) 296-7130

[christopher.davis@state.mn.us](mailto:christopher.davis@state.mn.us)

# WISCONSIN

- The state-administered “Focus on Energy” is a public benefits program funded by a fixed charge on customer bills.
- The utilities pay into a segregated account through the Wisconsin Department of Administration.
  - Electric utilities invested \$47.6 million in 2003
  - Natural gas utilities invested \$13.9 million in 2003
- Avg. energy savings per household = \$57.57/year
- Avg. energy savings per business = \$1,406.82/year

# Wisconsin Achievements

- As of December, 2004 Wisconsin has:
  - Saved 646,870,937 kWh
  - Saved 29,918,558 Annual Therms
  - Avoided emissions of
    - 3,986,350 pounds of NOx
    - 7,893,621 pounds of Sox
    - 1.8 billion pounds of CO2
    - 31.632 pounds of Mercury
  - Created 1,774 full-time equivalent job years
- Benefit-Cost Ratio between 3 and 5.7 depending on inclusion of non-energy benefits

# FOR MORE INFO ON WI

*Barbara Smith*

**WI Department of Administration**

101 E. Wilson Street, 6<sup>th</sup> Floor

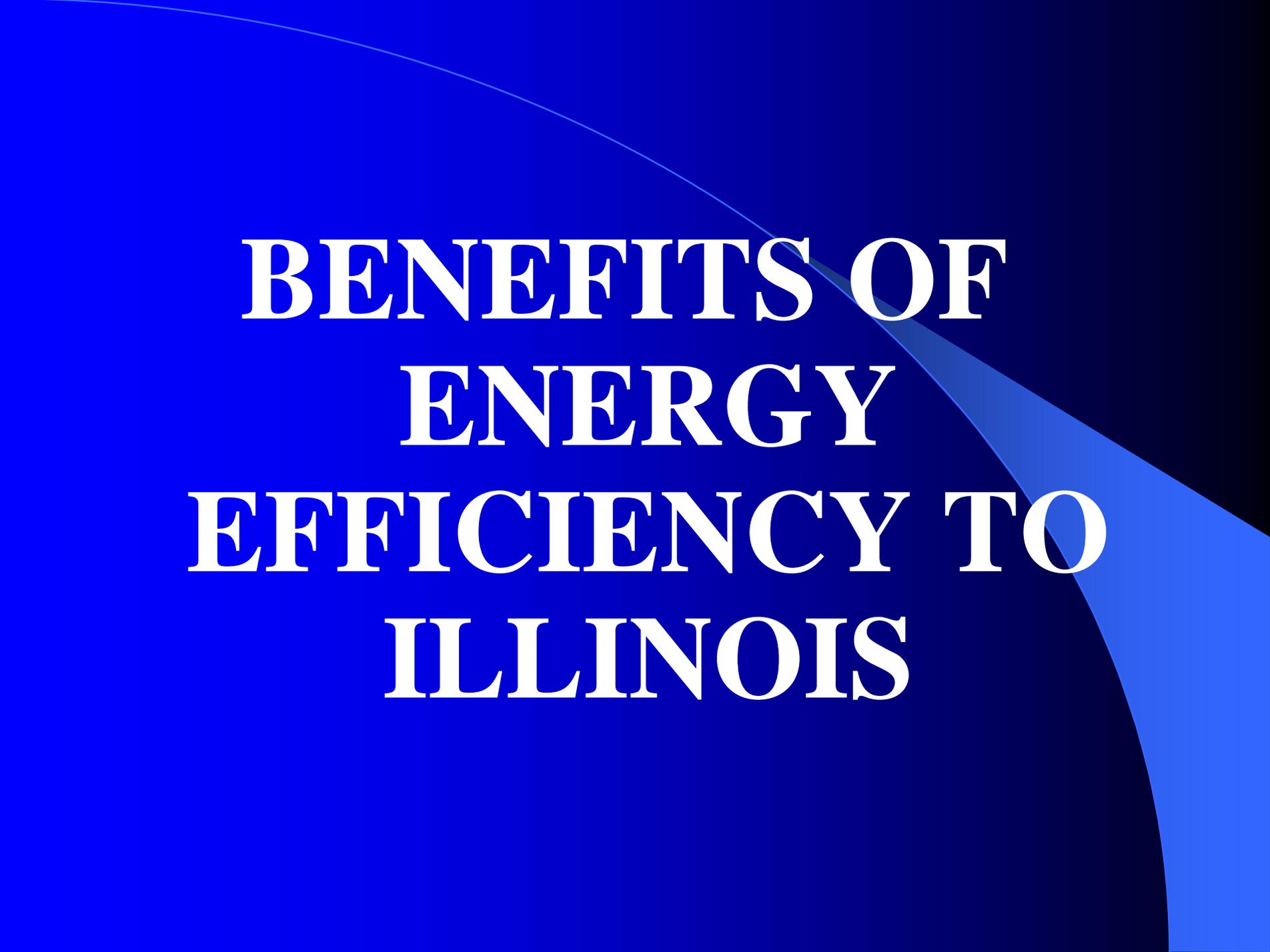
Madison, WI 53707

608.266.7554

[barbara.smith@doa.state.wi.us](mailto:barbara.smith@doa.state.wi.us)

# IOWA

- Regulated utilities are required to file energy efficiency plans with the Iowa Utilities Board.
- Utilities are allowed cost recovery through an automatic adjustment mechanism.
  - Electric utilities invested \$40 million in 2004
  - Natural gas utilities invested \$20 million in 2004
- Contact Gordon Dunn at 515-281-7051 or [gordon.dunn@iub.state.ia.us](mailto:gordon.dunn@iub.state.ia.us) for more information
  - Savings data will be available after May 1<sup>st</sup>

The background is a solid blue color. A white arc starts from the top left and curves towards the center. A blue triangle is positioned on the right side, pointing towards the center.

**BENEFITS OF  
ENERGY  
EFFICIENCY TO  
ILLINOIS**

# Energy Efficiency

Is the first, most basic step to:

## *ENERGY BENEFITS*

- *Avoid building more power plants*
- *Reduce current energy usage*
- *Help alleviate transmission and distribution issues*

## *ENVIRO BENEFITS*

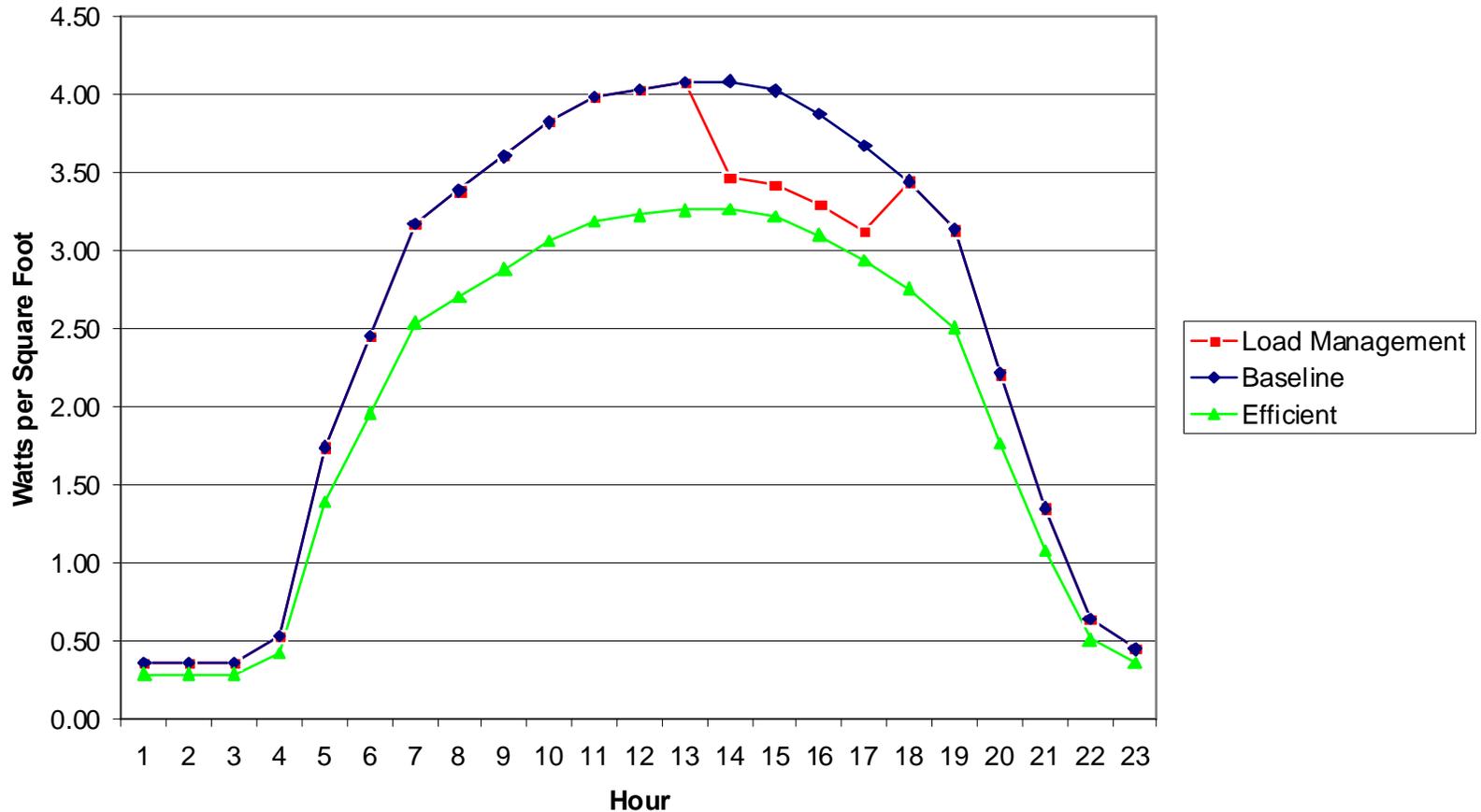
- *Thus... reducing the introduction of pollutants into the environment*
- *Create a more sustainable future*

## *OTHER BENEFITS*

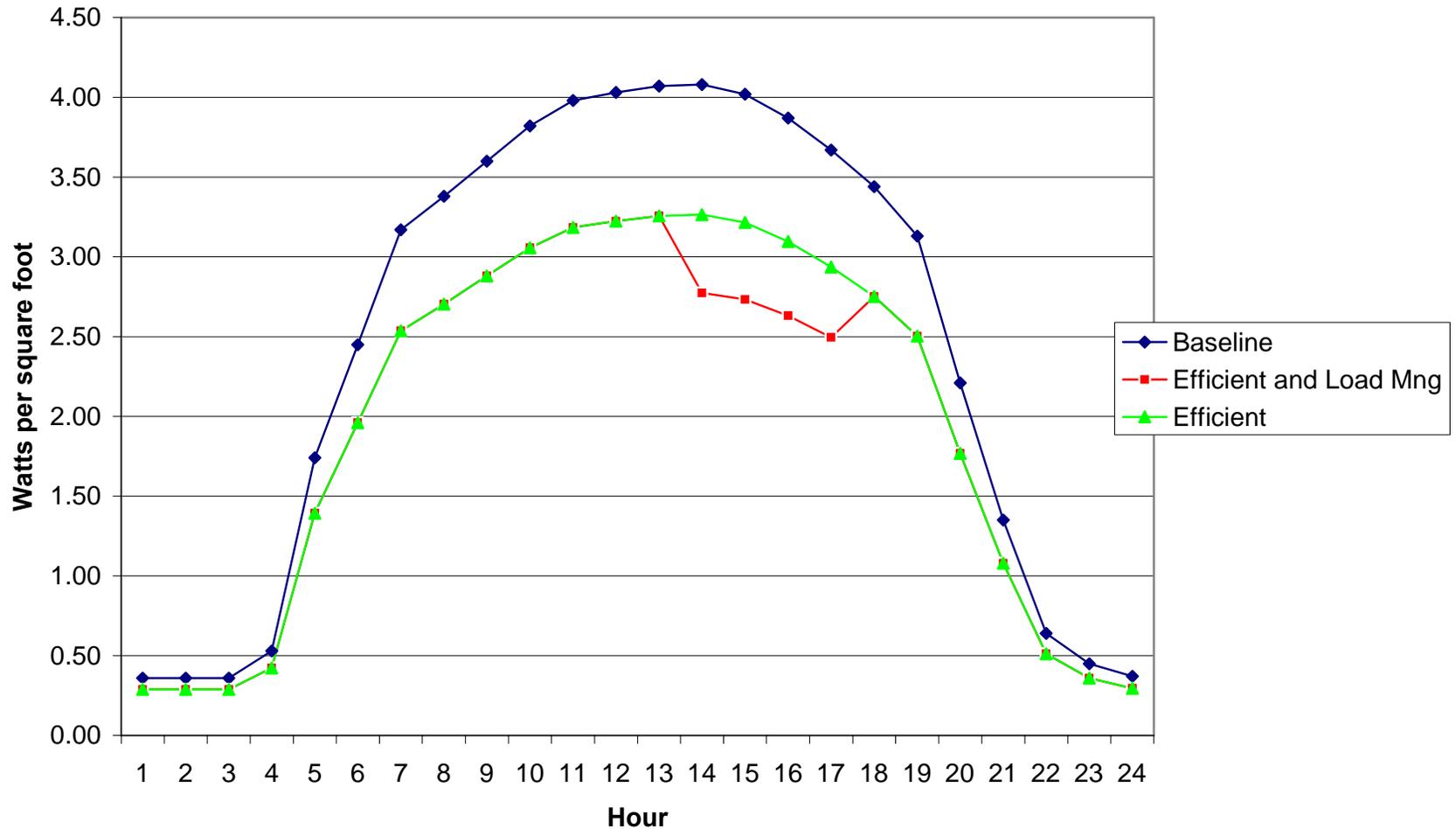
- *Create better-informed and more aware consumers*
- *Help revitalize the economy by investing in manufacturing of energy efficient products and energy efficient services*

# Long-term Efficiency Also Shapes Demand

Combined Commercial Cooling and Lighting Loadshape  
Baseline and Load Management Compared to Energy Efficiency



## Combined Commercial Cooling and Lighting Loadshape with Efficiency and Load Management (Four-Hour Curtailment by 15%)



# FOR MORE INFO

*Rich Sedano*

**Regulatory Assistance Project**

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Montpelier, VT 05602

802.223.8199

[rasedano@aol.com](mailto:rasedano@aol.com)

**Best Program  
Practices for the  
Residential,  
Commercial and  
Industrial Sectors**

# Program Overview

## Successful Programs have common elements:

- Consistent funding over multiple years
  - Critical to the long-term success of efficiency programs
  - Provides stability and involvement in the marketplace
- Don't expect results immediately
  - Allows time to learning lessons, build infrastructure, and engage in relationships with vendors, suppliers, and others in the marketplace
- Reasonable flexibility for utilities and the state to meet the goals set
- Strong connections to the relevant marketplace
- Effective and unbiased evaluation

# Residential Product Programs

- Suite of ENERGY STAR<sup>®</sup> Qualified Products
  - Lighting, Appliances, Room AC, HVAC systems
    - Consumer Incentives
    - Retailer and Manufacturer participation and leverage
    - Consumer and retailer outreach and education
  - Include recycling of old products (refrigerators and room ACs)
  - View as an entire suite of programs when addressing cost-effectiveness
  - Use ENERGY STAR as a common platform for all products
- Central HVAC Training
  - Federal standard will become SEER 13 in 2006
  - Need for proper sizing and installation of central AC systems
  - Verification of proper installation is critical to accurately assess program effectiveness

# Residential Homes Programs

- Homes Programs

- New Homes: Build to meet ENERGY STAR Homes specification or above

- Builder/developer and homeowner education and incentives; increased incentives for percentages above ENERGY STAR
- Allow time to build infrastructure and market
- Should also include incentives or components for ‘plug’ loads

- Existing Homes

- Home Performance with ENERGY STAR Program
- Contractor training on system approaches to improve existing home efficiency and marketing tools
- Whole home audits
- Financing and incentives for homeowners to follow-through with measures
- Quality Assurance (QA)/Quality Control (QC) on contractors

# Commercial/Industrial Programs

- New Construction
  - Design Assistance
    - Recommend a hybrid approach that includes consultation as well as incentives to cover partial incremental costs of upgrades
- Small Business
  - The sector is defined by monthly demand (kW) or annual energy use (kWh)
    - Target specific technologies: lighting, water heater, HVAC, refrigeration, motors
    - Program sponsor should fund majority of improvement costs and offer low to no-interest financing for remaining expenses
    - Outside of the utility key account reps, sponsor should market via direct mail and telemarketing
- Lighting
  - Incentives for CFLs, Fluorescents, LEDs, fixtures and controls
  - Financing

# Commercial/Industrial Programs Cont.

- HVAC

- Focus on high efficiency units for replacement and new applications – mainly rooftop units
- HVAC contractor training, support and education
- Customer awareness and incentives
- Use traditional key account rep and other utility marketing

- Standard Offer Programs

- Performance contracting with incentives for ESCOs
- Should include M&V component
- Incentives may be based on what measures get installed with higher incentive values for smaller customers
- Payback and other criteria can be specified

# What are we NOT talking about?

- Curtailment
- Load Shifting/Shedding
- Other tools that a utility uses to manage service territory load

# Why aren't we talking about that?

- Appropriate financial and management incentives in the marketplace
- Should not be eligible for cost-recovery under this framework

# Program Evaluation

- Is essential for all program activities
- Should be conducted by a third-party evaluation expert
  - *(not the administering or implementing entity)*
- Achieve greater evaluation cost savings, extrapolation of meaningful data and results through coordination of evaluation activities among similar programs
  - *(i.e. do it state-wide and not on a utility service territory by utility service territory basis)*
- Should allocate approximately 5% of total program investments to cover independent evaluations

# How Might Energy Efficiency Administration be Structured?

- Administration of collection and distribution of funds
  - This fiscal agent role should reside with the ICC
- Administration of guidelines/criteria for qualifying programs
  - This important role should reside with the ICC
- Administration of qualifying programs
  - May reside with Utilities and/or DCEO (depending)
- Administration of measurement, verification & evaluation
  - This should NOT reside with program administrator or subcontractors
  - May reside with ICC, DCEO, or a third party or in a shared fashion between ICC and DCEO except where DCEO is the program administrator

# Contact Information

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(MEEA)**

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**WEBSITE: [www.mwalliance.org](http://www.mwalliance.org)**

Presentation  
to  
Illinois Department of Commerce

Demand Response/Energy  
Efficiency Working Group

6 April 2005

# Energy Systems Group



- Energy Systems Group (ESG) is a comprehensive energy services and performance contracting company serving 14 states (including Illinois)
- ESG has been providing services since 1994
- ESG is headquartered in Evansville, IN and has a full service office in Itasca to serve Illinois clients
- ESG is a subsidiary of Vectren Corporation – a utility holding company based in Indiana

# What is an ESCO?



- An Energy Service Company (ESCO) is a business that develops, installs, and finances projects designed to improve the energy efficiency and maintenance costs for facilities over period of time.
- ESCOs generally act as project developers for a wide range of tasks and **assume** technical and performance risk associated with the project

# What is an ESCO?

ESCO can provide to their clients

- design
- development
- implementation
- operation
- financing
- maintenance
- training
- measurement & verification
- and much more

of energy and operational facility improvements

# ESCOs Focus Is Energy Efficiency



- Our business is energy and operational efficiency
- We guarantee our results
- We apply new and cost effective energy technology into the field
- We build long-term client projects and relationships

# ESCOs and Illinois

- ESCO's have been active in Illinois for many years helping clients improve energy efficiency at their facilities and using these savings to fund these improvement projects.
- Illinois has enabling legislation guiding the engagement of an ESCO to provide services to government and education (k-12 and higher education) facilities.
  - 50 ILCS § 515;
  - 105 ILCS § 5, Article 19b;
  - 110 ILCS § 62;
  - and 110 ILCS § 805

# Some Successful Examples



- K-12 School Systems
  - Fairfield Community High School District
- Higher Education
  - Northern Illinois University
- Local Government
  - City of East St. Louis
- Federal Government
  - North Chicago VA and Jesse L. Brown VA co-generation and facility improvements
- Commercial Business
  - Chicago Sun Times

# Benefits



- Reduce energy and water use
- Financing over the life of the project
- Improved facilities for working and learning
- Improved indoor air quality
- Rejuvenated facilities
- Long-term energy strategy

# Challenges

- Time for returns
- Overall knowledge of the opportunity
- Sense of urgency for energy efficiency at the user level
- Financing options

# Our Thoughts On EEPS



- EEPS is a sound approach
  - Our industry was born of the DSM programs of the early 1990's
- Look for more than “low hanging fruit”
- Identify realistic goals, measure and verify
- Reward performance and innovation
- Involve ESCOs to see how far performance based contracting can go.

Thank You



Questions????

*Norm Campbell*

Director of Marketing

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[ncampbell@energysystemsgroup.com](mailto:ncampbell@energysystemsgroup.com)

# MidAmerican Energy Company

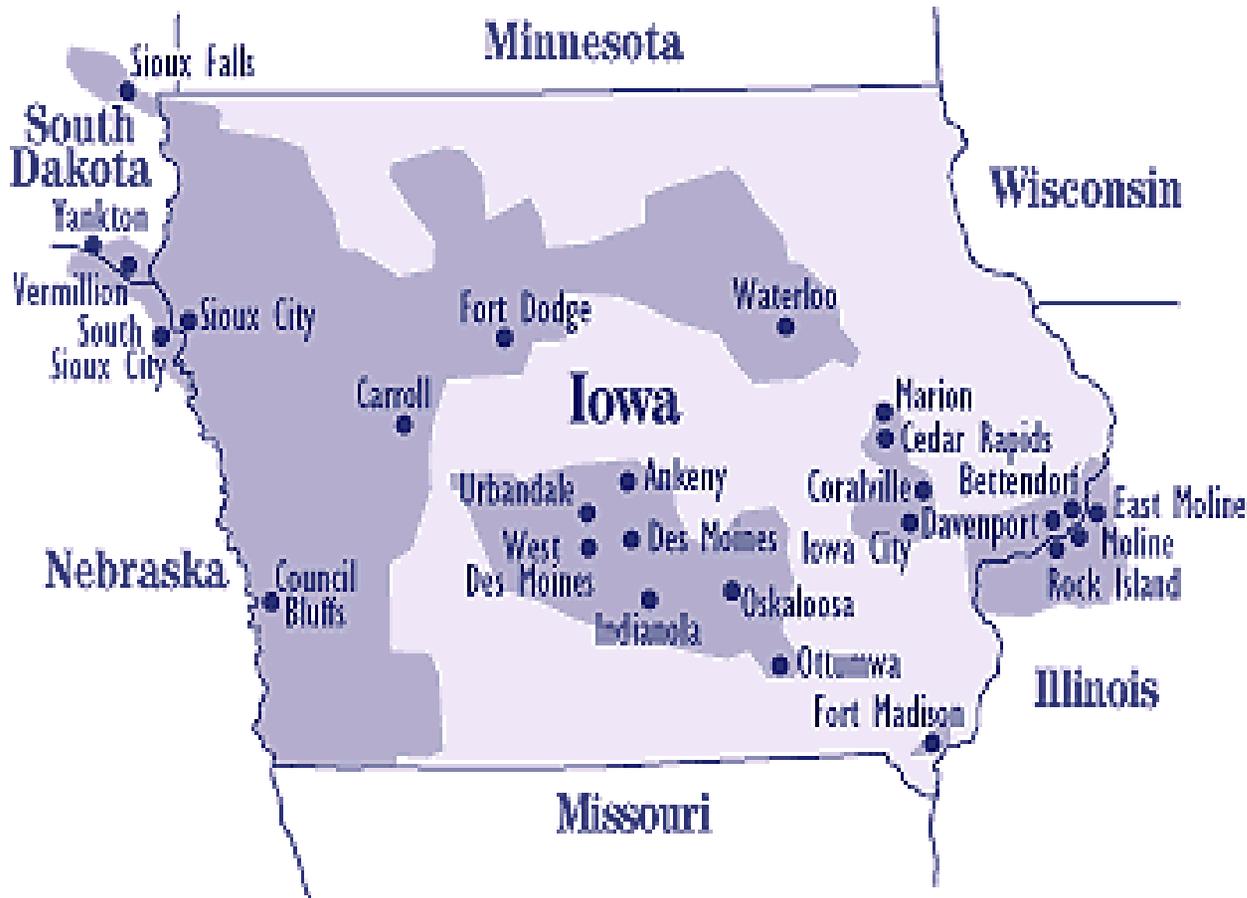
## ICC Working Group Meeting on Energy Efficiency

April 6, 2005

**Save some green.<sup>SM</sup>**



# MidAmerican Energy Service Territory



MidAmerican provides service within a 10,600 square mile area with a population of 1.7 million

**Save some green.<sup>SM</sup>**

# Why Do Energy Efficiency?

- Mandated activity for IOUs in **Iowa**
- Ratepayers pay for energy efficiency in **Iowa**
- Iowa Utility Board oversees IOU activities
- Delays construction of power plants
- Provides value-opportunities for customers
- Helps protect the environment

**Save some green.**<sup>SM</sup>

# Summary

## 1990 - 2004

### MidAmerican's EE Programs began in 1990

- **Electricity savings through 2004**
  - 600,000,000 kWh (108 million kWh saved in 2004)
  - Enough to power 62,000 homes (12,000 homes in 2004)
- **Natural gas savings through 2004**
  - 29,000,000 therms (4 million therms saved in 2004)
  - Enough to heat 32,000 homes (4,500 homes in 2004)

**Save some green.**<sup>SM</sup>

# Summary 2004

- **Electric savings**

- kW: 191,000 planned vs. 254,000 actual
- kWh: 57,600,000 planned vs. 108,000,000 actual

- **Natural Gas savings**

- Peak therms: 47,000 planned vs. 60,900 actual
- Therms: 3,120,000 planned vs. 4,250,000 actual

**Save some green.<sup>SM</sup>**

# Energy Audit Programs

## HomeCheck<sup>sm</sup>

- Free on-site home energy audit
- Free direct installation of qualifying measures
- Special incentives for insulation and windows

## BusinessCheck<sup>sm</sup>

- Free on-site small business energy audit
- Free direct installation of qualifying measures
- Special incentives for insulation and lighting upgrades

## EnergyAdvantage<sup>®</sup> Analysis

- Targets existing mid- & large commercial buildings and manufacturing processes
- C-level energy management and awareness diagnostic session
- Free comprehensive energy walk-through audit
- Cost sharing on detailed energy studies; customer's share reimbursable
- Financial incentives to influence energy saving projects

**Save some green.**<sup>SM</sup>

# Efficiency Equipment Programs

## Residential Equipment

- Electric & natural gas heating and cooling equipment
- Water heaters
- Windows – MidAmerican financing, only
- CFL coupon program through “big box” chain(s)

## Nonresidential Equipment

- Heating and cooling equipment, incl. programmable t-stats
- Lighting, incl. occupancy sensors, LED traffic signal lights
- Premium efficiency motors & VSDs / ASDs

## Nonresidential Custom Equipment & Systems

- Targets customized systems & non-prescriptive equipment
- Provides technical assistance to customers & contractors

# New Construction Programs

## New Homes

- U.S.EPA ENERGY STAR<sup>®</sup> certified homes (>3,000 homes in certified in 2004)
- Comprehensive rebates to homebuilders if 29 requirements met
- Rebate pays the majority of incremental cost to upgrade
  - heating and cooling systems
  - insulation levels
  - windows and doors

## Commercial New Construction

- Energy design assistance for new / renovation projects
- Comprehensive rebates to owner / developer based on projected energy use better than building code
- Provides independent verification of installed energy strategies

**Save some green.**<sup>SM</sup>

# Efficiency Bid<sup>sm</sup> Program

- New pilot program for 2004 - 2005
- Targets largest industrial customers (3 mW or more)
- Two RFP bidding cycles per year
- Customer-driven approach where customers:
  - Define the project
  - Define the installation period
  - Specify the financial incentives needed
- RFP bid evaluation and scoring system to fund the best projects
- Funded 15 projects in 2004; first completions in 2005
- Third bidding round ended March 31, 2005; ten proposals received and undergoing technical review

**Save some green.**<sup>SM</sup>

# Load Management Programs

## SummerSaver<sup>SM</sup>

- Reduces peak demand ~47 mW -- June through September
- Cycling device controls home air conditioner or air-source heat pump
- Cycles on / off on weekdays between 2:00 p.m. and 7:00 p.m.
- Customer receives \$40 incentive the first year; \$30 in following years
- 52,000 load control receivers in the field

## Nonresidential Curtailment

- Reduces peak demand ~172 mW
- Commercial / industrial customers with 250 kW load or more are eligible
- Customer signs contract to reduce demand a specified load whenever curtailment event is called
- Limited to 16 events of 6 hours or less during June through September

# EnergyAdvantage<sup>®</sup> Financing Program

- Available for customers in lieu of rebate incentives
- Financing covers
  - Labor and material costs
  - Removal and proper disposal of old equipment
- Financing rates
  - ½ point under Prime for residential projects
  - 1 point under Prime for nonresidential projects
- Financing program partner - First American Bank
- Financing does not apply to new construction programs

**Save some green.**<sup>SM</sup>

# Low-Income Program

## Home Weatherization Program

- Funds provided to State Iowa Department of Human Rights and local Community Action Program agencies (CAPs)
- Homeowners eligible for weatherization receive:
  - Free home energy audit
  - Free energy-saving measures, including:
    - Insulation
    - Energy-efficient light bulbs
    - Water heater wrap
    - Low-flow showerheads and faucet aerators
  - Possible appliance replacement (water heater, refrigerator, furnace)
- Results to date: over 13,500 homes weatherized in our service territory
- **Multifamily low income housing (under development)**
- **Emergency Shelters (future offering)**

# *Trees Please!* Program

## **TreesPlease!**

- *Trees Please!* has been extremely successful and popular with customers
- Communities with successful grant requests receive:
  - Grant money for planting of trees
  - Educational booklets
  - Tree safety sheet and tree-planting advice
- Program targets all communities; over 200 Iowa communities have applied to date

## **Plant some shade<sup>sm</sup>.**

- Conducted in partnership with the Iowa DNR, Forestry Bureau
- Customers pay \$25 per landscape tree, with cap of two trees
- Distributed 2,750 trees, valued at > \$121,800, purchased from small businesses

## **Special projects**

- American Forests - tree plantings from national historic trees
- Liberty Trees – tree plantings for each active service man and woman in the country
- Iowa DNR's Trees for Kids /Trees for Teens – 40,360 tree plantings organized by >5,500 teachers and youth leaders and planted by students with support from businesses; trees were valued at \$1.9 million

# Assessments

Iowa law requires IOUs to assist in funding two organizations:

- **Iowa Energy Center**, Ames, to:
  - Serve as model for state efforts to decrease reliance on energy production from nonrenewable sources
  - Conduct / Sponsor research on EE and conservation
  - Conduct / Sponsor research to develop renewable-based energy systems
  - Assess technology related to EE and renewable systems
  - Support EE and renewable educational and demonstration programs
- **Iowa Global Warming Center, U of I**, Iowa City, to:
  - Support research on effects of global environmental change
  - Provide services to faculty members and students across the state who are interested in environmental change

# Energy Efficiency

Questions?

**Save some green.<sup>SM</sup>**

15



# Real Time Pricing and Energy Efficiency



Anthony Star  
Assistant Manager  
Community Energy Cooperative

Illinois Commerce Commission  
Sustainable Energy Plan Initiative  
Demand Response/Energy Efficiency  
Working Group  
April 6, 2005



# Community Energy Cooperative Demand Response Programs

- Paying for negawatts
  - Curtailment cooperatives
  - Underwriting the cost of high efficiency air conditioners and lighting (and getting rid of the old)
  - **Require direct subsidies**
- Price signals: Real-time pricing of electricity
  - **Reduces demand, raises consciousness of energy. You pay for what you get**



# Benefits of Price Responsive Behavior

- Increases system reliability
- Reduces the costs of electricity to all consumers by reducing the use of expensive peak power
- Lowers market risk management costs for suppliers
- Environmental benefits from efficient use of resources
- Market power mitigation
- Incentives for technical innovation



# The Energy-Smart Pricing Plan

- Three year pilot program of the Community Energy Cooperative and ComEd
- Wide range of income and housing types represented among 1,500 participants
- Provides hourly electricity price
- People are saving money
- People are changing energy use patterns
- People like it!



# Energy-Smart Pricing Plan Components

- Interval recording meters
- High price alerts via phone, e-mail
- Energy management/price response tools
  - Information about usage
  - Instructions and tips on how to reduce usage during peak periods
  - Ongoing energy efficiency information
- Prices available through web and phone

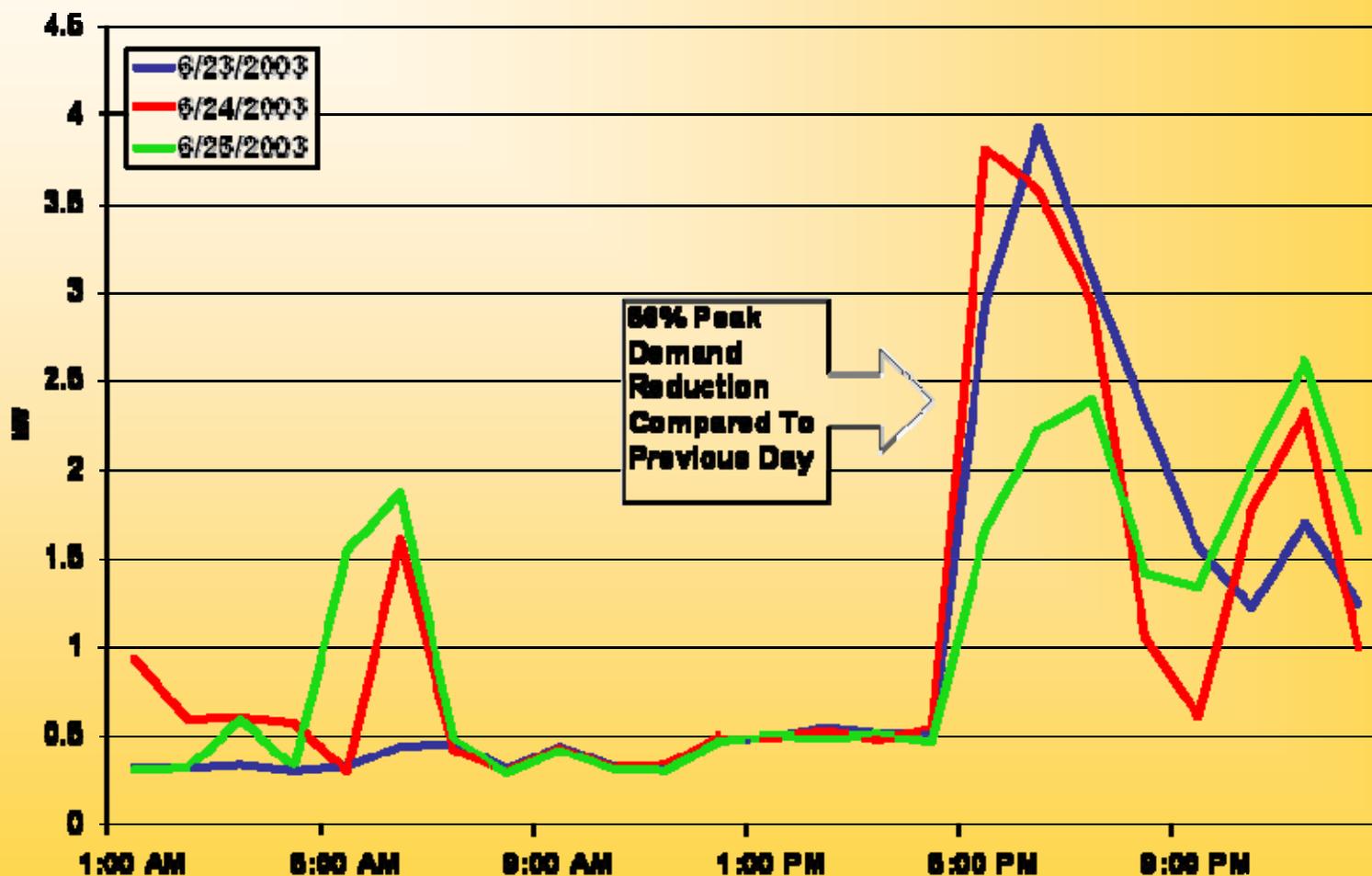


# Key Findings

- Participants respond to prices
  - Peak demand reduced by up to 20%
  - Statistically significant relationship between price of electricity and consumption
- Participants saved money
  - Approximately 12% in 2003 and 2004
- Participants of all incomes benefited



# One Member's Response: Changing Thermostat Set Point In Response To Price Notification



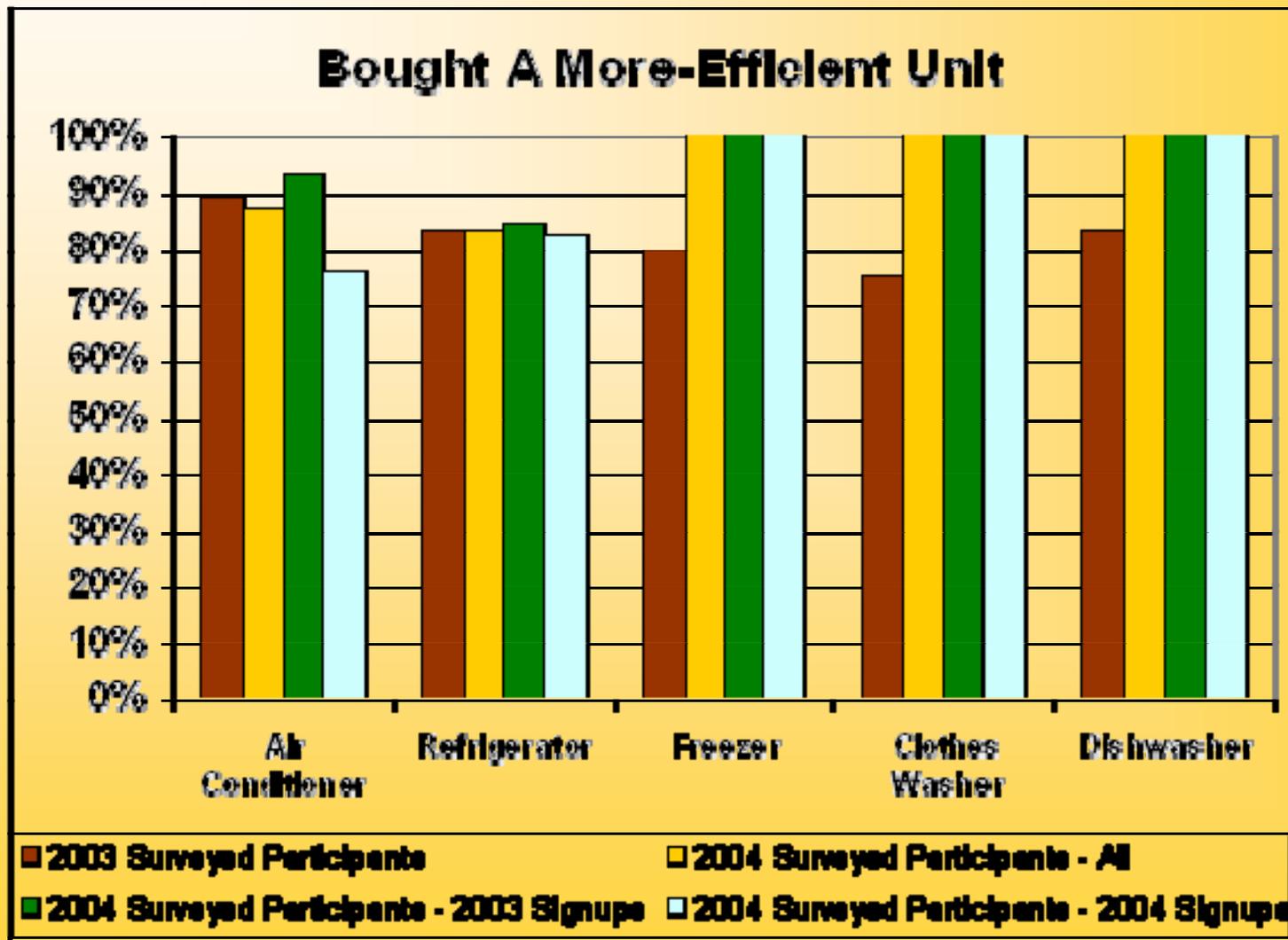


# Beyond Demand Response

- Energy-Smart Pricing Plan has created
  - Participant Savings
  - Peak Load Reductions
- But the Cooperative has also found
  - Investments in energy efficiency
  - Changing understanding and attitudes about energy usage

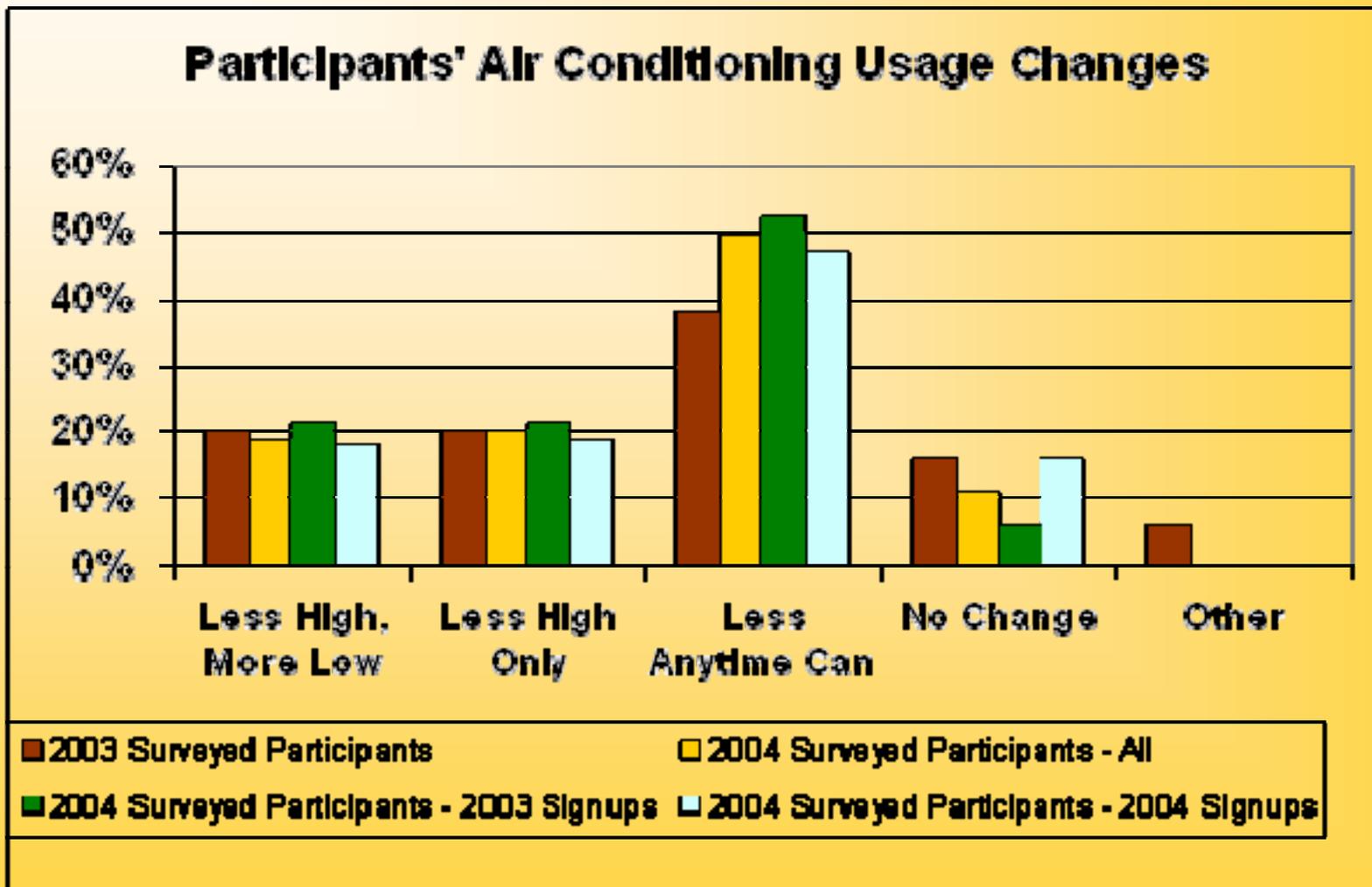


# Participants Invested in Efficiency



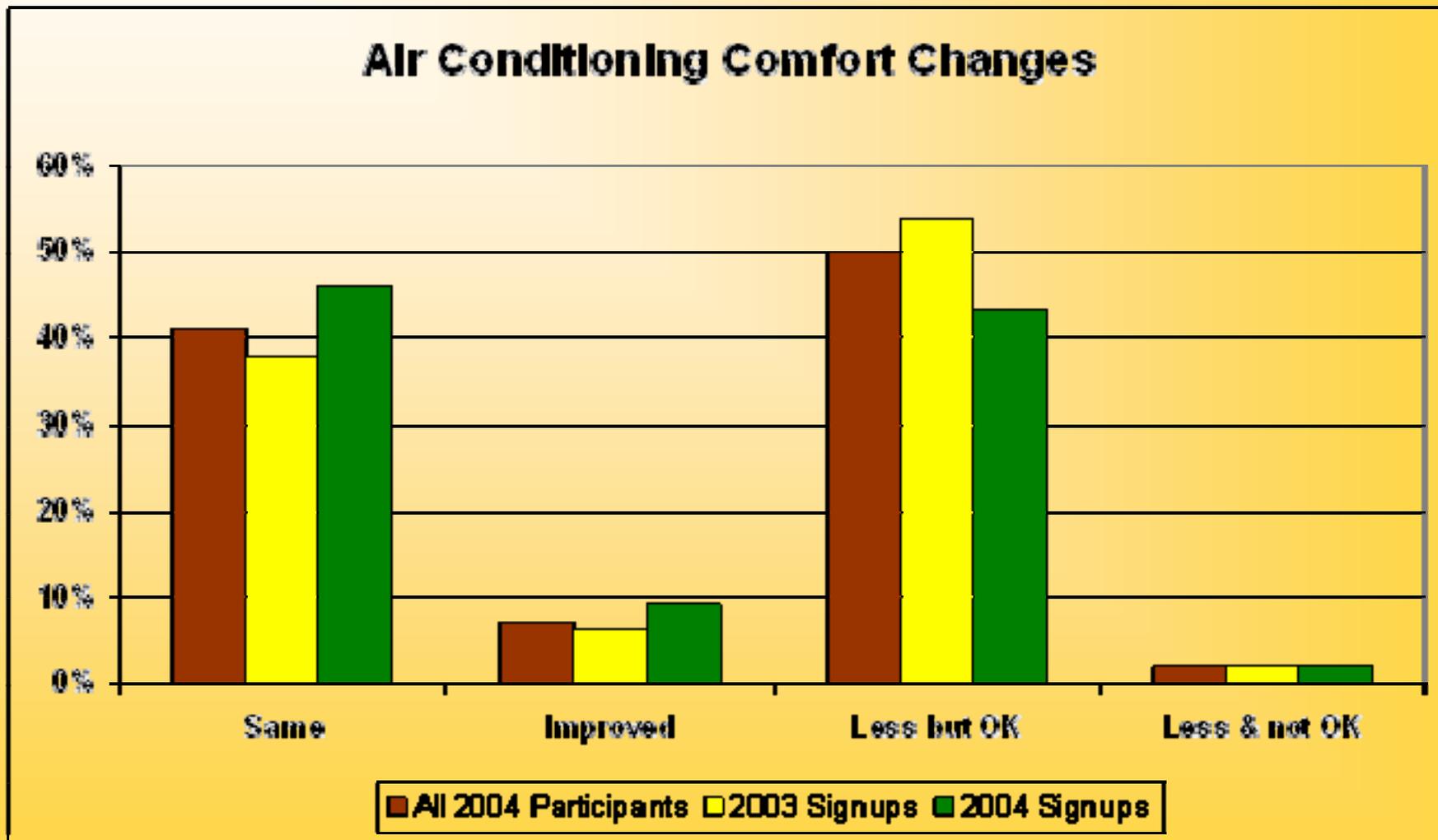


# Participants Conserved





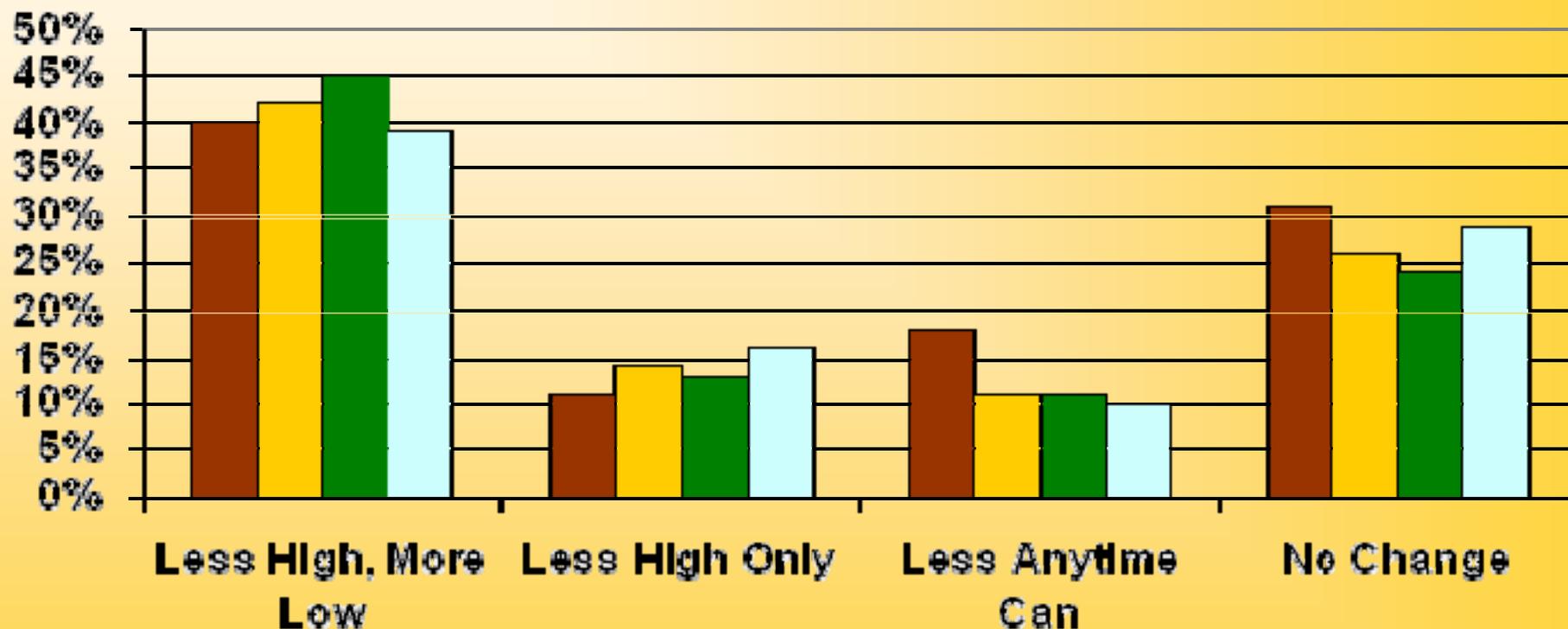
# Participants Didn't Mind





# Laundry: A Learned Behavior

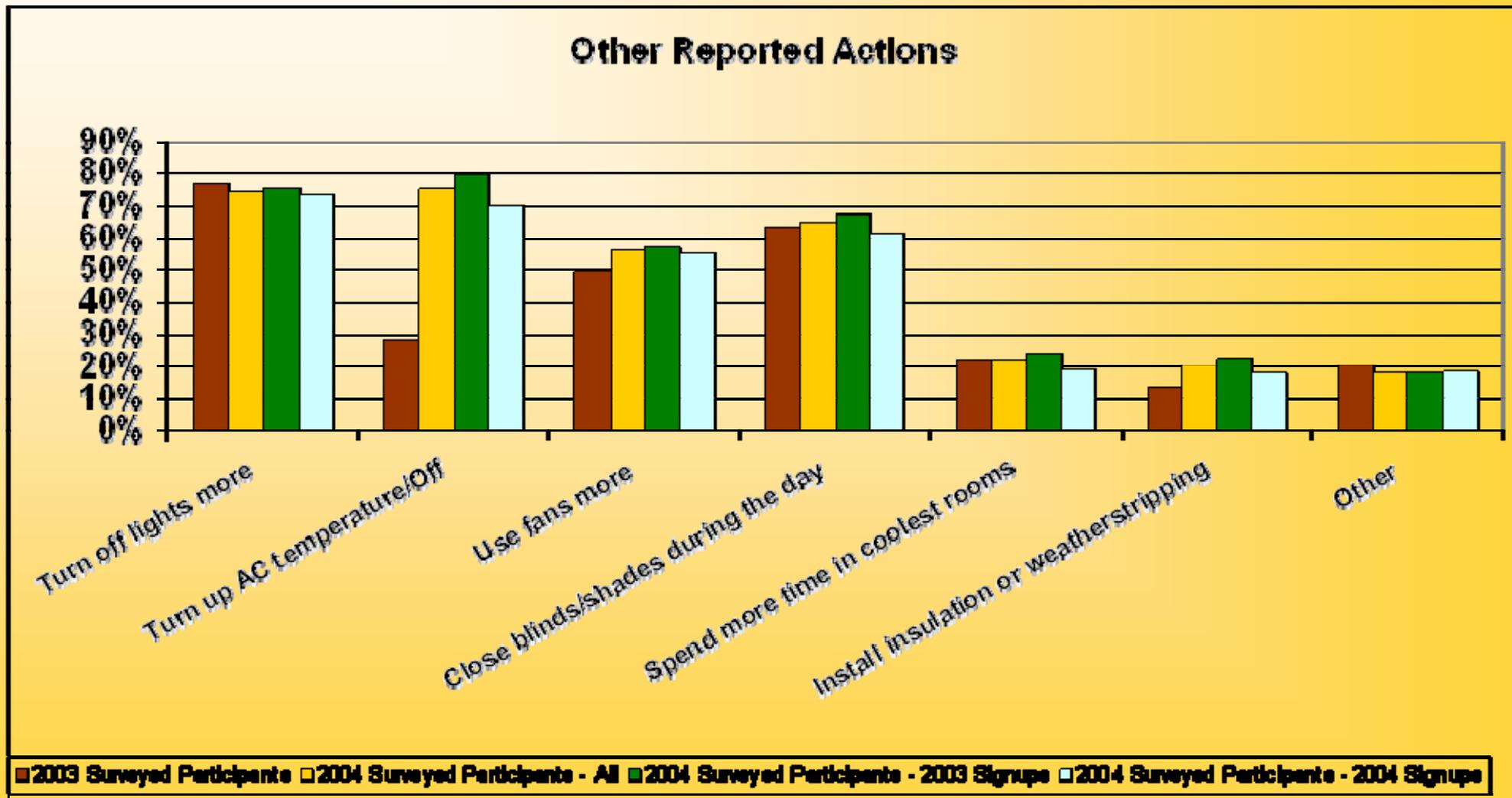
## Participants' Laundry Usage Changes



■ 2003 Surveyed Participants      ■ 2004 Surveyed Participants - All  
■ 2004 Surveyed Participants - 2003 Signups      ■ 2004 Surveyed Participants - 2004 Signups



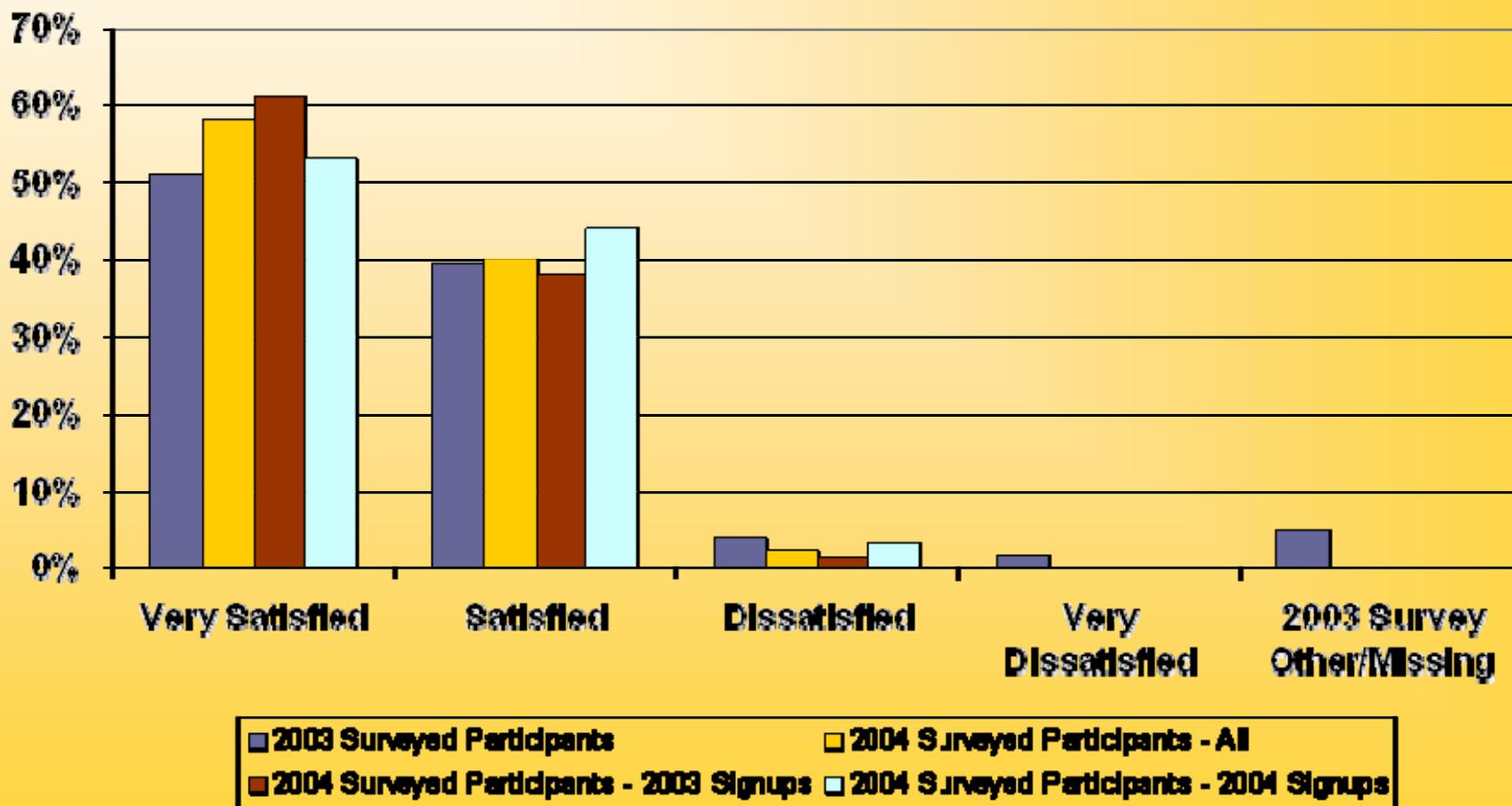
# Other Changes





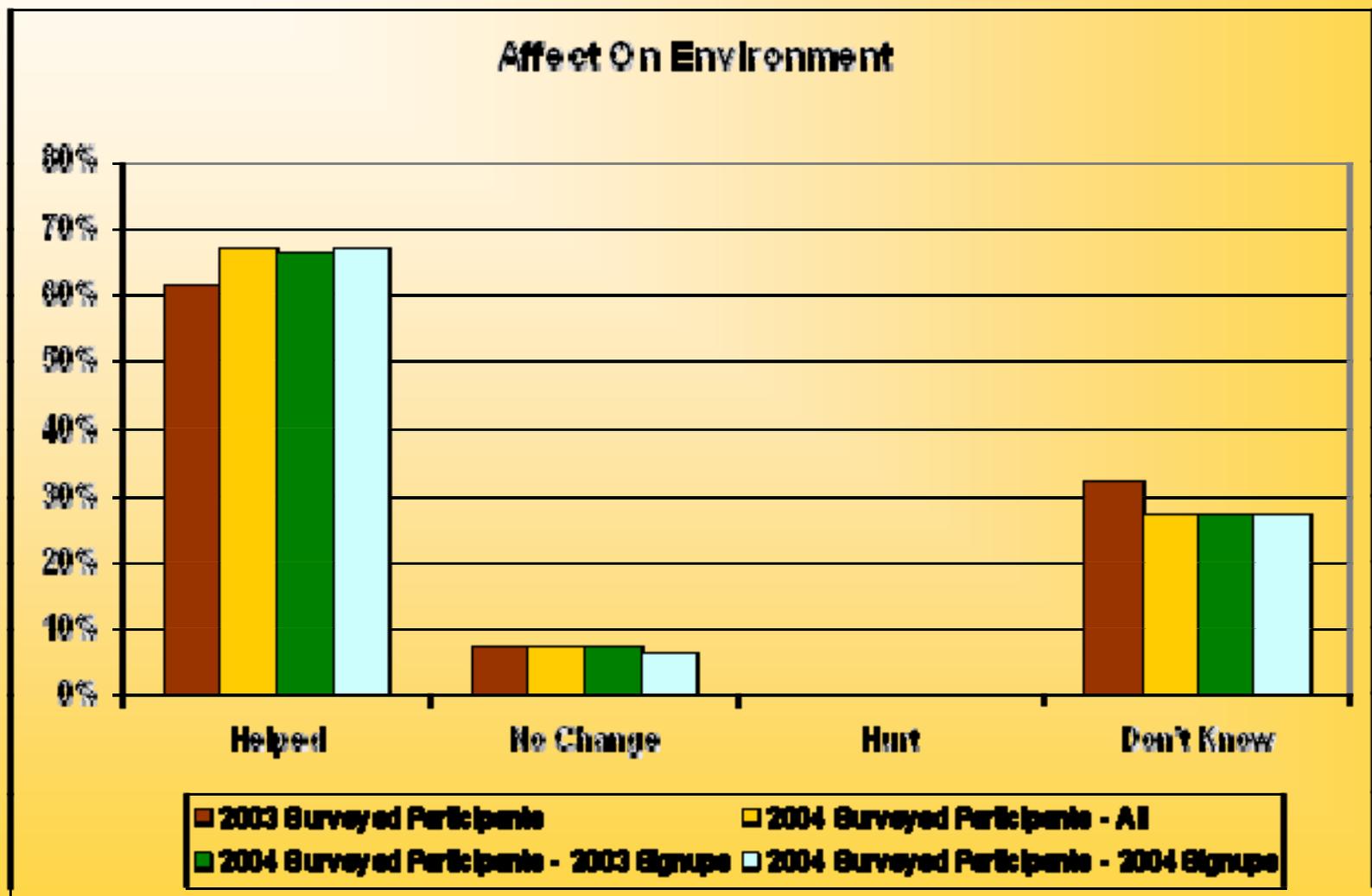
# Everyone Is Happy

**Satisfaction With Energy-Saving Actions**



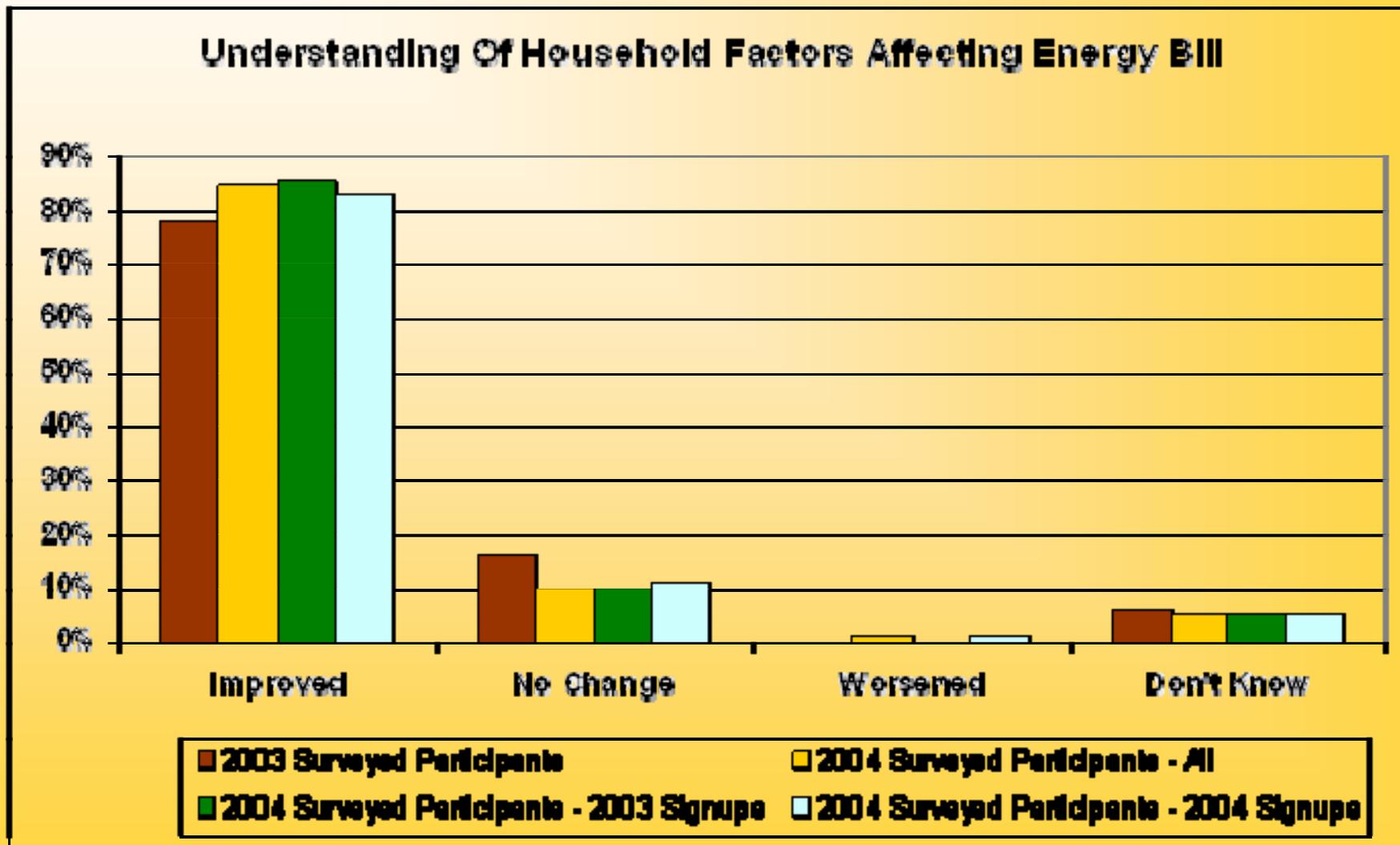


# Environment A Driver (But A Quarter Didn't Need It For Motivation)



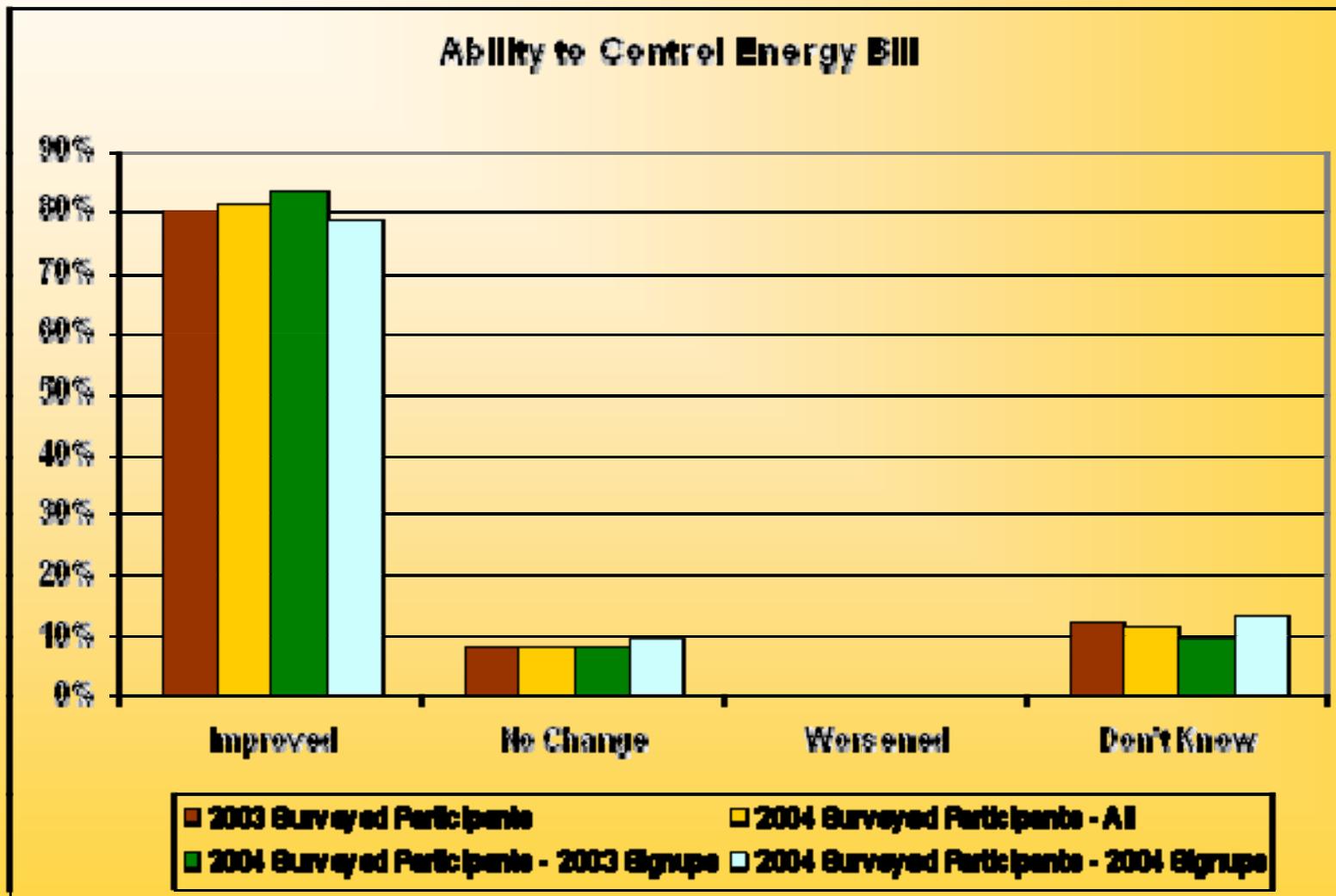


# Knowledge Is Power



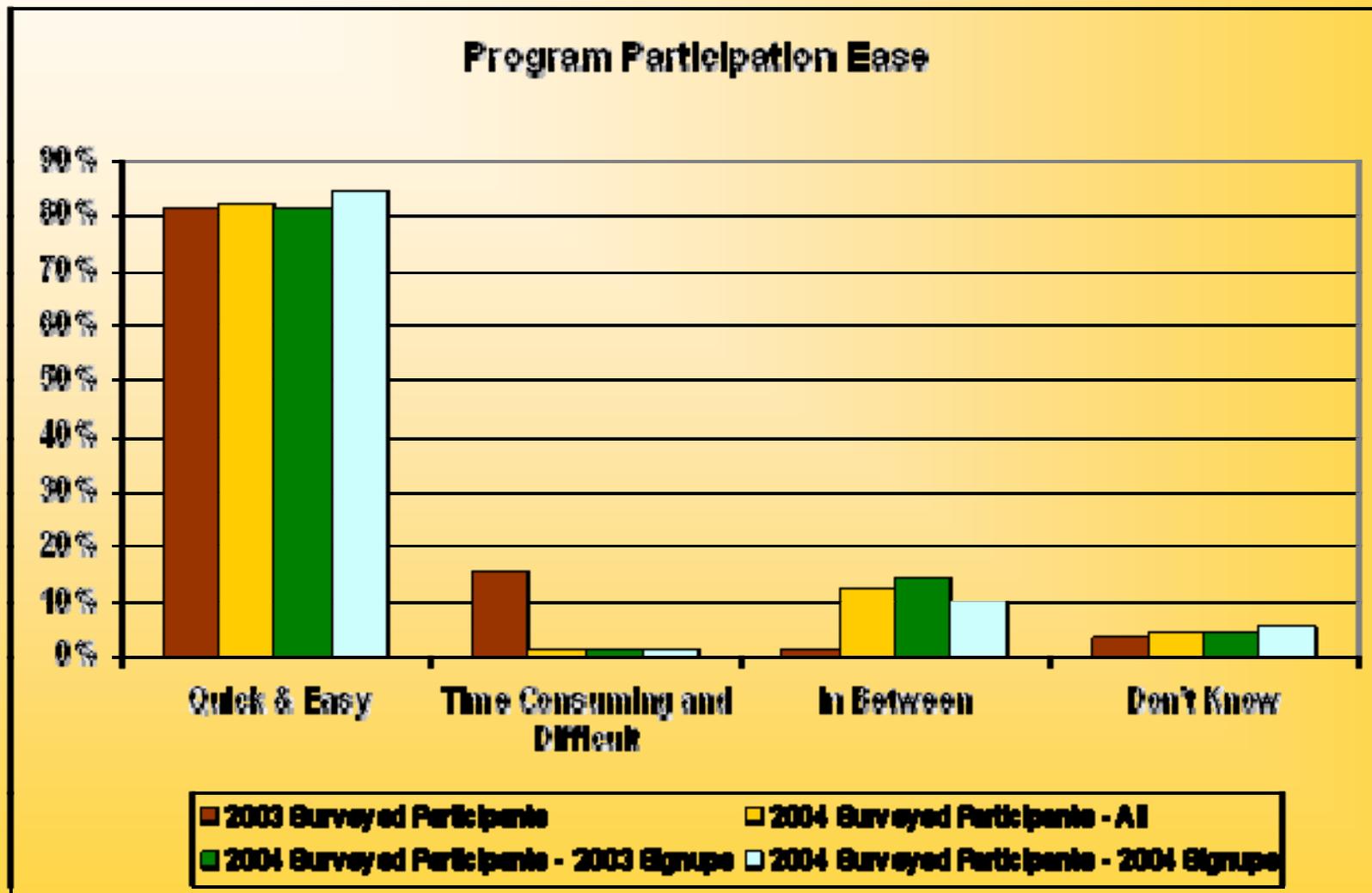


# Knowledge Leads To Action





# Knowledge Isn't Difficult





# Efficiency And Price Signals Can Work Together

- Short-term benefits. Price signals change peak behavior
- Long-term benefits. Price signals make consumers more conscious of energy use and more willing to invest in efficiency measures



# Illinois Utilities Should Look For Ways To

- Include and integrate both components for smaller customers
  - Optional market-based pricing option (fits into the current auction proposal)
  - Effective energy education
  - Targeted incentives for efficiency



# For More Information

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**Presentation to ICC Demand Response/  
Energy Efficiency Working Group**

**Craig Sieben, President**  
**Sieben Energy Associates LLC**  
333 North Michigan, Suite 2107  
Chicago, IL 60601

*April 6, 2005*

## **Agenda:**

### **■ Equation for Success:**

- How to achieve the Governor's proposed demand side plan.

### **■ Sieben Energy Associates**

- Who we are and relevant experience

### **■ Focus on Lighting**

- Tales from the front (and ceiling!)

### **■ Energy Price Volatility Matters**

## Equation for Success:

To Achieve The Governor's Proposed Demand Side Plan

Educate Electric Customers About Common-Sense, Proven, Practical Ways to  
Save Electricity and Reduce Demand

+

Reasonable Financial Incentives (with full cost recovery)

+

Creative, Intelligent Programs Delivered by Competent Professionals

=

Happy Customers who Save Money (and appreciate the leadership assistance  
of those who are helping them maximize their opportunities to use electricity  
more efficiently and better manage their electricity costs)

## **Who is Sieben Energy Associates?**

### ***Comprehensive Energy Management Solutions***

Since 1990, Chicago-based Sieben Energy Associates (SEA) has assisted its local, regional and national clients reduce their operating expenses through the efficient use and the cost-effective purchase of energy.

SEA assists organizations in developing and implementing energy cost management strategies.

## **SEA Services**

### ➤ **Strategic Energy Management**

- End-User Energy Strategy Development and Implementation
- Energy Management Outsourcing
- Environmental / Energy Strategy Consulting

### ➤ **Energy Commodity Management**

- Electricity and Natural Gas Supply Contract Negotiation in Restructuring Markets
- Rate Optimization in Regulated Markets
- Contract Administration and Market Monitoring Services
- Billing Analysis

### ➤ **Energy Efficiency Services**

- Energy Audits, Evaluation and Analysis of Buildings / Facilities
- LEED™ (Leadership in Energy and Environmental Design) Consulting
- Evaluation and Design of High Quality Lighting Systems for New and Existing Buildings
- Commissioning and Retro-Commissioning of New and Existing Buildings

### ➤ **Other Services**

- Renewable Energy and Sustainable Design Consulting
- Demand-Side Program Design and Implementation

## **Relevant SEA Experience**

### **➤ Demand Response / Energy Efficiency**

- Since 1990, audited energy use in hundreds of commercial, industrial and institutional facilities, reducing energy costs between 10% and 40% - identified many immediate no and low-cost savings opportunities as well as capital-related energy savings measures (facility sizes range from 50,000 sf to 2 million sf).
- Developed and delivered 5 MW demand response program to shopping centers, hotels and other commercial facilities, funded by California Energy Commission.
- Served as Program Manager for Community Energy Cooperative's Lighting Energy Management Program
  - Goal was to deliver 2.5 MW of lighting demand reduction, from April to December 2001. Program results were hurt by 9/11-related impacts.
  - Delivered 1.8 MW of lighting demand reduction to commercial and industrial customers in specific geographic areas of the ComEd service territory.
  - Customers received \$200/kW as an incentive to help buy down the cost of installing more energy efficient lighting.

## Relevant SEA Experience

### ➤ Demand Response/Energy Efficiency

- During the past five years, Illinois Clean Energy Community Foundation has offered Lighting grants for targeted facilities owned by government and non-profits, i.e. schools, libraries, park districts, day care centers, universities and colleges. Available throughout Illinois.
  - SEA has assisted numerous participants develop grant application, design retrofit solutions, manage process of selecting qualified vendors and manage installation.
  - Applications are to retrofit existing lighting with energy efficient upgrades.
  - The grant amount is based on the customers total demand load reduction (kW) (maximum grant amount has been ~ \$800/kW)
  - To date, over 1600 buildings have been upgraded, resulting in the reduction of 37 MW in demand, grants have been ~ \$25 million.
  - Further, 90 Illinois communities have upgraded 1700 intersections to use LED technology in traffic signals, resulting in 9 MW of load reduction, grants have been ~ \$3.7 million.

## **1960's to Present- What's in the Light Fixture has Changed:** Anatomy and Evolution of a Fluorescent Lighting Retrofit in a Large Commercial Office Building

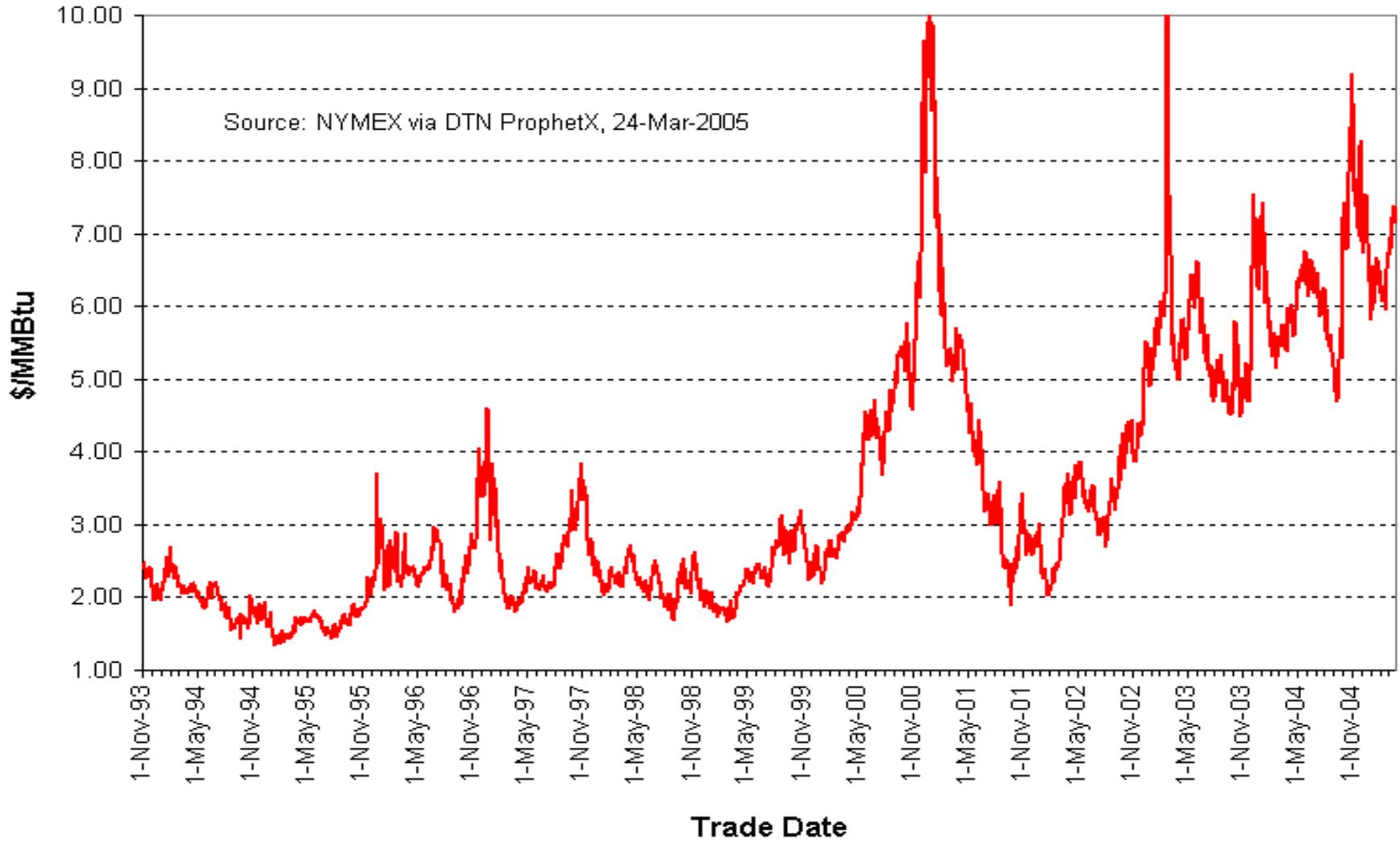
- **1960s:** Fluorescent “lay-in” fixtures have 4, 40w, T-12 (measuring 1-1/2” in diameter) fluorescent tubes (commonly known as “lamps”), acrylic lenses, and are powered by two ballasts (which transform the line voltage so the lamps can operate). Total fixture used about 200 watts. Light levels were high (no computers) – often 100 “footcandles” or above, light quality of fluorescent lamp was low (“rendered” true color at 60% (vs. daylight)).
- **1970s:** Energy becomes more topical, lighting product manufacturers start to offer a new wave of energy-saving products, offering 34w “energy saver” lamps, using less energy but also delivering less light (which was often okay). Also introduced “energy saver” ballasts, which improve upon previous design but similar to originals. Total fixture used about 160 watts. When light levels are deemed too high, customers simply “de-lamp” – unscrewing or removing two of the four fixtures in the 4-lamp fixture.
- **1980s:** Major advances in fluorescent lamp design, added “Tri-Color Phosphors” (i.e. color television technology) in the lamps that improved color rendering to 85% of natural light. Lamps got smaller – T-8 (measuring 1” in diameter). “Electronic” ballasts introduced, vastly improving way lamp was operated, eliminating lamp flicker and ballast “hum”. Now three lamps can be used, and one ballast drives all three. Total fixtures uses ~ 80 watts (depending upon ballast type).

# 1960's to Present: What's in the Light Fixture has Changed

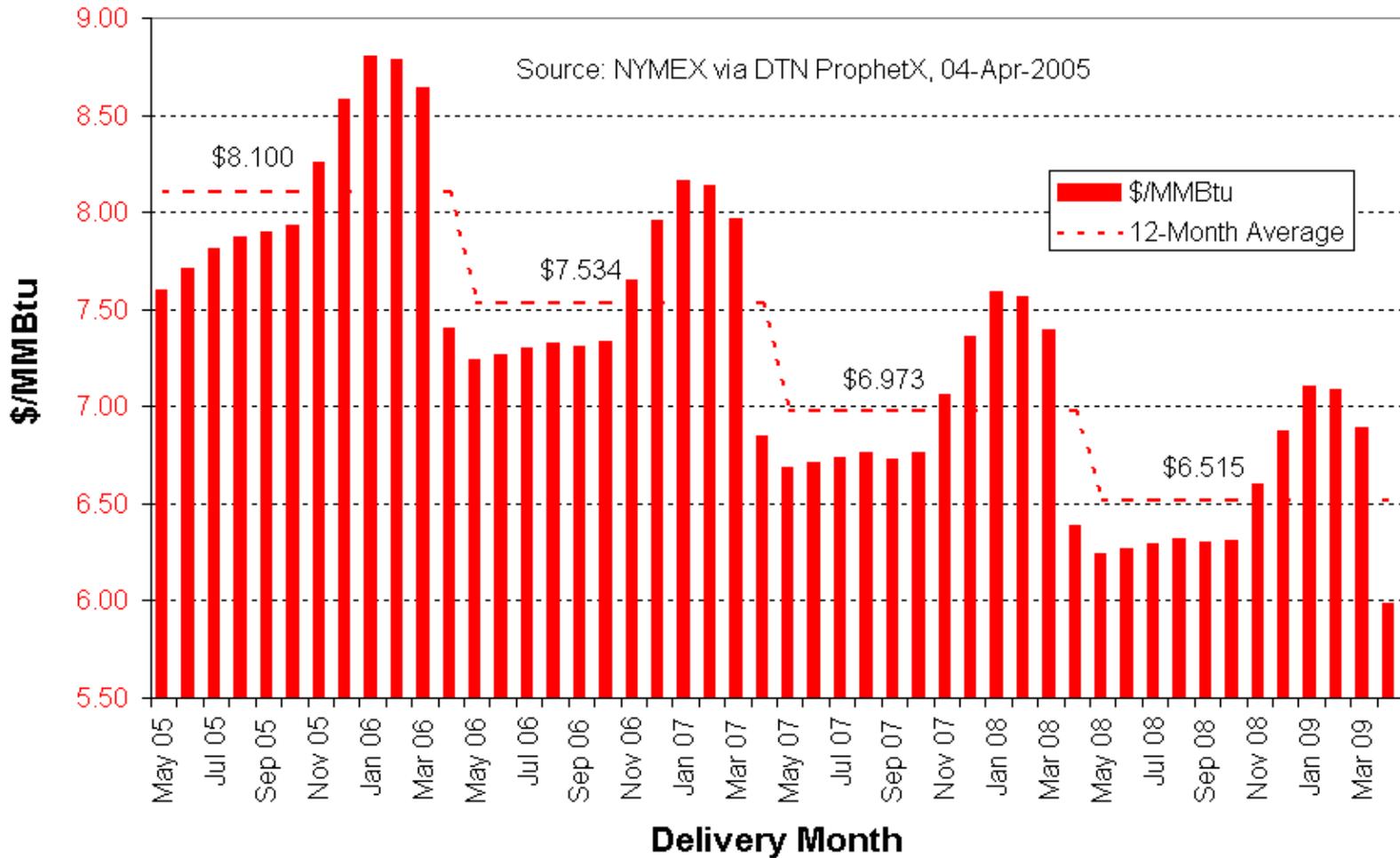
Also introduction of Compact Fluorescent Lamps (CFLs) enabling retrofit of incandescent bulbs to fluorescent lamps. 75 watt incandescent can be replaced with 18 watt fluorescent with similar light level.

- **1990s:** Computers saturate workplace, lighting level standards are now in 35 to 60 foot-candle range (vs. 100 to 150 in 1960s), new fixture designs offer direct or indirect lighting, and electronic ballasts start to take over new fixture OEM market. Ballasts can also be ordered with “dimming” features or able to respond to photocell controls to automatically adjust light levels.
- **2000s:** Further innovations in lamp and ballast designs allow T-8 / electronic ballasts to operate even more efficiently. Introduction of T-5 lamp (5/8” in diameter – tiny!) allows fixture designers to design higher-performance fixtures (can drive more light from fixture). Compact fluorescent lamps get better and better, both in design and color quality, more widely accepted.
- **WHAT'S NEXT:** LED technology to ultimately replace incandescent lamps and some fluorescents? Next ballast innovation making all fluorescent lamps “dimmable” so office workers have dimmer switches or controls to customize light levels. Lighting systems will “talk” with building automation systems more and more. Volatility of energy prices will drive innovations in lighting controls – see attached slides.

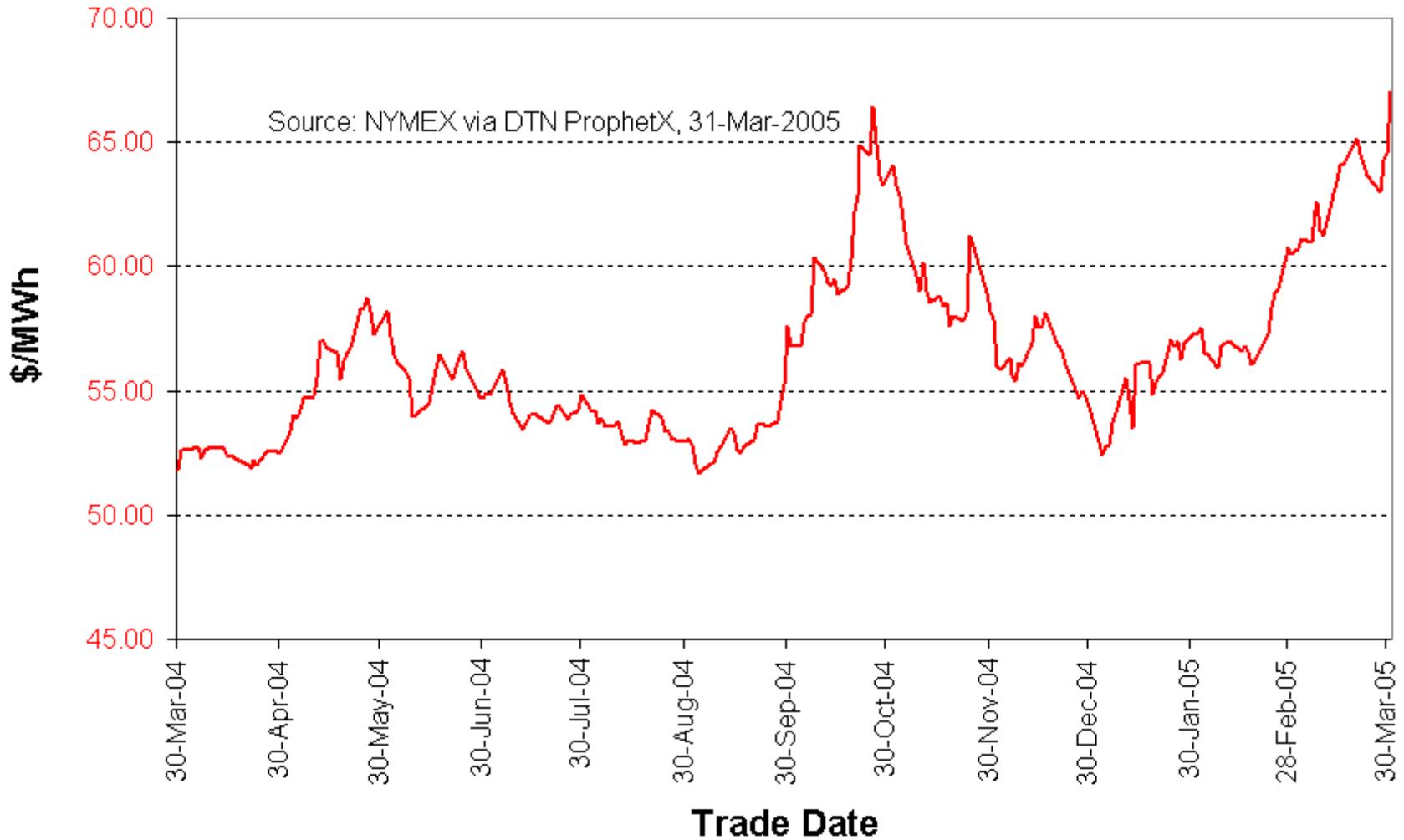
### NYMEX Henry Hub Gas Continuation Chart



## NYMEX Henry Hub Natural Gas Futures Contracts



## NYMEX PJM-West On-Peak Futures Contracts Average 12-Month Strip



# *Industrial Energy Conservation for Long-term Demand Reduction*

*Illinois Commerce Commission  
Sustainable Energy Plan Initiative Working Group  
April 6, 2005*



**David A. Eslinger**  
Senior Research Engineer

Energy Resources Center (ERC)  
University of Illinois at Chicago

# *Energy Resources Center*

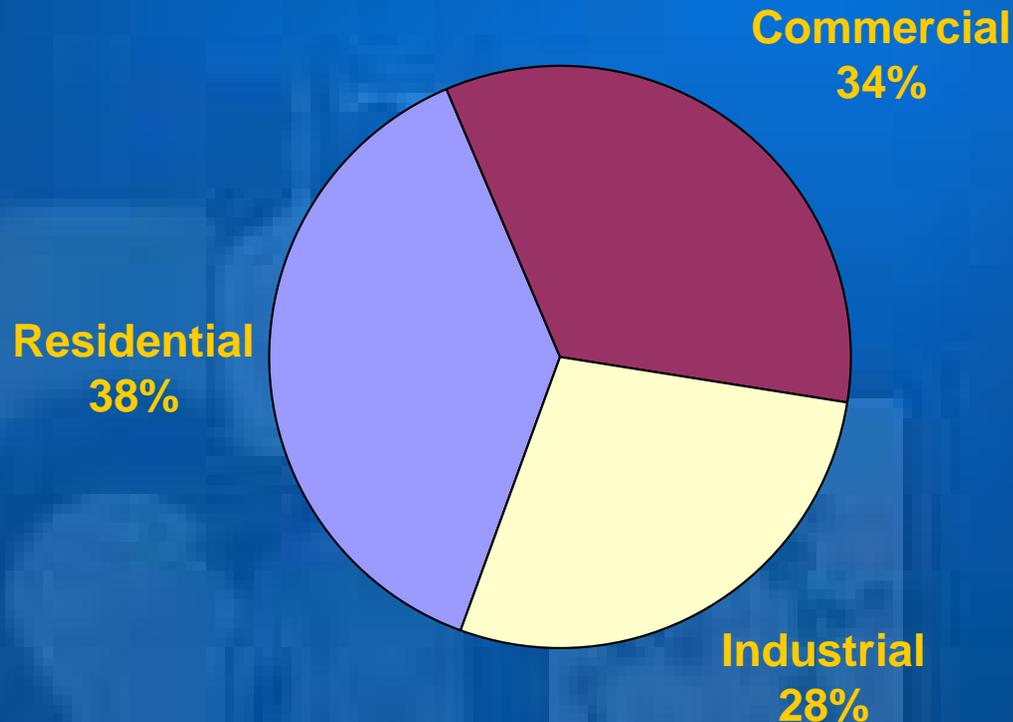
- Established in 1973 as part of the University of Illinois at Chicago (UIC)
- Conducts Interdisciplinary Technology, Research, and Education Initiatives to Improve Energy Efficiency in Illinois
- Non-traditional, non-teaching university unit

# ERC Strategic Areas

- **Engineering Solutions**
  - **Industrial energy efficiency / productivity**
  - Commercial building design / operations
  - Residential weatherization
- Building Sciences (Indoor Air Quality)
- **Distributed Energy Resources**
  - **Midwest Combined Heat and Power Application Center**
- Energy Supply Management
  - State of Illinois Natural Gas Procurement Program
- Policy and Assessments
  - DCEO Draft Report: “Energy, Economic and Environmental Impacts of Renewable and Energy Efficiency Deployment in Illinois”



# *US Electricity Consumption by Market Sector*

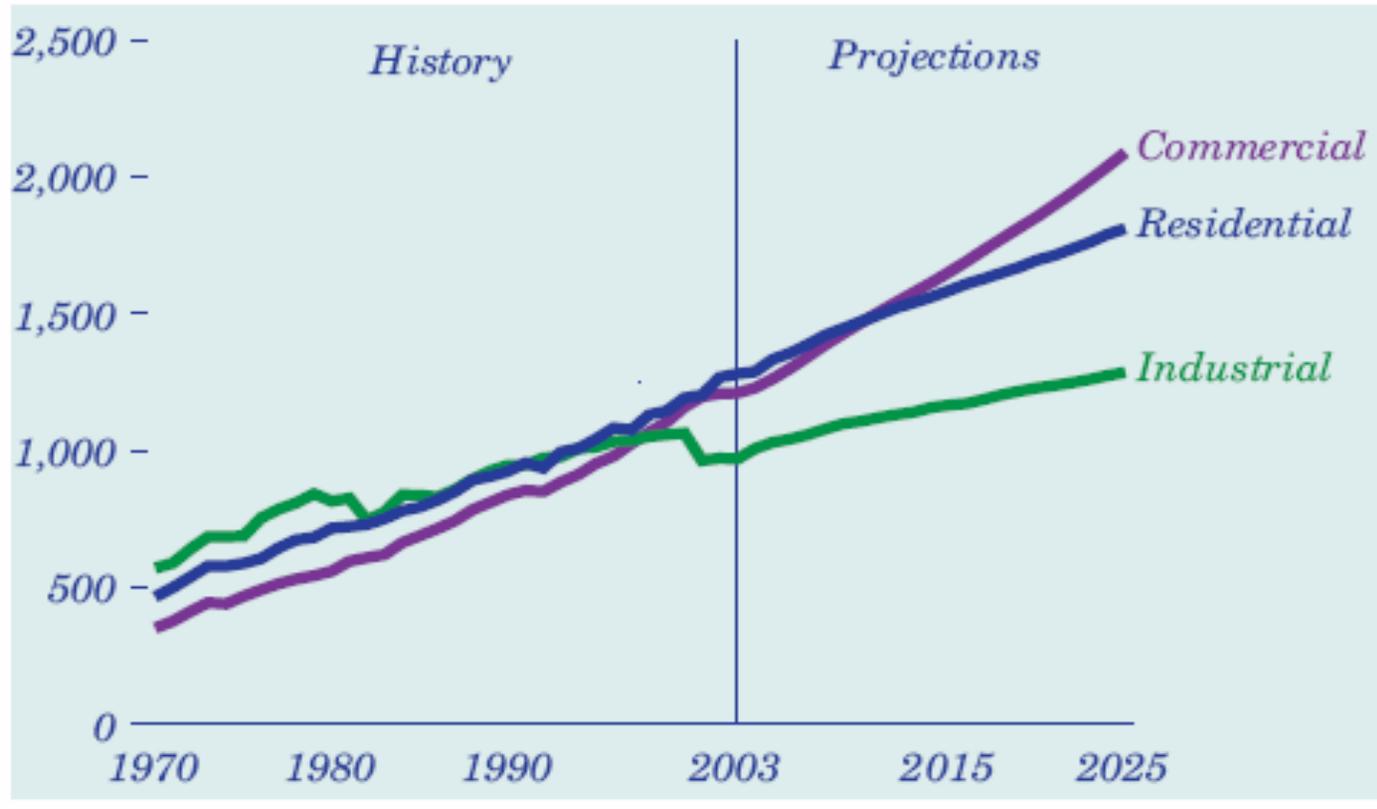


- Industrial Users consume 26% of Electricity in Illinois

Source: U.S. Census Bureau, 1997 Economic Census, Comparative Statistics, Manufacturing (for United States and Illinois)

# Electricity Consumption Forecasts

**Figure 66. Annual electricity sales by sector, 1970-2025 (billion kilowatthours)**



# Industry in Illinois

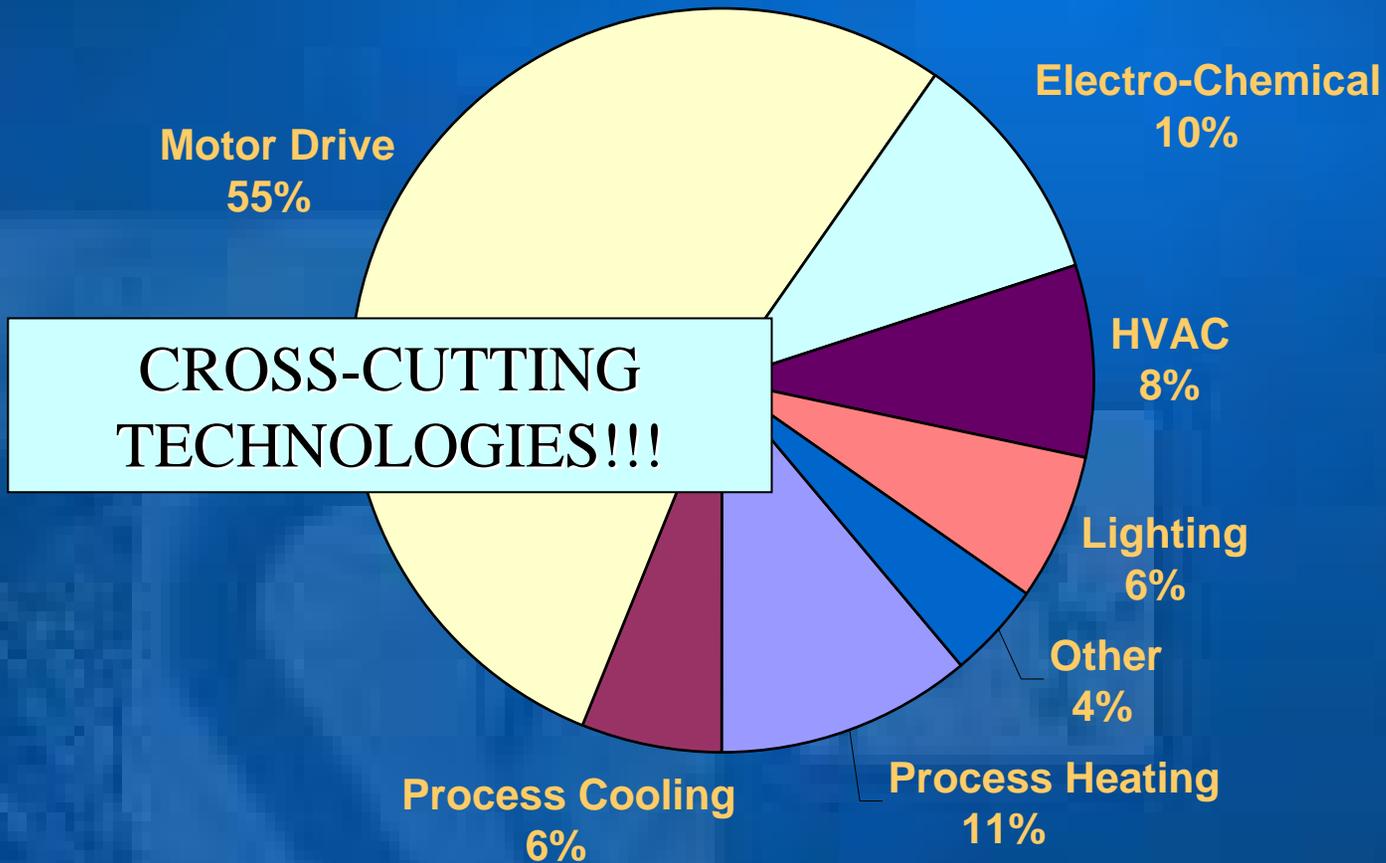
Illinois Economic Data			
Industries	Value of Shipments (\$1,000)	Employees	Wages (\$1,000)
Chemicals	\$21,204,094	55,954	\$2,591,960
Petroleum	\$8,300,181	3,253	\$186,887
Mining	\$2,147,063	10,299	\$444,071
Forest Products	\$7,225,535	39,226	\$1,287,128
Steel	\$6,012,922	16,662	\$728,182
Metal Casting	\$1,664,506	13,142	\$432,833
Aluminum	\$1,046,527	3,102	\$127,090
Glass	\$592,056	3,252	\$119,899
Agriculture	N/A	N/A	N/A
Source: US Census Bureau			

- Highlighted industries targeted by ERC through City and State programs
- Most of these industries recognized as Industries of the Future by US DOE

# *Energy Savings Opportunities*

- Industry Sector Specific
  - Chemicals: Process heating and heat recovery
  - Pulp & Paper: Drying techniques
  - Metal Casting: Computer design of parts
- Cross-Cutting Technologies
  - Motor systems
  - Steam systems
  - Combined heat and power

# Industrial Electricity Consumption by End Use



Source: US Dept of Energy, Energy Information Administration, Manufacturing Energy Consumption Survey 1998

# *Industrial Energy Conservation*

- Benefits of improved energy efficiency
  - Lower production costs
  - Reduced waste
  - Improved productivity
  - Improved competitiveness / job retention
  - Environmental quality

Source: US Department of Energy

# *Industrial Programs in Illinois*

- Industrial Assessment Centers (IAC)
- City of Chicago Industrial Rebuild Program
- Illinois Department of Commerce and Economic Opportunity (DCEO)
  - Industries of the Future
    - Metal casting
    - Food processing
    - Pulp and paper
    - Plastics
    - Chemicals
  - State Technologies Advancement Collaborative
    - TAA Chemicals Program
  - Manufacturing Energy Efficiency Program (MEEP)

# *US DOE Industrial Assessment Centers*

- US Department of Energy sponsored
- 26 centers at major universities
- UIC – IAC established 2000



- Provide energy, waste and productivity assessments to small and medium sized manufacturers
  - No direct cost to manufacturers
  - Comprehensive, confidential and unbiased



# IAC Energy Savings by Sector

SIC	Industry	Number of Assessments	Savings/Year		
			Electricity (MWh)	Natural Gas (MCF)	Total (\$K)
20	Food and Kindred Products	6	1,839	17	\$395
23	Fabric and Other Apparel	2	215	2	\$159
25	Furniture and Fixtures	1	257	0	\$129
26	Paper and Allied Products	10	5,845	180	\$1,192
27	Printing and Allied Industries	3	1,781	1	\$1,031
28	Chemicals and Allied Products	6	6,351	100	\$1,469
29	Petroleum Refining	2	774	60	\$271
30	Rubber and Misc. Plastics	4	1,899	0	\$465
31	Leather and Leather Products	1	2	1	\$28
32	Stone, Clay, Glass and	3	2,392	1	\$75
33	Primary Metal Industries	16	9,727	459	\$4,546
34	Fabricated Metal Products	18	3,491	18	\$2,028
35	Industrial and Commercial	10	6,008	46	\$3,176
36	Electronic Equipment and	3	3,132	31	\$121
37	Transportation Equipment	1	466	0	\$630
39	Miscellaneous Manufacturing	2	339	0	\$244
<b>TOTAL</b>		<b>88</b>	<b>44,519</b>	<b>917</b>	<b>\$15,959</b>
<b>No. of IL Homes Powered/year</b>		<b>---</b>	<b>5,100</b>	<b>8,800</b>	

- Overall Project Implementation Rate: 44%

# *City of Chicago Industrial Rebuild Program*

- City of Chicago / ComEd / ERC
- Identified Savings
  - 28 million kWh of electricity
  - 780,000 MMBtu of natural gas
  - Average of 19% reduction in utility costs
- Potential Environmental Impact
  - 105 million lbs of CO<sub>2</sub> (site and source emissions)
  - 40 million cubic feet of water
- Implementation Costs
  - \$0.02 /kWh

**Revolving Loan Program!**

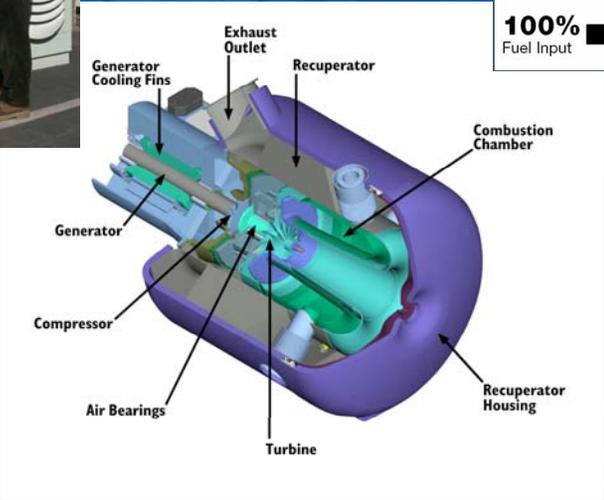
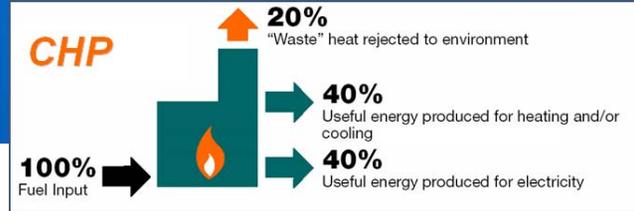
0% interest with purchase of 5% green energy

# Implementation Costs of Industrial Efficiency Projects

Source	Implementation Costs (\$/kWh)	Implementation Costs (\$/kW)	Payback
US DOE "5-Lab Study"	\$0.026 / kWh *assuming 15 yr lifecycle	NA	1.8 years
Industrial Assessment Center (IAC)	\$0.01 / kWh *assuming 15 yr lifecycle	\$60 / kW	2.0 years
City of Chicago (CIRP)	\$0.02 / kWh *assuming 15 yr lifecycle	NA	3.6 years
Other Utility Programs**	\$0.08 - \$0.12 *rebate programs not included	\$82 - \$116	NA

\*\*Source for utility programs: Renewable Energy Policy Project:  
<http://solstice.crest.org/efficiency/irt/bysector.htm>

# Distributed Energy Resources

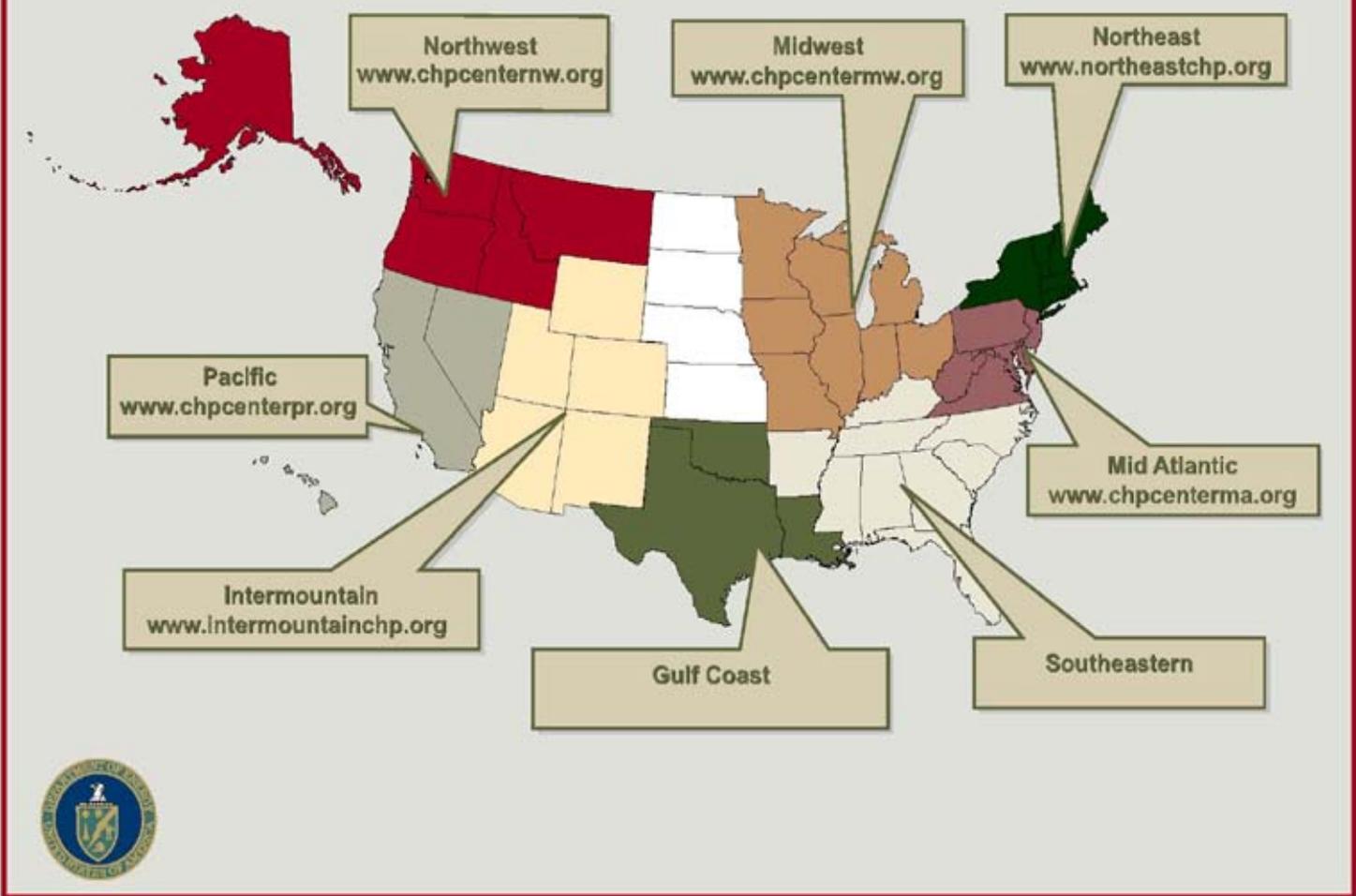


# *Midwest CHP Application Center*

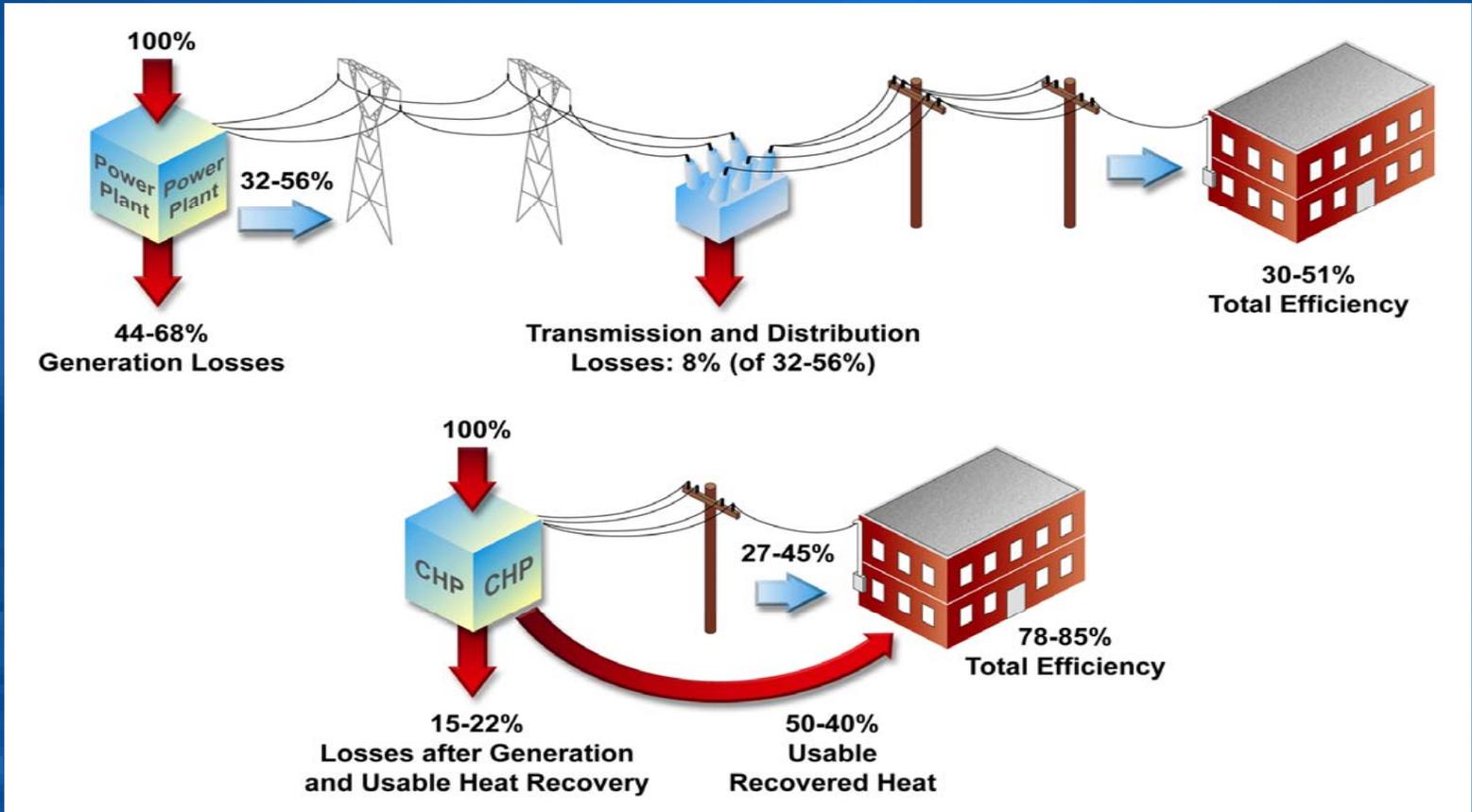
*(CHP - Combined Heat and Power)*

- Funded by US Department of Energy
- Est. 2001, first of its kind
- Prototype & Model for Additional Centers
- Seven Additional Centers Established By DOE In 2003 / 2004:
  - Established as a Result of MAC Effectiveness
  - Based On The Approach of The MAC
  - Look to the MAC For Guidance and Support

# CHP REGIONAL RESOURCE CENTER



# Conventional Generation vs. CHP



# Traditional CHP Installed Costs

	Capacity Range (kW)	Installed Costs (\$/kW)	Recoverable Heat (1,000 Btu/KW)
Reciprocating Engines	100 – 500	\$1,800 - \$1,400	4 - 5
Large Reciprocating Engines	500 – 2,000	\$1,400 - \$1,000	4 - 5
Gas Turbines	1,000 – 10,000	\$1,500 - \$1,000	5 - 6
Large Gas Turbines	10,000 – 50,000	\$1,000 - \$800	5 – 6
Microturbines	100 - 400	\$2,000 - \$1,000	6 -7

Source: CHP Resource Guidebook, September 2003

# Combined Heat and Power in Illinois

	Installed (MW)	Potential (MW)
Commercial / Institutional	112	2,661
Industrial	935	1,870
Total	1,047	4,531

Source: DOE sponsored study by Onsite Sycom Eenergy Corp.

Midwest CHP Application Center, "CHP/BCHP Baseline Analysis for the Illinois  
Market-2002"

# *Market Barriers to Industrial Energy Conservation*

- Lack Engineering Expertise
  - Even large companies
  - Uncertain of savings
- Unknown Energy Input to Process
  - kWh/widget?
- Unfamiliar with New Technologies
- Access to Capital

# *Successful Industrial Efficiency Programs*

- Education / Awareness
  - DCEO MEEP
  - Midwest CHP Assistance Center
- Technical Assistance
  - Energy Assessments
  - System Audits / Tools
- Implementation Incentives
  - City of Chicago CIRP
  - Texas LoneSTAR program
- Measurement and Verification
  - Couple energy efficiency with energy monitoring and procurement strategies

# *For more information*

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## **APPENDIX C**

# Illinois' Sustainable Energy Plan

## ***ComEd's Proposed Implementation Plan Energy Efficiency Portfolio Standard***

***ICC Workshop - April 20, 2005***

***Helen Howes, Vice President  
Corporate Environment, Health & Safety***

The Governor has proposed ambitious goals for the development of energy efficiency and demand reduction programs in Illinois.

- Governor's Plan seeks benefits from both energy efficiency and demand reduction programs.
- Goals are based upon growth and escalate over time:
  - Years 2006 – 2008: 10% of projected annual load growth.
  - Years 2009 – 2011: 15% of projected annual load growth.
  - Years 2012 – 2014: 20% of projected annual load growth.
  - Years 2015 – 2017: 25% of projected annual load growth.
- \$10 million/year for DCEO programs.
- Competitive procurement; ICC oversight and process approval.
  - Energy efficiency and demand reduction contracting.
- Full and timely cost recovery for utilities.

**ComEd supports these goals but recognizes the specific challenges in implementing them successfully.**

- Minimize the impact on customers bills.
- ICC must make findings consistent with its authority under existing law.
- Full and timely cost recovery in utility rates based on ICC's findings.
- Recognize existing demand-side programs.
- Offer a portfolio of programs to cover all customer classes.
- Create an independent evaluation process to suggest prospective program improvements.

# EEPS Targets for Governor's Plan



ComEd 2004 Retail Deliveries<sup>1</sup>

87,357 GWh

PJM Net Energy Growth Rate (Average for ComEd 2004 – 2015)<sup>2</sup>

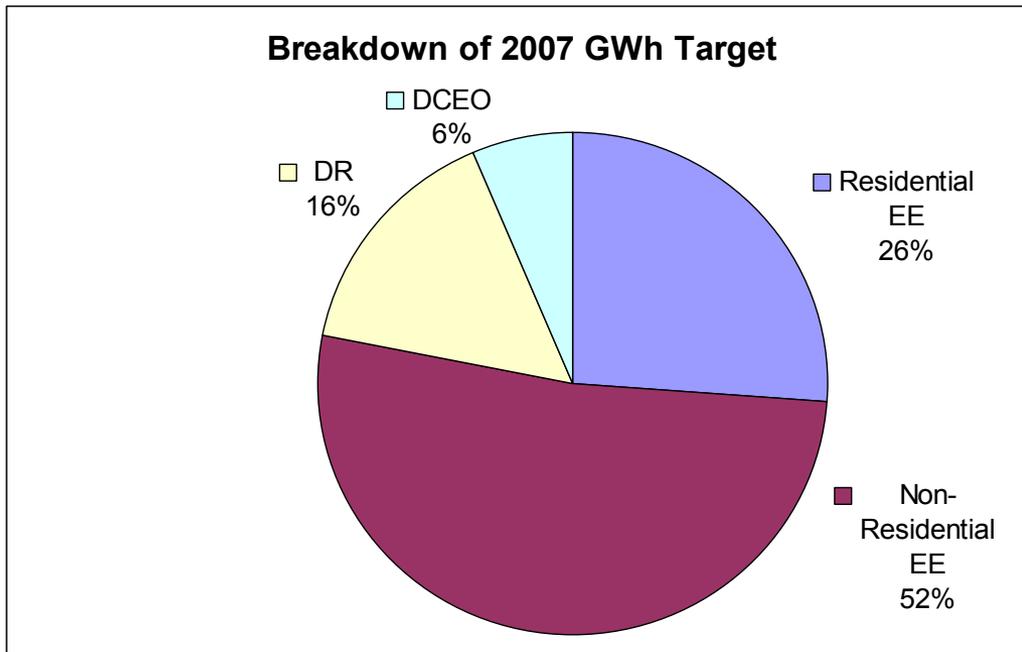
1.7%

	2004	2005	2006	2007	2008	2009	2010 and Beyond
ComEd Deliveries (GWh)	87,357	88,842	90,352	91,888	93,450	95,039	Goals Based Upon Progress Assessment in 2009
PJM Growth Percentage		1.7%	1.7%	1.7%	1.7%	1.7%	
Proxy Growth (GWh)		1,485	1,510	1,536	1,562	1,589	
EEPS %	Contracts in Place for Program Launch in 2007			10%	10%	10%	
<b>EEPS Target (GWh)</b>				<b>154</b>	<b>156</b>	<b>159</b>	
Cumulative (GWh)				154	310	469	

<sup>1</sup>Exelon/ComEd Form 10(k), page 229.

<sup>2</sup>2005 PJM Load Forecast Report, page 50.

- Continue to implement tariff-based DR programs using current ComEd channel and PJM DR framework.
  - Count energy impacts of DR programs toward EEPS GWh target.
  - DR growth assumes PJM provides a market value payment to ComEd as a funding source for customer incentives.
- Expand DR via approved competitive bidding process.
  - RFP for new DR block of nega-watts to further target improvement of system load factor as a goal of the EEPS.
- Acquire energy efficiency services via approved competitive bidding process.
  - Segment RFPs into key customer segments (e.g. residential, low income, non-residential) or key end uses (e.g. lighting, HVAC).
- “Regulatory out” contract clauses will be necessary.
- DCEO programs:
  - Count energy impacts of DCEO programs toward EEPS GWh target.
  - ComEd portion is \$6.9 million.
- Manage overall competitive procurement within a rate impact-based funding limit.
  - Basis: 0.6% increase on a residential single family customer bill.



Segment	GWh
<b>Residential EE</b>	<b>40</b>
<b>Non-Residential EE</b>	<b>80</b>
<b>Demand Response</b>	<b>24</b>
<b>DCEO<sup>1</sup></b>	<b>10</b>
<b>Total</b>	<b>154</b>

These are initial estimates and imply assumptions related to program types, number of participants, types of efficiency measures, and costs. These assumptions will change.

<sup>1</sup>DCEO GWh impacts are for illustrative purposes. Specific impacts should be forecast by the DCEO.

- ComEd expects its proposal to be within the reasonable range of cost-effectiveness when comparing results from other states.

State	Year	Annual Budget (\$Millions)	Annual GWh Saved	Cost Effectiveness	
				Cost Per Annual kWh	Life Cycle Cost <sup>2</sup>
CT	2003	\$61	131	\$0.47	\$0.023
MA	2001	\$135	309	\$0.44	\$0.040
NJ	2003	\$177	539	\$0.33	\$0.030
NY	2002	\$150	395	\$0.38	\$0.044
VT	2003	\$13	54	\$0.24	\$0.030

<sup>1</sup>Benchmarking statistics should be used with caution since reporting is often inconsistent. For example, budgets can include costs that produce no electricity savings, such as tree-planting, evaluation, gas programs, etc., and may or may not include costs and impacts of demand response programs.

<sup>2</sup>Kushler, Martin, Dan York and Patty Witte, *Five years In: An Examination of the First Half-Decade of Public Benefits Energy Efficiency Policies*, American Council for an Energy-Efficiency Economy, April 2004, page 30.

- Process and impact evaluation should:
  - be independent from the implementing utility, DCEO, vendors, and others directly associated with implementing programs,
  - be focused on improving future programs and performance, and
  - not be used for the purposes of hindsight prudence or to set or reduce the level of cost recovery.
- An upper limit of 3% of total program investments should be allocated to cover independent evaluation. These costs must be deemed prudent and be fully recoverable.
- The ICC should establish an Evaluation Working Group (EWG) of interested parties to manage the evaluation.

- The ICC must find that the proposed DR and EE programs constitute an accepted “utility function” (e.g., enhancing delivery service reliability) and that the associated costs are prudently incurred.
- The ICC must approve a rate mechanism (e.g., a rider) to provide full and timely recovery of utility costs.
- The ICC must pre-approve program goals and the implementation process, and approve specific contracts before costs thereunder are incurred and recovered.
- Include in contracts “regulatory out” language to protect against the risk of legal challenge, and *force majeure* language to protect against the risk that programs are not delivered as contracted.
- EEPS funds collected from the rider should be accounted for separately from other funds and used only for EEPS purposes.
- Accounting should be established to track:
  - Program expenditures.
  - DCEO disbursements.

- Obtain feedback from stakeholders on proposal.
- Engage stakeholders in further discussion on program design.
- Develop a program evaluation and measurement process.
- Develop RFP process.
- Develop standard contracts.
- Develop back office requirements.
- Develop a cost-recovery approach to enable appropriate pass-through of program costs.
- File for ICC approval the following: standard contracts, RFP process, and associated tariffs to meet the energy efficiency goals.
- Conduct the RFP once ICC approvals are received.

# **Ameren Utilities' Sustainable Energy Implementation Plan**

**Energy Efficiency Working Group  
April 20, 2005**

Greg Lovett  
Managing Supervisor of Products & Services

Rick Voytas  
Manager Corporate Analysis



# Energy Efficiency Standards

## Guiding Principles

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- Energy efficiency and demand response are distinct and separate concepts that require different metrics.
- “Price is powerful information.” Providing customers with market based options is preferable to command and control approaches.
- Full cost recovery of program costs from Delivery Service customers is warranted.

# Categories of Energy Efficiency Programs



## ■ Residential and small commercial

- New construction
- Lighting
- HVAC and shell improvements
- Appliance recycling
- Educational
- Low income weatherization

## ■ Commercial and industrial

- New construction
- Energy evaluation and recommendation programs linked to incentives for retrofit or replacement for equipment, building shell, and/or lighting
- Educational

# What Might It Take For Ameren To Achieve Proposed Energy Efficiency Goals?



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- Ameren's electric sales growth for its Illinois Utilities is approximately 350,000 MWH per year.
- To achieve the initial 10% reduction in annual sales growth due to energy efficiency initiatives could require:
  - ➔ Installation of 500,000 compact fluorescent light bulbs, or
  - ➔ Installation of 20,000 energy efficient refrigerators.

# Energy Efficiency Metrics

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- Is MWH the appropriate metric?
- Should programs be designed more to inform and educate consumers & retailers rather than to subsidize one group of consumers, i.e., rebates, at the expense of another group?
- Is a metric akin to a “customer energy efficiency awareness index” better suited to meet energy efficiency objectives?
- Combination of MWH and awareness index.

# Categories of Demand Response Programs

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- Residential and small commercial
  - ➔ Real Time Pricing (RTP)
  - ➔ Air Conditioner Load Control
- Commercial and industrial
  - ➔ RTP
  - ➔ Market priced curtailment service

# Demand Response Metrics

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- Is MW the appropriate metric?
- Should customers be offered options to reduce their electric bills by either reducing or shifting electric usage? (Instead of involuntary measures?)
- Is a metric akin to “quantity and quality of customer demand response options” better suited to meet demand response objectives.
- Remember: “Price is powerful information.”
- Customers will make the choice that is right for them.

# Implementation Considerations



- The Governor's Plan applies to both ARES and utilities.
  - ➔ Assigning "goal" responsibilities between utilities and multiple ARES will be problematic.
    - Customer switching will result in a constant moving target for ARES and Utilities to achieve goals.
    - Similar to the Ameren Utilities' RPS approach, assigning the full responsibility for meeting the goal to Utilities would alleviate this responsibility for ARES.

## Implementation Considerations (Cont.)

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- ➔ We agree with the Sustainable Energy Plan's recommendation that long-term contracts with efficiency service providers be used as the primary method to meet the annual goals, and such costs be recoverable.
  - This should not be the exclusive model for efficiency and demand response programs.
  - Utilities should have the flexibility, at its own choosing, to conduct such programs itself (to the extent competitive with third party providers).

# Implementation Considerations (Cont.)

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- Educational & pricing programs, such as RTP, should also count toward meeting the goals.
- Does the “promotion” of such programs by the utility conflict with Illinois IDC rules? (RTP is an example).
- Compliance costs to be fully recoverable in rates if they are shown to be competitive with traditional forms of generation and delivery resources.
  - Who determines this “cap” and what is process to administer such a requirement?
  - This provision should result in ICC pre-approval of programs, to determine whether they qualify for cost recovery ahead of implementation.

## Next Steps

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- Need feedback from stakeholders
- Collaborate with energy efficiency experts
- Create metrics to capture benefits of programs
- Develop programs with competitive costs
- Develop RFP process
- Obtain ICC approval for program acceptance and cost recovery
- Provide customer choice to meet the goals of the program

## **APPENDIX D**

# Illinois' Sustainable Energy Plan

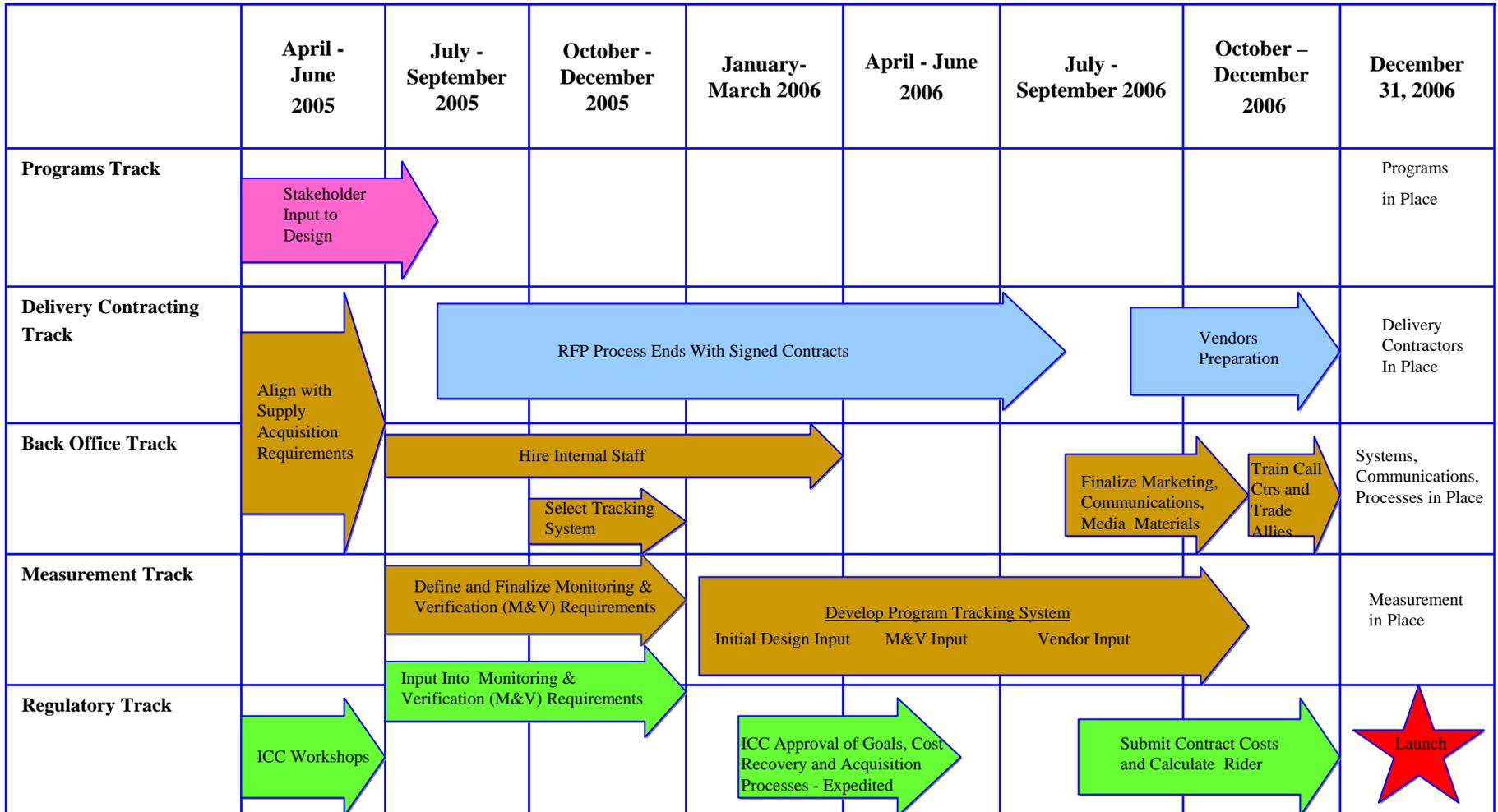
## *ComEd's Proposed Implementation Plan Energy Efficiency Portfolio Standard*

*Presentation to the  
Illinois Commerce Commission  
May 11, 2005*

*Helen Howes, Vice President  
Corporate Environment, Health & Safety*

- Details:
  - EEPS timeline.
  - Program and RFP approach.
  - Cost recovery and other issues.
  - Next steps.
- Challenges:
  - Creating a portfolio of programs that both reduce energy consumption and reduce peak demand.
  - Delivery of programs by 01/01/07 will require cooperation among stakeholders.
  - Encouraging program innovation and creativity while focusing on achieving energy and demand reduction goals.
  - Linking program design with monitoring and verification requirements.

# EEPS Timeline



# EEPS Timeline Challenges

- Proposed timeline is based upon industry best practice – 12 – 18 months from design to delivery.
- ComEd and others will need to commit significant resources and focus in 2005-06 to implement the EEPS.
  - Contract execution requires regulatory certainty.
  - Regulatory certainty requires process and cost-recovery approval.
  - Stakeholders, including utility Board of Directors, must agree on the terms of the deals.
  - Measurement and verification metrics need to be developed and agreed.
  - RFP development, solicitation of proposals, evaluating proposals, negotiating contracts - all must proceed quickly.
  - Vendors need time to prepare for 01/01/07 launch.

- Broad portfolio of programs.
  - Seek programs to cover all customer classes and a variety of end uses.
  - Continue to implement tariff-based DR programs using current ComEd channel and PJM DR framework.
  - Prefer programs with proven track records.
- Rigorous RFPs that define program deliverables but allow for innovation and creativity.
  - Bidders supply verifiable energy and demand reductions.
  - Bids could be submitted by customers, aggregations of customers, vendors, etc.
  - Multiple RFPs possible – e.g. residential energy efficiency, residential demand response, non-residential energy efficiency, non-residential demand response, and/or end uses.

- ComEd may request Commission approval of a formula-rate rider based upon details in the EEPS plan.
  - Filing expected in Q1 2006.
  - ComEd will likely request expedited treatment (120 days).
  - The formula-rate rider will be populated with procurement results – effective January 1, 2007.
    - “Informational” filing will specify the rider charge.
- RFP design and administration costs incurred prior to 1/1/2007 will be accrued and amortized post-2006 per the approved mechanism.
- Contracts entered into under an approved RFP process will be considered prudent for cost recovery.
- Results of the RFPs will be reported to the ICC.

- Design RFP process.
- Design measurement and verification process.
- Select program tracking system.
- Draft RFPs.
- Develop standard contracts.
- Develop EEPS cost recovery system.
- Consult with ICC on development of evaluation process and organization.

# **Ameren Utilities' Plan on Implementing of the Governor's Sustainable Energy Plan**

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**Electric Policy Committee  
May 11, 2005**

Michael Moehn – VP Corporate Planning  
Bob Mill – Director, Regulatory Policy  
Rick Voytas – Manager, Corporate Analysis



# ***Sustainable Energy Plan For the Ameren Utilities***

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- Plan for Energy Efficiency and Demand Response
- Plan for RPS
- Collaboration with Stakeholders
- Timetable for Implementation
- Conclusion

# ***Ameren's RPS and Energy Efficiency Goals***

- Applicable to Ameren Utilities
- 2% of energy sales (less than 1MW) in 2006, increasing 1% annually until, in 2012, 8% is generated by renewable resources
- For Ameren's Illinois Control Area, the RPS goal would require wind renewables of 125 MW in 2006, growing to 530 MW in 2012
- 10% of annual load growth in 2006 growing to 25% of annual growth in 2015
- For Ameren's control area, the energy efficiency goal would require 20,000 MWH in 2006, growing to 60,000 MWH in 2015

# Energy Efficiency & Demand Response

The Ameren Utilities have adopted a strategy that will achieve both near-term and long-term goals

- **Long-term**, Ameren proposes implementation of energy education and pricing programs
  - We believe informed energy consumers will make better energy usage decisions
  - Increasing energy efficiency awareness is a longer-term proposition
  - More challenging to measure success
- **Near-term**, traditional energy efficiency programs can achieve measurable savings of energy and demand
  - Can typically be implemented quickly with an immediate impact
  - Can contract for cost effective strategies and measures
  - May not encourage behavioral change of participants
  - Easier to measure energy savings
  - Estimated annual savings target is about 21,000 MWHrs
- A balanced approach is required!

# ***Ameren's Proposal For Potential Long-Term Energy Efficiency Programs***

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## Our Long Term Vision of Energy Efficiency

- Depend on customers to make informed decisions on energy efficiency options, i.e., appliances, lighting, home construction, windows, insulation
- Customers respond to real time energy prices by adjusting their daily load shape
  - Washing / drying delayed until hourly prices decline
  - Customers pre-cool home on summer days
- We believe this is the only way to achieve sustainable energy efficiency...
  - Rebates and freebies not as effective in promoting education and behavioral change

# ***Ameren's Proposal For Potential Near-Term Energy Efficiency Programs***

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## Our Near-Term Vision of Energy Efficiency

- Achieve immediate total annual energy savings of approximately 10% of Ameren annual sales growth rate in Illinois – approximately 20,000 MWH per year
- Build upon “best practice” programs utilized across the nation

# ***Examples Of Most Likely Near-Term Energy Efficiency Programs***

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## ■ RES New Construction

- Work with builders etc. to promote improvements in building shell and appliance efficiencies beyond basic building code and standard practice levels

## ■ RES Lighting

- Reduce market price and encourage purchase of compact fluorescent lamps (CFL)

# ***Examples Of Most Likely Near-Term Energy Efficiency Programs***

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- **Small Commercial Audit**
  - Offer reduced costs on energy audits to identify energy efficiency opportunities and possible credits for verified energy efficiency improvements

# ***Example Of Education Based Energy Efficiency Program***

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**Target market:** High school students and their families

- Combine classroom instruction with a household energy survey to educate high school students and their families about:
  - household energy usage
  - electric bill disaggregation
  - customized recommendations for cost effective energy efficiency measures

# ***Proposed Metric For Education Based Programs***

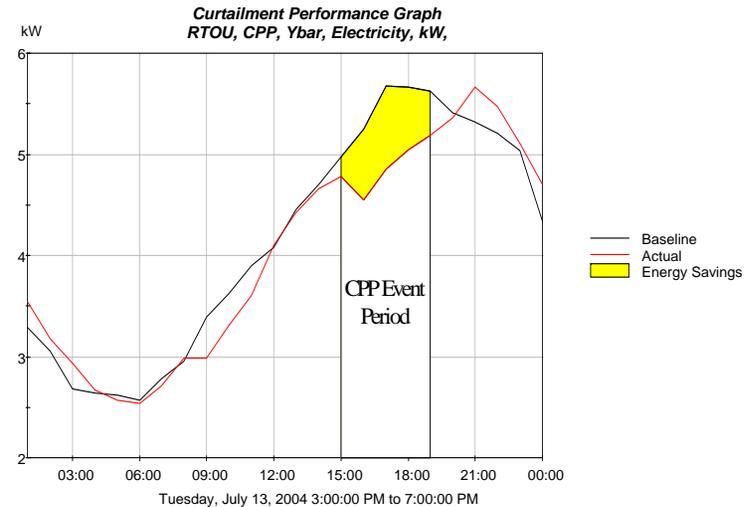
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- Near-term MWH savings difficult to identify
- Measure success in terms of a customer “energy efficiency awareness index”
- Evolve metric over time to a measurement of customer behavioral changes
- Ultimate goal: Use customer behavior changes to model estimates of MWH impacts attributable to education and information programs

# Near-Term Demand Response (DR) Proposal

- Principle: Price is powerful information. Customers prefer choice and control over energy consumption. Price of energy leads to knowledge of energy options. Knowledge of energy options leads to responsible energy consumption behavior.
- Proposed program: Residential Real-Time Pricing (RTP)

CPP Event Day  
July 13, 2004 – CPP



# Residential RTP - Timeline

## Define Program

- Define scope, goals, and objectives
- Research Technologies
- Investigate other utility programs
- Define Program Framework
- Identify stakeholders and get feedback
- Prepare Regulatory Filing

## Detail Design

- Regulatory Approval
- Define details of Program
- Define system and process changes
- Identify vendors
- Identify supporting entities
- Test systems and processes
- Prepare Supporting Materials & Training

## Implementation

- Participant recruitment
- Consumer education
- Focus groups
- Implement Program

## Evaluation

- Focus groups
- Participant Group
- Technology
- Impacts of RTP rate
- Financial Benefits

Oct. 2005

July 2006

Jan 2007

Sept / Oct 2008

Completion Of Stages

Program Begins



May 11, 2005

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# *Renewable Energy Proposal*

# Our Preferred RPS Structure

- Utilities become responsible for procurement of renewables in Illinois (Excludes Customers  $\geq$  1 MW)
  - Allows for longer term contracts with developers, which will minimize overall RPS cost to customers
    - Buying in bulk may result in lower cost
    - Should aid developers in obtaining lower financing costs for projects
  - Utility would base “RPS Requirements” on Delivery Services (DS) load for applicable customer segments.
    - Reduces risk of load uncertainty since ALL customers will take DS
    - Easier to monitor compliance with RPS goal
  - Renewable costs/credits reflected in separate tariff applicable to DS Customers  $<$  1 MW.

# ***How Would Utilities Manage RPS Under Ameren's Method?***

- Utilities not required to take physical delivery of RPS energy
  - Utilities receive “Energy Certificates” verifying RPS energy is generated per their contract
  - The Energy Certificates are retired to achieve RPS goals
  - Producer/developer sells generated energy into LMP market
  - Some physical arrangements still possible
  
- Utility contracts for RPS on basis of difference between “market price” and RPS “contract price”
  - Contract is financial to Utility
  - Pricing for Renewable Power is set at time of contract

# The RPS Supply Contract

- The actual net price paid by Utility customers will vary based on the following:
  - Producer/developer and utility settle on a “formula” that computes the difference between:
    - 1) a Fixed RPS unit energy price; and
    - 2) the LMP revenue received by Developer/Producer.
  - During periods of higher LMP, Utility will receive a credit (where LMP exceeds the price of renewables)
- This approach provides a price hedge for Utility customers and for those taking supply from ARES

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# *Implementation Plan*

# ***How Would The Ameren Utilities Implement their Plans?***

In our Working Group Presentations, we discussed our framework and the need to file tariffs

- Ameren Utilities would file tariff with ICC that:
  - Defines the renewable procurement processes
  - Provides a pre-approval procedure for ICC acceptance of winning bids
  - Establishes a rate mechanism for recovery of costs
- Much of the detail still under development
  - Collaboration with the stakeholders is an important step.

# ***Benefits of a Collaboration Process***

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- An expedited collaborative process will be helpful
  - Finalize plan details with input from stakeholders
    - Ameren does not have all the answers
  - Will help shorten formal proceedings
    - Will hopefully eliminate contested issues
  - May result in greater uniformity between utility proposals
  - Help establish a process for non-wind renewable projects

# ***RPS Collaborative Process***

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- Collaborate with the renewables industry and other stakeholders to finalize filing:
  - Long-term supply contracts for wind and non-wind projects
  - Process for wind and non-wind renewables procurement
  - Definitions for renewable certificates/credits
  - Metrics for measuring goals
  - Process for purchases from small projects
  - Address IDC issues
  - Cost recovery charge and tariff provisions

# ***Energy Efficiency/Demand Response Expedited Collaborative Process***

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- Collaborate with energy efficiency experts and other stakeholders to develop:
  - Terms for energy efficiency contracting
  - Measures to be bid
  - Process for soliciting bids
  - Role of education programs
  - Metrics for achieving goals
  - Cost recovery charge and tariff
  - Address IDC issues

# Proposed Timetables for Implementation

## RPS Timetable – (Limited to wind projects)

<i>Working Group Meetings and ICC Policy Meeting</i>	<i>ICC, Utilities Collaborative Process, Preparation of Tariff</i>	<i>ICC Approval of Renewable Tariff</i>	<i>Renewable Procurement Process</i>	<i>Renewable Projects are Operational</i>
<i>April – May 2005</i>	<i>June-August 2005</i>	<i>November 2005</i>	<i>December 2005</i>	<i>December 2006</i>

## Energy Efficiency-Demand Response Timetable

<i>Working Group Meetings and ICC Policy Meeting</i>	<i>Development of Program Design &amp; Procurement Process and Preparation of Energy Efficiency Tariff</i>	<i>ICC Proceeding to Approve Tariff</i>	<i>Competitive Procurement Process</i>	<i>Implement Programs</i>
<i>April-May 2005</i>	<i>June-August 2005</i>	<i>November 2005</i>	<i>July-Aug 2006</i>	<i>Nov-Dec 2006</i>

# Conclusion

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- Ameren Utilities' have spent considerable time refining their positions on the Sustainable Energy Plan
- We have laid out a Plan to collaboratively involve Stakeholders in the final development of our proposed structure
- We plan to file tariffs to implement these programs and to ensure recovery of their costs
- Ameren Utilities are committed to pursuing a sustainable energy strategy that is fair to our customers and to our investors