Energy Efficiency **Policies, Programs, and Practices** in the Midwest

A Resource Guide for Policymakers

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MEEA
Midwest Energy Efficiency Alliance
The Source on Energy Efficiency

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The Midwest Energy Efficiency Alliance is a membership organization of state and local governments, energy utilities, research institutes, manufacturers, energy service providers, and advocacy organizations working to advance energy efficiency in the 13 Midwestern states. Founded in 2000, the nonprofit organization has worked collaboratively with all stakeholders to support programs, policies, emerging technologies, and education and training initiatives that have produced significant energy efficiency investment, energy and cost savings, economic growth, and enhanced environmental preservation across the region.

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PREFACE

Midwest Energy Efficiency Alliance (MEEA) is a membership organization of state and local governments, energy utilities, research institutes, manufacturers, energy service providers, and advocacy organizations working to advance energy efficiency in the 13 Midwestern states.

Founded in 2000, the nonprofit organization has worked collaboratively with all stakeholders to support programs, policies, education and training initiatives, and emerging technologies that have produced significant energy efficiency investment, energy and cost savings, economic growth, and enhanced environmental preservation across the region.

MEEA actively collaborates with policymakers and program implementers to advance all cost-effective, achievable energy efficiency. As an organization, MEEA is structured around the following goals:

- Be the source on energy efficiency policy and programs in the Midwest
- Inspire active participation in the Midwest's portfolio of energy efficiency programs through public recognition of achievements and promotion of their effects
- Develop and facilitate programs and services that fill gaps in the regional energy efficiency portfolio, including training and emerging technology programs
- Promote the positive impact of energy efficiency on the economy, quality of life and energy independence in the region through an expanding membership base and meaningful communications with key stakeholders

Since MEEA's founding, state and local policies promoting energy efficiency and utility investment in energy efficiency have grown significantly. In 2004, electric and natural gas utilities in the 13 states in MEEA's region collectively spent $205 million on energy efficiency programs. By 2013, this amount had grown to an estimated $1.64 billion and is expected to grow to $1.67 billion by 2015. One of the driving forces behind this growth has been the adoption of statewide energy efficiency policy standards. At the same time, state and local governments have adopted policies aimed at reducing their own energy consumption and providing residents and businesses with access to information, financing, and strategies for saving energy.

Although different entities decide to pursue energy efficiency for various reasons, one thing is certain: energy efficiency is a valuable investment in our communities, local businesses, and homes, with a return of more than two dollars for every dollar invested. These energy and financial savings also compound over time, which means pursuing energy efficiency programs today will continue to pay off well into the future.

However, the story of energy efficiency is about much more than simply saving kilowatt-hours. These policies and practices help citizens save money and lower stress on existing infrastructure by reducing peak load. They also help businesses in the region reduce their energy costs, resulting in increased competitiveness for small companies and large manufacturing facilities alike.

Energy efficiency also drives the creation of high-quality jobs. A Brookings Institute study concluded that, as of 2010, energy efficiency had created more than 130,000 jobs in the 13 Midwestern states alone[1]. These high-paying jobs have been added in sectors ranging from the construction and building materials industries to equipment manufacturing, building design, and professional energy services.

While there is no one-size-fits-all approach to energy efficiency, policymakers across the region and the country have realized the benefits of conserving energy. This is one significant reason why energy efficiency investments continue to increase.

While much has been accomplished across the region with respect to the development of energy efficiency policies and programs, there is still more that can be done. This handbook is intended to provide a snapshot of energy efficiency

policies across the region as well as identify best practices that can be adopted by policymakers interested in promoting energy efficiency in their jurisdiction. The handbook also highlights several successful programs that are advancing energy efficiency at the regional, state, and local levels. It is our goal to provide examples of policies, programs and practices that can be replicated across the region.

Of course, not every policy or program identified in this handbook will be a good fit for every state or locality. Policymakers should identify and implement those that are most applicable to their jurisdiction and – as those policies take hold and their residents and businesses begin to see the benefits – they should consider adopting additional policies to continue to momentum.

2014 REVISIONS

As we have updated the inaugural edition of this report, we have revised all of the charts and graphs to reflect the current state of policies in the Midwest. In addition, we have sought to make this report more robust and comprehensive by identifying additional energy efficiency policies that have been adopted by state and local policymakers. In this respect, we have identified policies and programs regarding **benchmarking of both public and private buildings** and **energy usage disclosure** that are examples of innovative new policies being adopted in the Midwest. There is also more information on **engaging stakeholders in the policy development** process and on **creating competitions** between communities or organizations. We also have noted that every state in the region allows for **performance contracting** as a means of achieving energy savings; this provides an opportunity for many communities or school districts to realize real energy and monetary savings. Finally, we have also included more examples of innovative programs that are resulting in energy savings, including:

- ComEd's RCx Program
- Xcel Energy's SEM Program
- Building Operator Certification® (BOC)
- Illinois BOC Pilot Program for Veterans
- Lights for Learning
- Savings Through Efficient Products (STEP)
- Midwest LUMEN
- HVAC Save
- Illinois Home Performance with ENERGY STAR®

Additionally, in the handbook's appendix we've added the **building energy benchmarking ordinances** adopted in Minneapolis and Chicago, as well as the **Kansas Energy Efficiency Disclosure document**.

Throughout the document, the new programs and policies that have been added are highlighted for your convenience. Finally, should you know of other innovative policies, programs and practices that save energy, please let us know so that we can include them in future editions.

Along with the revisions to this handbook, we continue our efforts to make MEEA's website (www.mwalliance.org) "the source on energy efficiency" information in the Midwest. The website includes links to all relevant statutes. We intend for this to be a "living" document, so as policies change or new programs are launched, our website and future editions of this handbook will reflect those developments. Please also share examples that we might have missed by contacting us at http://www.mwalliance.org/contact or 312-587-8390.

Finally, we would like to thank The Joyce Foundation for funding this project, as well as numerous individuals at organizations and agencies across the Midwest who have contributed and helped bring this project to fruition.

EXECUTIVE SUMMARY

Energy efficiency has a long and successful history in the Midwest. Most states in the region are aggressively pursuing efficiency through the adoption of statewide energy efficiency standards and other policies aimed at reducing energy consumption at the state and local levels.

This handbook is intended to provide a snapshot of the energy efficiency policies that underlie these efforts, as well as to identify best practices that could be adopted by policymakers seeking to promote energy efficiency in their jurisdictions.

In an effort to make sense of the broad array of energy efficiency policies and practices adopted in the Midwest states, this handbook is organized in the following key categories:

- Statewide Energy Efficiency
- Public Facility Energy Efficiency
- Residential and Commercial Efficiency
- Industrial Efficiency
- Demand Response and Smart Grid Implementation
- Energy Efficiency Finance

Statewide Energy Efficiency: Many states have enacted statewide energy efficiency policies that require utilities to conduct integrated resource planning and/or to offer energy efficiency programs to their customers. The scope and breadth of these requirements vary from state to state. Every state in the Midwest has a state energy office to help advance energy efficiency efforts. For the most part, states across the Midwest also require utilities to undertake an integrated resource planning process, some of which mandate energy efficiency program planning.

The more widespread method of ensuring investment in energy efficiency portfolios in the Midwest, however, has been to adopt savings targets for utility-run energy efficiency programs. As of April 2014, the American Council for an Energy Efficient Economy (ACEEE) has identified 25 states, including six in the Midwest, that have adopted some form of an energy savings target, known as an Energy Efficiency Portfolio Standard (EEPS)[2]. Depending on the state, targets can apply either to all utilities in the state or solely those regulated by the state commission. There are also states without EEPS policies that have achieved a significant level of energy efficiency investment.

In order for utilities to offer a portfolio of programs that consistently meet statewide energy savings targets year after year, complimentary policies are typically adopted that provide a stable funding base for efficiency programs and fuel long-term energy savings. The three main components necessary to establish this funding base (often called the "three legged stool"), and thus the success of programs, are: 1) recovery of the costs a utility incurs in developing, promoting, and delivering energy efficiency programs; 2) lost revenue recovery; and 3) utility incentives for investment in energy efficiency, such as shareholder incentives and shared savings. In states where energy savings targets are mandated, penalties are sometimes also imposed to address utilities that fail to achieve these targets. For the most part, however, the Midwest region has been reluctant to adopt strict penalties for non-compliance.

Additionally, to ensure that energy savings are being properly attributed to utility programs and ratepayer funds are being judiciously spent, most states in the Midwest engage in some form of evaluation, measurement, and verification (EM&V) of savings. Each of the Midwest states also evaluates energy efficiency portfolios to ensure they are cost-effective. Several states also publish detailed information on the energy efficiency programs conducted in their state. Finally, customer choice policies such as municipal aggregation exist in Illinois and Ohio, whereby cities and counties aggregate consumer demand and buying power to negotiate contracts with alternative energy suppliers.

Public Facility Energy Efficiency: Governments are in a unique position to advance energy efficiency by providing vision and leadership for their constituents through public facility energy efficiency initiatives. Constituents appreciate their governments using energy efficiently thereby saving taxpayer dollars. By taking actions such as forming an agency dedicated to energy policies, setting goals for reduction of energy use by state agencies, and setting high standards and implementing policies that promote efficiency of public-service buildings, governments demonstrate the value of energy efficiency, reduce the amount of the state's revenue spent on energy, and provide a model for the public to follow. Currently, every Midwestern state has an energy office and many have adopted other policies aimed at managing the state's energy consumption as well as encouraging others to follow its lead.

Residential and Commercial Efficiency: The backbone of many utility energy efficiency portfolios in the Midwest is residential and commercial efficiency. In the residential sector, Home Performance with ENERGY STAR® (HPwES) – a national program run by the U.S. Department of Energy (DOE) and sponsored locally by state agencies, utilities, and non-profits –connects homeowners with qualified contractors and energy auditors who assess each home's "performance" and recommend renovations, resulting in energy savings and improved home comfort. HPwES has been successfully adopted in nine Midwest states, including Illinois, Iowa, Kentucky, Michigan, Minnesota, Missouri, North Dakota, Ohio, and Wisconsin. Other innovative residential programs in the Midwest include the City of Milwaukee's Green Team, which featured the adoption of aggressive energy efficiency policies such as performance contracting to upgrade city buildings and street lighting, LEED certification pilots for city buildings, and the development of energy efficiency financing programs for residents and businesses.

Building energy codes – both for residential and commercial structures – generate significant, perpetual energy savings through efficiency upgrades. Because building energy codes are so effective at reducing energy usage year after year, code adoption has accelerated across the Midwest. Eight Midwest states have adopted recent residential or commercial building codes and several other states are considering updating their codes[3]. Energy codes are recognized as a simple and cost-effective means to reduce energy consumption, lower energy bills, make housing more affordable, reduce air pollution, and improve air quality.

Industrial Energy Efficiency: Given that the Midwest is home to a significant percentage of the nation's manufacturing and industrial capacity, there is considerable potential for energy savings through policies and programs focusing on industrial energy efficiency. In 2011, industrial energy consumption in the Midwest accounted for more than 29% of total industrial energy consumption in the nation[4]. At the same time, industry in the Midwest is facing mounting economic pressures, including competition in both national and international markets and increased costs of labor, raw materials, and environmental compliance. The potential benefits of energy efficiency and its ability to help mitigate these pressures cannot be overstated. The deployment of energy efficiency is an indispensable component of any effort to improve industrial productivity, as well as to maintain competitiveness and to cut costs.

There are a wide variety of approaches to funding industrial energy efficiency programs across the Midwest. Seven Midwestern states have adopted some form of "Opt-Out" or "Self-Direct" policies permitting industrial energy customers to opt out of paying all or a portion of the costs recoverable by electric or natural gas utilities to run industrial efficiency programs. If states decide to permit an Opt-Out policy, it is important that policymakers develop guidelines for Opt-Out and Self-Direct programs just as they have for other ratepayer funded energy efficiency programs to ensure that all industrial customers are making progress toward using energy more efficiently. This design should include a focus on: energy savings; evaluation, measurement, and verification of these savings; verification of the Self-Direct customers' expenditure of funds on energy efficiency measures; and attribution of energy savings to ensure that utilities are able to claim credit for the energy savings achieved by industrial customers through Self-Direct programs.

Even in states where Opt-Out or Self-Direct programs exist, robust industrial energy efficiency portfolios offer great potential for energy savings. As policymakers and utilities establish and build the program offerings in their states and service territories, they cannot afford to overlook this potential. If a utility is expected to meet an energy savings target, then it will need to achieve some savings from its industrial customers just as it will need to realize savings from its residential and commercial customers. Policymakers should ensure that states and utilities develop robust portfolios of prescriptive and customized programs targeted at industrial customers so that all customer classes are working towards energy efficiency.

Another facet of industrial efficiency is Combined Heat & Power (CHP). CHP is the simultaneous production of heat and electrical energy from a single fuel source. This category includes a number of technologies, typically deployed as on-site generation facilities. CHP systems at industrial facilities can yield numerous system, environmental, and economic benefits and are an important tool to deploy in the pursuit of industrial efficiency.

Demand Response and Smart Grid Implementation: In addition to the many policy drivers in place with regard to public facilities, residential and commercial facilities, and industrial facilities, demand response and smart grid implementation efforts have continued to expand. Demand response programs can enable more efficient use of the grid in addition to delivering cost savings for all customers. Smart grid technologies can provide increased efficiencies in the planning and operation of the grid, better integration of distributed generation into the utility's operations, and greater control over consumers' demand for electricity at times of peak energy usage.

In all 13 states across the Midwest, smart grid investments are taking place that could bring about significant benefits in terms of energy efficiency. With the deployment of smart grid technologies, however, policymakers must consider a number of issues, including: how smart grid deployment integrates with a state's energy savings targets; how costs are recovered; how the state and utilities will handle the transition to a smart grid; and how customers will be engaged and educated to take full advantage of the smart grid once it is in place.

Energy Efficiency Financing: An overarching barrier to energy efficiency policies and programs confronting all classes of customers is the availability of energy efficiency financing. Investments in energy efficiency require the end-user to spend money up front on improvements with the promise that the consumer will save energy and money in the future. These up front investments are often significant and traditional lending programs with high interest rates may make them uneconomic. Additionally, the amount an individual project saves hinges at least partially on occupant behavior. This has hindered the ability to aggregate loans to sell on the secondary market, rendering the private capital market either unable or unwilling to finance energy efficiency improvements on a large scale.

A number of financing tools have been developed in the Midwest to overcome these barriers, including Property Assessed Clean Energy (PACE) initiatives and on-bill financing. Currently, authorizing legislation or other authority for PACE financing has been enacted in six Midwest states. On-bill financing programs are also currently being used, or in a pilot phase, in seven Midwestern states. These programs allow customers to finance energy efficiency improvements and repay the associated costs, plus interest, through monthly energy savings. Other financing tools – such as loan loss reserve funds and revolving funds – are being used to fund efficiency improvements at low interest rates. Creative approaches are regularly being developed, such as the Michigan Saves program, which is a statewide network of contractors and credit unions that provide financing through an initial $6.5 million grant from the Michigan Public Service Commission[5].

As is apparent, the Midwest has made great strides in adopting policies and launching programs that promote energy efficiency by state and local governments, as well as electric and natural gas utilities and their residential, commercial, and industrial customers.

INTRODUCTION

Energy efficiency, often considered the "fifth fuel," can be a far less expensive alternative to other electricity supply resources that also generates savings for the customer far into the future.

Energy efficiency helps keep energy prices low for everyone, increases business competitiveness, and creates local jobs that cannot be outsourced. While energy efficiency will never replace the need for traditional energy sources, efficiency should be considered the first fuel" – not the fifth – when making energy supply decisions.

Energy efficiency has a long and successful history in the Midwest. For example, Iowa and Minnesota have had energy efficiency policies and programs in place for more than 20 years. Currently, many states in the Midwest are mandating utilities to provide efficiency, and more importantly, to be held accountable for their success in promoting efficiency. As **Figure 1** indicates, in 2010, more than $1.11 billion in ratepayer dollars were invested in energy efficiency. By 2015, that investment will increase to more than $1.67 billion.

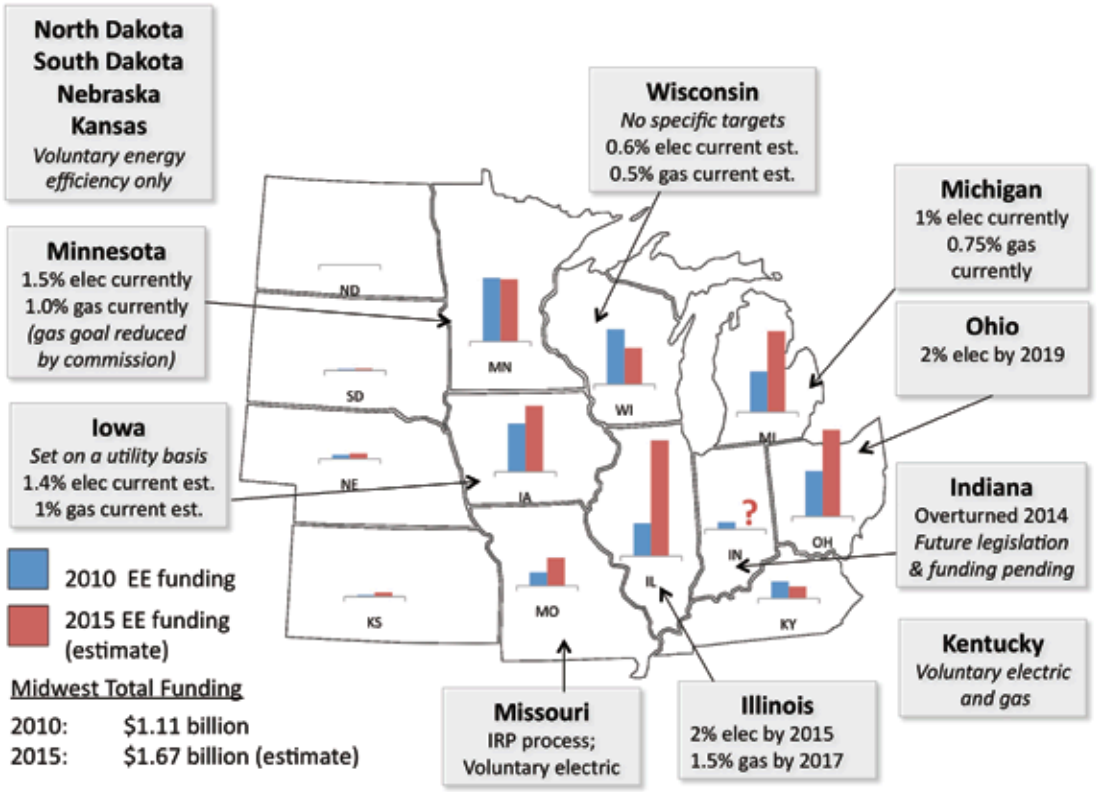

Figure 1: Midwest Efficiency Targets and Funding Levels
Midwest Energy Efficiency Alliance, April 2014

Policymakers at the national, state, and local levels of government have recognized the importance of implementing sound and cost-effective energy efficiency policies. They understand that saving energy brings about economic, societal, and environmental benefits that go beyond simply saving a kilowatt of electricity or a therm of natural gas. Energy efficiency programs can:

- Reduce customer energy use to better manage peak load
- Avoid or delay the construction of expensive power plants
- Help alleviate transmission and distribution congestion, thus increasing the reliability of the grid
- Reduce the introduction of regulated air pollutants and greenhouse gases into the environment
- Create better-informed and empowered consumers
- Improve air quality and comfort in homes and businesses
- Provide for more efficient utilization of energy and energy infrastructure and reduce waste
- Help to stimulate the economy and create jobs by investing in the manufacturing of energy efficient products and energy efficiency services
- Increase the competitiveness of local businesses

The broad array of policies adopted by governors, state legislatures, and utility commissions and the programs implemented by utilities, government agencies, and nongovernmental organizations include:

- State and local government initiatives to save energy and taxpayer dollars through energy efficiency improvements in their own operations
- Ratepayer-financed energy efficiency policy goals
- Policies and programs directed towards residential, commercial and industrial customers
- Energy efficiency financing
- Building energy codes for new construction
- Federally funded actions, including home retrofit and industrial programming
- Smart grid policies and pilot programs
- Demand response

In addition to this report, MEEA's website houses additional resources for policymakers to use to better understand the energy efficiency policy and regulatory landscape across the Midwest. Resources are available at www.mwalliance.org.

STATEWIDE ENERGY EFFICIENCY

Although energy efficiency policy is crafted and influenced by policymakers at all levels, significant work and innovation occurs at the state level.

Policy and planning activities vary across each state in the Midwest.

One common denominator is that every Midwest state has an energy office. There are a variety of drivers that states utilize to promote energy efficiency. These include state energy plans and energy efficiency planning, as well as energy efficiency procurement standards. States also must set policies regarding funding mechanisms and program design as they pursue energy efficiency investments. Further, they also measure, evaluate, and report on the efficacy of these programs, to ensure they are cost-effective and are being implemented as intended. These topics will be discussed in much more detail in the following sections.

State Energy Offices

Having a state agency or office dedicated to energy, beyond the regulatory affairs addressed by the public service commission or the environmental affairs department, provides important functions for the state, including the following:

- Developing state energy plans
- Coordination with local governments
- Showing state commitment to energy and energy efficiency
- Promoting energy efficiency in both the public and private sectors
- Providing technical expertise to residents, businesses, and other government agencies
- Operating efficiency and weatherization programs for residents
- Providing access to capital through funding mechanisms
- Managing and redistributing federal funds
- Developing and implementing the governor's energy policies
- Serving as a repository of data about energy production, consumption, and efficiency savings

In addition to these roles, many energy offices play a role in promoting energy businesses within the state, including the extraction of fossil fuels, the development of renewable energy resources, and the growth of energy markets. Where the agency is housed within the state government varies, whether as an independent agency or an office within the governor's office, public service commission, the department of natural resources, or the economic development agency. While the location of the energy office within state government will affect its mission and metrics for success, every state energy office is, in part, defined by its responsibility to design and implement its State Energy Program, which has a strong focus on energy efficiency. State energy offices have an important role to play: for every dollar of federal investment, state energy programs save $7.23 in reduced energy bills[6].

State Energy Plans and Collaborative Policy Development

Energy development, resources, and consumption need to be planned for by utilities and the state regulatory commission and by the state. Energy plans look at the collective energy markets within the state and identify strategies to ensure that residents and businesses have access to a reliable energy supply at reasonable and affordable rates. In doing so, energy plans often will examine energy forecasts and identify strategies for meeting future energy needs, including strategies for reducing the state's dependence on imported foreign fossil fuels, promoting the development of in-state renewable resources, adopting energy saving strategies for state agencies, and promoting energy efficiency and conservation by citizens and businesses. Nearly every state in the Midwest has an energy plan, although many may be in need of updating. Indiana's Office of Energy Development is currently in the process of updating the state's energy plan, the Homegrown Energy Plan, written in 2006. The updated plan and energy policy recommendations will be submitted to Gov. Mike Pence in the summer of 2014.

Stakeholder Involvement in State Energy Plan or Policy

Stakeholder collaboration is a tool utilized by policymakers, private organizations, and non-governmental organizations to seek consensus on a particular issue or set of issues. While public agencies and policymakers have long sought out public opinion in their deliberative processes, they have moved beyond simply soliciting testimony and reading letters they receive or public opinion pieces in the newspaper. Over the years, they have moved to strategically and systematically engaging the private sector, think tanks, industry experts, and advocates in processes to help formulate and shape the state energy plan or policies that will be adopted. In doing so, they hope to achieve consensus and avoid long litigation or delay tactics and instead move beyond policy deliberation and on to implementation. While the stakeholder input process serves to help shape the content of and create buy-in for the state energy plan, it also can serve as a platform for creating an ongoing energy dialogue within a state that lives on beyond the energy plan.

Soliciting stakeholder input can take a number of different forms, ranging from one-time gatherings to carefully planned processes taking place over the course of several months or even years. In the Midwest, we have seen an example of each. In Ohio, Gov. John Kasich convened a two-day summit to focus on the state's energy issues. In Michigan, Gov. Rick Snyder directed state officials to conduct a series of public meetings around the state and to communicate their findings. In Kentucky, the state undertook a multiyear stakeholder engagement approach with the goal of developing a suite of recommendations to spur the incentives for the investment in energy efficiency within the state.

- **Ohio:** In September 2011, Governor Kasich hosted a two-day energy and economic development summit about Ohio's energy future. The governor planned to create a comprehensive energy plan for Ohio in hopes of expanding business and creating jobs within the state, while continuing to keep energy prices low. The summit brought together more than 1,000 attendees, and had speakers from an array of sectors including energy distributors, producers, energy product manufacturers, nonprofits, associations, and academic research institutions. At the summit Gov. Kasich declared energy efficiency to be a "slam dunk" and voiced support for advanced and renewable energy standards, but noted that standards could possibly use a review and may need tweaks. The governor's energy plan update can be found here: http://governor.ohio.gov/Portals/0/pdf/MBR/FINAL%20Energy.pdf.

  Since the energy summit, Ohio's energy efficiency standards have come under question through the introduction of SB 58 and HB 302. Stakeholders, both in opposition and support of the legislation, have collaborated on amendments and testified at hearings conducted by the House and Senate Public Utilities committees. Although the legislation did not come to a vote in the 2013 session, the discussion over the state's energy efficiency standards resumed in 2014 with the introduction of SB 310. As introduced, this legislation would freeze the standards for energy efficiency, eliminate annual targets, and essentially end requirements for new investment in energy efficiency.

- **Michigan:** In March 2013, Gov. Snyder convened a series of Energy Public Forums hosted by Michigan Public Service Commission Chairman John D. Quackenbush and the Michigan Energy Office. The information gathered from the forums will be used to assist the governor, policymakers, and the public as they take a comprehensive look at Michigan's energy future. MEEA presented at the Detroit forum in late March. The Energy Public Forums concluded in May 2013.

  The Energy Office and the public service commission (PSC) developed four final reports covering: renewable resources, energy efficiency, competition, and additional issues. These reports incorporated stakeholder input from both the hearings and the public comments received on the draft reports. These four reports were released in November 2013 and can be found here: https://www.michigan.gov/energy[7]. The final Energy Efficiency report concluded that utility companies have exceeded their targeted goals for energy efficiency. The energy efficiency report stated that customers have saved $3.55 in electricity costs for every $1 invested in energy efficiency; a total of $1.2 billion has been saved in electricity costs since the program began in 2008. The report also mentioned that ratepayers have the ability to reduce energy consumption up to 35% by adopting energy efficiency measures[8].

  On December 19, 2013, Gov. Snyder gave his annual energy speech, wherein he stated that over the next two years he will work with the state legislature to improve energy efficiency, increase renewable energy production, and lower residential and industrial energy bills. However, Gov. Snyder did not make concrete energy policy proposals, and noted that 2014 is an election year so it will be difficult to pass legislation. Gov. Snyder acknowledged that reducing energy waste also reduces bills for residential and industrial customers, and noted that above all else, he wants the State of Michigan's energy policy to protect the environment. Gov. Snyder's energy plan can be found here: http://www.naseo.org/Data/Sites/1/documents/stateenergyplans/MI.pdf.

- **Kentucky:** The Kentucky Department for Energy Development and Independence (DEDI) and the Midwest Energy Efficiency Alliance managed a 2.5-year project funded through a cooperative agreement with the U.S. Department of Energy. The goal of the project was to develop a suite of recommendations to spur incentives for investment in energy efficiency within the state. MEEA brought together a broad spectrum of stakeholders to identify program and policy options to achieve 1% electric energy savings annually across the state.

  Participants in the stakeholder process represented diverse sectors throughout Kentucky including utility, industry, commercial, academic, housing, nonprofit, government, legislative, regulatory, and business/trade associations.

  MEEA concluded the first phase of its stakeholder process in mid-2012, during which stakeholder recommendations were collected from the three meetings. The recommendations were then drafted to build upon Kentucky's existing energy efficiency efforts, and to achieve project goals. The key deliverable from this stakeholder process was an Action Plan for Energy Efficiency that would set out tasks and a timeline for each recommendation. In March 2013, MEEA circulated the Action Plan among stakeholders for review and comment, including scoring on the feasibility and effect of each action item on energy savings efforts in Kentucky. In April, MEEA concluded the stakeholder review, and the first iteration of the Action Plan was publicly released in May 2013. This Action Plan can be found here: http://energy.ky.gov/Programs/Documents/Action%20Plan%205-15-2013.pdf.

  Key action items in the plan included:

  » Developing a simple, clear mechanism to track energy gains from utility-run efficiency programs, with the goal of positioning Kentucky as a leader in energy efficiency in the national arena

  » Creating a Peer Exchange for utilities to share information and experiences

  » Expanding current state-run programs, such as Kentucky Home Performance

  » Increasing financial incentives for industrial and commercial energy users to invest in energy saving upgrades

  » Providing for more robust education and training to residential and commercial energy users about the benefits of efficiency and the availability of incentive programs

  » Addressing the stock of energy inefficient manufactured homes in Kentucky

  » Enforcing the residential and commercial building energy codes more uniformly

  » Making recommendations at the federal level about energy efficiency issues affecting all states

STATE ENERGY EFFICIENCY POLICIES

Many states have enacted policies that require utilities to conduct resource planning and/or to offer energy efficiency programs to their customers. Energy efficiency policies have been enacted in several Midwest states with varying representation in both the governor's office and state legislatures. The scope and breadth of these requirements vary from state to state. In addition, some states require utilities to conduct resource planning and offer energy efficiency programs, while others require one or the other, and one requires neither.

Integrated Resource Planning

In response to volatility in the fuel markets and concerns over generating capacity, policymakers in many states began requiring electric utilities to undertake Integrated Resource Planning (IRP) in the 1980s. In doing so, utilities were directed to examine both their energy demand and their energy supply and identify any risks that could prevent them from meeting their customers' long-term energy needs at reasonable costs. IRP was defined in the Energy Policy Act of 1992 as:

> The term "integrated resource planning" means, in the case of an electric utility, a planning and selection process for new energy resources that evaluates the full range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency, cogeneration and district heating and cooling applications, and renewable energy resources, in order to provide adequate and reliable service to its electric customers at the lowest system cost. The process shall take into account necessary features for system operation, such as diversity, reliability, dispatchability, and other factors of risk; shall take into account the ability to verify energy savings achieved through energy conservation and efficiency and the projected durability of such savings measured over time; and shall treat demand and supply resources on a consistent and integrated basis[9].

In developing its IRP, a utility looks at a broad spectrum of issues that it will be facing in both the near-term and long-term. Typically, an IRP requires the utility to conduct load forecasting as well as demand-side, supply-side, integration, and risk analyses. Such analysis could include:

- National and state policies affecting electric generation, transmission and distribution
- System demand
- System growth (more households or businesses)
- Fossil and renewable energy resources
- Base-load and peaking generation
- Reliability of its generation, transmission, and distribution systems
- Energy efficiency policies and programs
- Strategies to minimize costs for customers
- The environmental impacts of electricity supply and use
- Strategies to enhance energy security
- Local economic benefits

For the most part, Midwestern states require utilities to undertake an IRP process or a similar planning process. As illustrated in **Table 1**, among the 13 states, 8 require traditional integrated resource planning, and 4 require a planning process or processes that are non-traditional but which incorporate energy efficiency within the process[10]. These planning processes vary in some very significant ways, including who must file, how often the plan must be filed, the planning range, what is to be included, and how detailed the plans must be. IRP process requirements are found in states with and without Energy Efficiency Portfolio Standards (EEPS).

Table 1: State Utility Planning Requirements

State	Authorization	Planning Horizon	Frequency	Requirements
Illinois	220 ILCS 5/16-111.5B	5 years	Annually	Effectively an IRP. IOUs have to have energy efficiency factored into their procurement plans (which also include forecasts) that are submitted to the Illinois Power Agency. (see discussion below)
Indiana	170 IAC 4-7-1 through 4-7-9	20 years	Every 2 years	Provides detailed guidelines for IRP process by an electric utility. Addresses efficiency improvements.
Iowa	Iowa Code 476.6(17) Iowa Code 476.6(16)	20 years	Every 5 years	Effectively an IRP. Energy efficiency plans, including required forecasts, to be submitted.
Kansas				The commission does not require utilities to conduct an IRP; however, individual utilities in Kansas can conduct their own internal resource planning processes.
Kentucky	807 KAR 5:058	15 years		Provides detailed guidelines for the IRP including identification of demand-side management programs.
Michigan	MCL 460.6s			The commission shall establish standards for an IRP that shall be filed by an electric utility requesting a certificate of necessity under this section. Addresses efficiency and DSM.
Minnesota	Minnesota Statutes - 216B,2422	15 years	Every 2 years	The resource plan is a set of resource options, including conservation, that a utility could use to meet the service needs of its customers over a forecast period.
Missouri	Electric (4 CSR 240.22 Gas 4 CSR 240.40	20 years	Every 3 years	Provides detailed guidelines for IRP process by an electric utility. Encourages efficiency measures by utilities.
Nebraska	Nebraska Code Section 66-1060	20 years	Every 5 years	Directs public utilities in Nebraska to practice IRP process and include cost options when evaluating alternatives for providing energy supply and managing energy demand in Nebraska.
North Dakota	Settlement Agreement in Case No. PU-07-776	20 years	Every 2 years	Under regulatory decisions and settlement agreements, utilities are required to submit resource plans[11].
Ohio	Ohio PUC Rules 4901:5-5			Effectively an IRP. Long term forecast includes a resource plan, including efficiency and DSM programs.
South Dakota	South Dakota Administrative Rules 20:10:21:02 SDAR 20:10:21:13	10 years	2 years	Requires electric utilities to submit a ten-year plan that includes a statement of efforts made toward "efficient load management."
Wisconsin	Stat. 196.974 (3) (b) Wis. Stat. § 196.491	2 years	7 years	Public Service Commission undertakes a quadrennial planning requirement for energy efficiency and renewables. Strategic Energy Assessment "that evaluates the adequacy and reliability of Wisconsin's current and future electrical capacity and supply[12]."

While Illinois utilities are not required to conduct integrated resource planning, they are required to incorporate energy efficiency into their procurement plans. Each Illinois utility procuring power must provide the Illinois Power Agency (IPA) with an annual assessment of cost-effective energy efficiency programs or measures that could be included in the procurement plan, which must include an energy efficiency potential study for the utility's service territory. Under the Public Utilities Act[13], beginning in 2012, procurement plans are to include an analysis of the impact of building energy codes or appliance standards, as well as an assessment of opportunities to expand energy efficiency programs that have been offered under plans or to implement additional cost-effective energy efficiency programs.

Funding Wisconsin's Public Benefits Fund

Under Act 141, the Wisconsin Public Service Commission was given the authority to require utilities to spend a larger percentage than the specified 1.2% of revenue based on its consideration of a variety of criteria including potential studies, rate impacts, cost-effectiveness of programs, impact on transmission, societal impacts, displaced construction of generation and transmission infrastructure, and cost of fossil fuel imports.

As part of its periodic Quadrennial Review process, the Commission did just that. It ordered in November 2010 a change from the Public Benefits Fund model, under which utilities were required to spend cost-effectively but had no hard goals for achieving energy savings, to an Energy Efficiency Resource Standard (EERS) model under which Focus on Energy (FoE) would have a goal of ramping up electricity savings to a net of 1.5% and natural gas savings to a net of 1.0% of annual customer use by 2014 and continuing at that level thereafter. Along with these goals was a concurrent increase in the funding for FoE from the $120 million budgeted in 2011 to $256 million by 2014. This Order was subject to review by the Joint Committee on Finance (JCF) of the Wisconsin State Legislature. In December 2010, both houses of the legislature had Democratic majorities, and the JCF adopted the Commission's proposed FoE budget by a vote of 11 to 4.

However, in the November, 2010 elections, Republicans gained a majority of seats in both the House and Senate, thereby gaining control of the JCF when the new legislature convened in January 2011. The Republican-led JCF convened in 2011-2012, State Legislature approved along party lines a 2011 budget bill that rolled back the December 2010 action, reducing FoE funding for 2012 and thereafter to the previous 1.2% level, budgeted $100 million for FoE in 2012 (a reduction from the 2011 budget of $120 million), and removed the statutory authority of the Commission to increase utility funding requirements beyond the legislated value.

In the prepared procurement plan, the IPA must include energy efficiency programs and measures it determines are cost effective and the associated annual energy savings goals. The Commission will approve the energy efficiency programs and measures included in the procurement plan, including the annual energy savings goal, if the commission determines it fully captures the potential for all achievable cost-effective energy savings.

Utility Energy Efficiency Policies

Energy efficiency policies have been adopted in a majority of states and in every region of the nation. As **Figure 2** illustrates, Republican and Democratic governors and legislators in over half the U.S. have recognized the importance of energy efficiency and adopted statewide policies to encourage or require utility-focused energy efficiency savings. These policies established the framework for specific spending or energy savings targets for ratepayer-funded energy efficiency programs. In addition, policymakers in other states have adopted policies that encourage efficiency to be incorporated through the utilities' respective planning processes or have provided the mechanism for the state's utility regulatory commission to address efficiency programs on a utility-by-utility or case-by-case basis.

Successful electric and natural gas energy efficiency programs require stable, multi-year funding. In addition, there are significant benefits to be realized for having programs offered to customers of both natural gas and electric utilities as well as across a state rather than on a utility-by-utility basis. This is particularly true if utilities are encouraged or required to work collaboratively and offer similar or complementary portfolios of energy efficiency programs as their neighboring utility or if there is a third-party administrator operating core programs across the state.

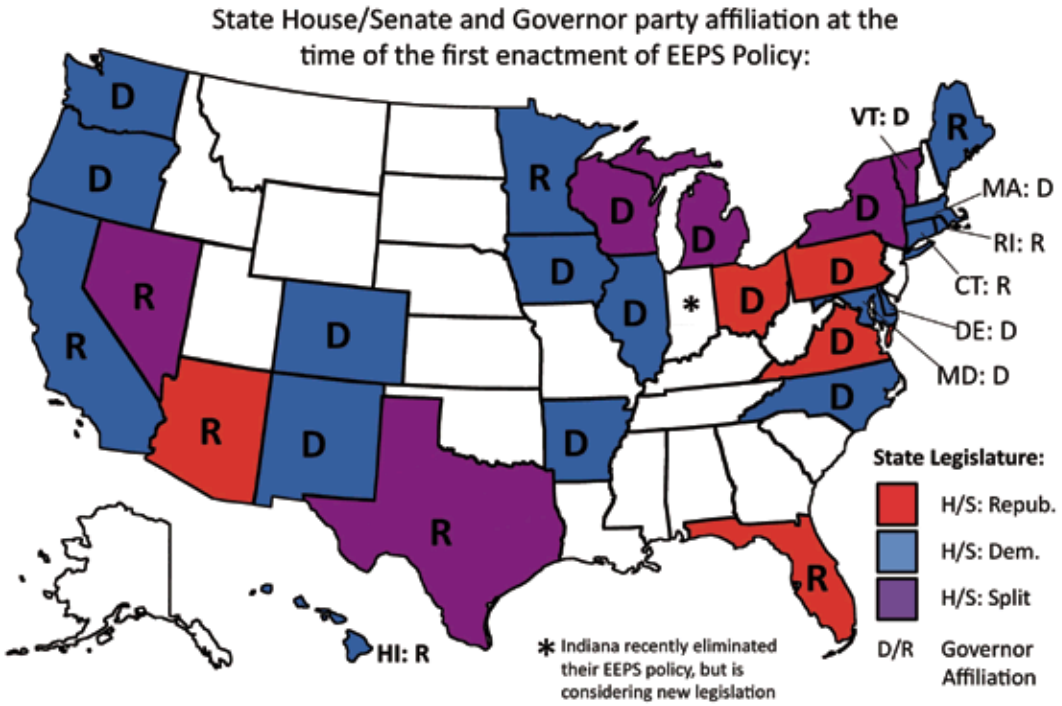

Figure 2: Energy Efficiency is a Bipartisan Issue
Midwest Energy Efficiency Alliance, April 2014

Early State Energy Efficiency Policies

An early trend in energy efficiency funding was to require utilities to fund energy efficiency at an amount equal to a percentage of utility revenue (2% to 3% in leading states). In some cases, these funds were pooled together to create a Public Benefit Fund (PBF). Such a program exists in Wisconsin with the state's Focus on Energy program (FoE). Currently, 107 investor-owned, municipally owned, and cooperative electric utilities and 9 natural gas utilities participate in the FoE program, thereby bringing the benefits of these programs to their customers across the state. According to MEEA's analysis, over the course of 10 years, Wisconsin's utility consumers have saved 6.8 billion kWh of electricity and 277.7 million therms of natural gas through FoE-sponsored energy efficiency programs[14].

While the FoE program is highly regarded and has resulted in significant energy savings, policymakers and utilities in other states have become wary of spending requirements without knowing whether the ratepayers' funds resulted in true and verifiable savings. This led policymakers to look toward creating requirements around actual energy savings, instead of simply spending requirements.

ENERGY EFFICIENCY PORTFOLIO STANDARDS

An Energy Efficiency Portfolio Standard (EEPS) is a state policy that allows utilities to invest in energy efficiency to meet a portion of their customers' energy needs rather than through supplied energy. Participation in an EEPS can be either mandated or voluntary. In some states, the EEPS applies to all utilities within the state, while in others its applicability is limited to those regulated by the state commission or those larger than a particular size. The use of an EEPS to require ratepayer-funded investments in energy efficiency provides a stable funding base for energy efficiency programs and can fuel long-term energy savings within a state.

Twenty-five states nationwide, including six in the Midwest, have adopted some form of an EEPS that require utilities in their state to meet energy savings targets[15]. The EEPS policies in different states do have some differences. Wisconsin's EEPS statute requires a percentage of electricity sales to be spent on efficiency, while Illinois, Iowa, Michigan, Minnesota, and Ohio, adopted an EEPS which mandates a certain percentage of savings.

In Iowa, the approach was different than other Midwestern states with mandated targets. Under the state's statute, rate-regulated utilities are required to submit an assessment of energy usage and potential savings to the Iowa Utilities Board (IUB)[16]. The IUB generally approved the performance goals proposed by the utilities for the period 2009-2013, which in one case varied from the 1.5% scenario. As an example, the IUB set Interstate Power & Light's performance goals at 1.3% of electric energy sales and 1.2% of gas sales by 2013. Utility energy efficiency plans for 2014-2018 were approved by the IUB in December 2013. MidAmerican Energy plans to spend $550 million on energy efficiency programs, an increase of more than $100 million over the previous 5-year plan, and produce savings of 1.1 billion kWh, or 1.19% of annual sales, through 2018.

In addition to the requirement for rate-regulated utilities, the governor signed Senate File 2386 on May 6, 2008, which directed Iowa's non-rate regulated utilities to develop energy efficiency plans that include the utility's "cost effective energy efficiency goal[17];" thereby, extending the efficiency requirements to the state's cooperative and municipal utilities. In doing so, Iowa allows the cooperative and municipal utilities to file these plans jointly, which is done under their respective statewide associations.

Indiana, in 2014, became the first state to repeal an EEPS. In 2009, Indiana Governor Mitch Daniels implemented an EEPS through administrative order. However, during the Indiana legislative session in the first quarter of 2014, a law was passed to eliminate Indiana's EEPS policy. Senate Bill 340 (SB 340) was originally introduced as industrial Opt-Out legislation, but was subsequently amended to eliminate the state's energy efficiency standard, terminate existing energy efficiency programs at the end of the 2014 calendar year, and prevent the Indiana Utility Regulatory Commission from setting future energy efficiency targets. SB 340 passed both chambers and current Indiana Governor Mike Pence allowed this legislation to go in effect without his signature. Governor Pence also asked the state legislators to consider new energy efficiency programs next year when they come back into session. Programs currently underway in Indiana will conclude when the third party administrator contract expires at the end of 2014.

Across the Midwest, policies requiring and promoting ratepayer-funded electric and natural gas energy efficiency programs have seen a significant growth in investment. Investment grew from less than $200 million in 2001 to an estimated $1.64 billion in 2013. Further, investment is expected to continue to grow to an estimated $1.67 billion in 2015. As **Figure 3** illustrates, as states adopted energy efficiency resource standards for electric and gas utilities, the spending levels increased. At the same time, MEEA has also witnessed increased spending for ratepayer-funded efficiency in states without a mandate, such as in Missouri and Kentucky.

Missouri and Kentucky both have voluntary goals but are achieving savings nonetheless. The Missouri Energy Efficiency Investment Act instructed the Missouri Public Service Commission (MPSC) to set annual percentage goals for utility energy efficiency savings against which utility savings through energy efficiency would be measured. They are not, however, firm targets that utilities are mandated to meet but are soft goals to review utility progress and to encourage the acceleration of program delivery.

Timeline of Midwest EE Policies		
1983	MN	Pilot legislation
1990	IA	Initial legislation
1991	MN	CIP requirement adopted
1996	IA	Legislation updated
1999	WI	Public Benefit Fund adopted (electric & gas)
2007	IL	EERS legislation adopted (electric)
2007	MN	EERS legislation adopted (electric & gas)
2008	MI	EERS legislation adopted (electric & gas)
2008	OH	EERS legislation adopted (electric)
2008	IA	EE mandated by Executive Order (electric & gas)
2009	IL	EERS legislation adopted (gas)
2009	IN	EERS implemented by regulatory order
2009	MO	Voluntary EE standard legislation adopted (electric)
2010	WI	EERS implemented by regulatory order
2011	WI	EERS overturned by legislative committee
2014	IN	EERS overturned by legislation

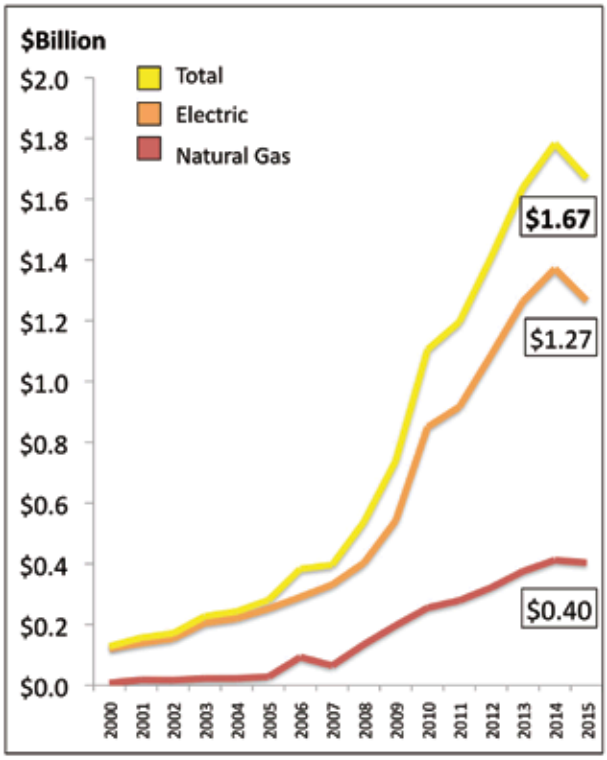

Figure 3: Timeline of Midwest Energy Efficiency Investments and Policies
Midwest Energy Efficiency Alliance, April 2014

Table 2, below, describes the similarities and differences between the statutes of states that have achieved significant savings. This includes information on how the policies were originally enacted, which entities must participate, the targets which must be met, and the schedule to meet these targets. Also included is whether the targets are mandatory or voluntary, any penalties incorporated in the policy, and the current status of cost recovery, lost revenue recovery, and incentives. These concepts will be discussed in more detail in the following pages. Additional reference information on these policies is also detailed in the appendix (**Appendices 1-5**).

Table 2: Statewide Energy Efficiency Policies in the Midwest*

Policy Components	Illinois	Iowa	Kentucky	Michigan	Minnesota	Missouri	Ohio	Wisconsin
Statute or Regulatory Order	Illinois Power Agency Act, Public Act 095-0481	Iowa Code 476.6; Iowa Administrative Code Chapters 35 and 36	Kentucky Demand Side Management Statute of 1994	Clean, Renewable, and Efficient Energy Act (Public Act 295 of 2008)	Next Generation Energy Act of 2007 (Minn. Statutes 2008 §216B.241)	Missouri Energy Efficiency Investment Act (Section 393.1075, RSMo Cum. Supp. 2010)	SB 221 of 2008 (Ohio Revised Code 4928.66)	2005 Wisconsin Act 141
Year Passed/ Most Recent Update	2007/2009	1990/2008	1994/2010	2008	1991/2007	2009	2008	1999/2011
Created By	Legislation	Legislation & Exec. Order	Legislation	Legislation	Legislation	Legislation	Legislation	Regulation & Legislation
Utilities	Electric & Gas	Electric & Gas	Electric & Gas	Electric & Gas	Electric & Gas	Electric	Electric	Electric & Gas
Utility Sector	IOU	IOU, Co-op, Muni	IOU, Co-op	IOU, Co-op, Muni	IOU, Co-op, Muni	IOU	IOU	IOU, Co-op, Muni
Stakeholder Participation	Stakeholder Advisory Group	Iowa Energy Efficiency Collaborative	Utility-specific stakeholder groups	Michigan Energy Optimization Collaborative	1.5% Energy Efficiency Solutions Project	Utility-specific Stakeholder Groups in addition to a statewide stakeholder group	Utility-specific Stakeholder Groups	None (Focus on Energy overseen by PSC)
Electric Target	2.0% in 2015	IUB targeted a goal of 1.5%, but actual goals set utility-by-utility	(Voluntary)	1.0% in 2012	1.5% in 2010**	(Voluntary)	2.0% in 2019	1.2% of Gross Utility Revenues
Gas Target	1.5% in 2019	IUB targeted a goal of 1.5%, but actual goals set utility-by-utility	(Voluntary)	0.75% in 2012	1.5% in 2012**	(Voluntary)	NA	1.2% of Gross Utility Revenues
Penalties for Non-compliance	Fine of $100,000/day for failing to file a plan; Utility will make a contribution to LIHEAP program for failing to meet standard	No clear and immediate consequences for non-compliance	(Voluntary)	Allows the Attorney General or a member of a co-op to bring a civil action for non-compliance	No monetary penalties for non-compliance; Commission can withhold approval for future Certificate of Need to build new facility	(Voluntary)	PUCO has authority to order forfeiture in cases of non-compliance and under-compliance	Penalty exists for Focus on Energy administrator if he or she does not meet goals
Cost Recovery	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lost Revenues	No revenue recovery in legislation; Decoupling approved on a case-by-case basis	Decoupling; Allowed on a case-by-case basis for gas utilities	Lost revenue recovery allowed by legislation on approved energy efficiency programs	Decoupling; Approved on a case by case basis	Decoupling; Pilots approved on a case-by-case basis	Lost revenue recovery allowed by legislation; Mechanism approved case-by-case	Lost revenue recovery and decoupling; Approved on a case-by-case basis	Approved on a case-by-case basis
Incentives / Shared Benefits	No	No	Yes	Yes	Yes	Mechanism approved on a case-by-case basis	Approved on a case-by-case basis	Approved on a case-by-case basis

* Indiana recently decided to end its EEPS; current programs will conclude when contracts end at the end of 2014

**Regulatory body in MN has authority to lower targets and has lowered to 1%

Targets & Ramp-up

For those states with energy savings requirements, each has established a target for energy savings for its electric and/or natural gas utilities. Energy efficiency targets are important for a variety of reasons. First, they provide a benchmark against which policymakers and the public can measure a utility's performance. These benchmarks can also be used to hold utilities accountable as well as to determine any incentives the utilities may receive for meeting or exceeding that stated target. Second, utilities operate in a long-term forecasting and planning environment. Energy efficiency targets enable utilities to plan for the energy efficiency savings just as they plan for system growth. If every utility in a state needs to meet the same target, then it levels the playing field by ensuring that the utilities are playing by the same ground rules.

The targets for electric utilities range from 1% to 2% of the utility's energy sales. Similarly, for natural gas utilities, targets range from 0.75% to 1.5% of sales. These energy savings targets fall within the mainstream of targets that have been adopted across the nation.

A ramp-up in the energy efficiency targets has proven to be an effective way to get utility efficiency programs up and running. Every Midwestern State with a mandatory standard has used some form of ramp-up. (**Appendix 1** provides more detailed information on each state's ramp-up schedule.) This is important for utilities, regulators, energy efficiency professionals, and consumers.

It is unrealistic to expect utilities to be able to meet dramatically higher efficiency targets immediately. A ramp-up also allows the utility to roll-out programs, as well as marketing and education campaigns, over time and to build its portfolio of programs. It may take some time to build the infrastructure within the utility to manage a portfolio of energy efficiency programs and to educate trade allies on the details of program participation. Similarly, it may take time for utility customers to learn about the benefits of energy efficiency investments in their homes and businesses and to implement whatever cost-effective measures they deem prudent.

A ramp-up assists the utility in its planning process. It gives the utilities an attainable target on which they can build future growth. A ramp-up will also provide regulators with the time to evaluate and measure burgeoning programs and identify any problems with the programs or the reporting process.

Penalties

Most Midwestern states have been reluctant to adopt strict penalties for either under-compliance or non-compliance with utility energy efficiency savings targets. Where authority is granted for such penalties, it is generally given to the regulatory commission. It is important to understand the reasons driving under-compliance or non-compliance to determine if it is related to program administration or some other reason such as an economic downturn. In Ohio, the Public Utilities Commission of Ohio (PUCO) can order forfeiture, and in Minnesota the Michigan, the attorney general or a co-op member may sue the utility for non-compliance. Illinois is the only state in the region with strict, daily fines written into the statute. The same law stipulates that if a utility fails to meeting their targets, its programs can be taken away.

PROGRAM FUNDING

There are three components to cost recovery for utility energy efficiency programs: program administration cost recovery, recovery of lost revenues, and incentive payments. Together, they are referred to as the three-legged stool of cost recovery. A summary of each component follows with a set of tables that describe their use in state energy efficiency policies in the Midwest.

Cost Recovery

The ability of a utility to recoup the costs it incurs in developing, promoting, and delivering programs is critical to the success of energy efficiency programs, regardless of whether utilities are mandated to have such programs or not. Just as utilities are able to recoup the costs incurred for generation, transmission, and distribution infrastructure, they need to be able to recover their costs for energy efficiency and demand-side programs.

State regulatory commissions and utility boards across the Midwest recognize the importance of utility cost recovery mechanisms for utility investments in energy efficiency. Today, some form of cost recovery exists in all 13 Midwestern states (see **Appendix 2** for detailed information on each state's Cost Recovery Mechanism). Some states have adopted automatic adjustment mechanisms while others approach this issue on a case-by-case basis. In addition, states with a cap on the level of utility funding under their EEPS do not allow recovery beyond the spending ceiling. While the approaches may be different, the basic elements of cost recovery include the following:

- Evaluation of prudent and reasonable program expenses eligible for recovery
- Definition of the recovery period limited to the life of the program
- Itemization of capital and non-capital program costs
- An annual reconciliation of amounts recovered versus actual program costs

Lost Revenue Recovery

One of the barriers facing utilities when it comes to investing in energy efficiency is the negative effect it has on their revenue streams. Under the traditional regulatory model, utilities can only increase their revenues by selling more of their product: electricity or natural gas. This is what is known as a throughput incentive: the more of a product that is sold, the more revenue a utility earns. Energy efficiency policies ask utilities to invest in programs that result in decreasing sales (or at a minimum, slower growth). As such, they are not only being asked to sell less of their product, they are being told to invest in programs that will decrease their sales now and into the future. At the same time, for investor-owned utilities, there is stockholder pressure to increase revenues and profits. This places the utility in an untenable position of having to please both the policymakers and the stockholders and, without a "lost revenue recovery mechanism," they are unlikely to invest in energy efficiency without being mandated to by legislators or regulators.

The basic premise behind a lost revenue recovery mechanism is that the utility will earn a return on its investment in energy efficiency just as it would on its investment into generation, transmission, or distribution facilities. One tool that has been adopted to address this disincentive is "decoupling." An effective decoupling mechanism maintains the current utility rate design while separating sales from revenues. It accomplishes this through the use of a fixed rate plus a volumetric (dollars per kWh) energy charge. At the end of the year, the commission will conduct a true-up in which it compares the utility's actual revenues against its authorized revenue requirements and then adjusts rates up or down accordingly to ensure that the authorized revenue requirements are met.

According to the Regulatory Assistance Project (RAP), "decoupling has been adopted for at least one electric or natural gas utility in 30 states and is under consideration in another 12 states[18]." In the Midwest, 4 state commissions have the authority to approve decoupling mechanisms for natural gas and electric utilities, while 5 others have the authority only for natural gas utilities, though not all commissions have approved pilot projects. For example, Ohio allows utilities to recover "appropriate" lost distribution revenues. See **Figure 4** for a map of Lost Revenue Recovery in the MEEA Region (**Appendix 3** lists detailed description of state lost revenue recovery policies).

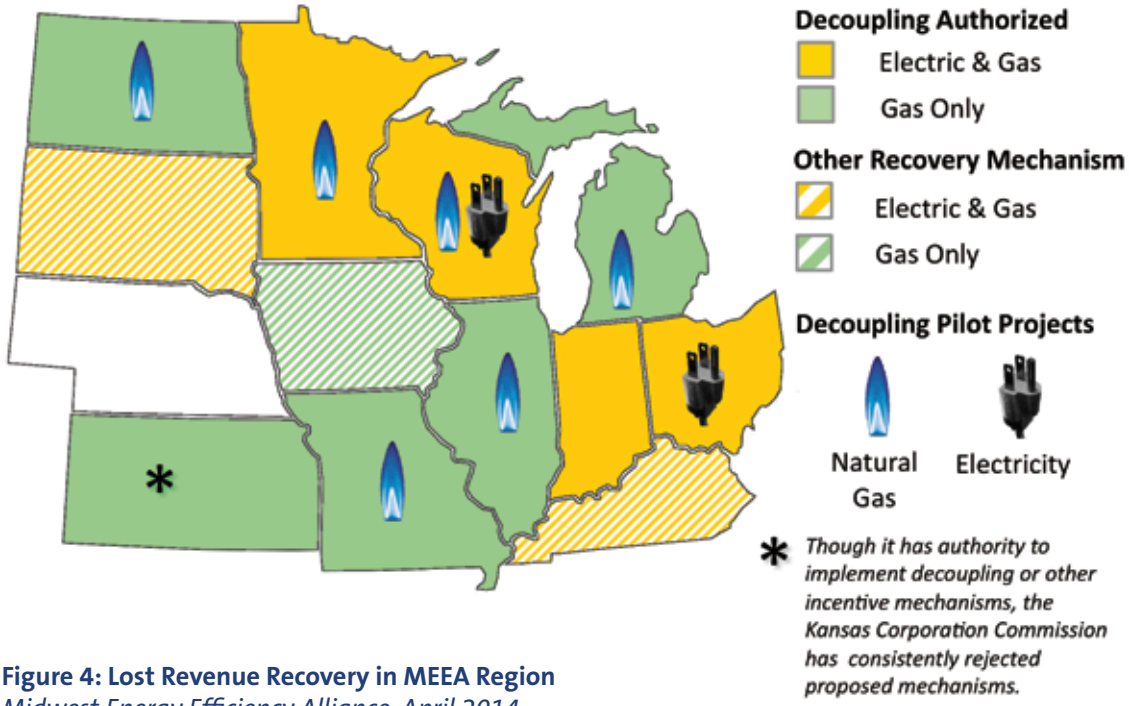

Figure 4: Lost Revenue Recovery in MEEA Region
Midwest Energy Efficiency Alliance, April 2014

Utility Incentives

In addition to cost and revenue recovery, the "third leg" of the energy efficiency stool is represented by utility incentives. By creating incentive mechanisms, policymakers are sending a strong economic message to utilities and their stockholders: invest in energy efficiency, and you will not only be made whole, you will be rewarded. Incentives have been utilized in states with an EEPS as well as those without a mandated target.

According to the American Council for an Energy-Efficient Economy (ACEEE), performance incentives have been adopted by 36 states for electric utilities and 26 states for natural gas utilities[19]. In the Midwest, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, South Dakota, and Wisconsin adopted a performance incentive mechanism for both their electric and gas utilities. States have adopted a variety of approaches. Some states allow the utilities to propose the incentive; while others are more prescriptive in their approach (**Appendix 4** lists utility incentive mechanisms in more detail).

Ameren Missouri Regulatory Model Holds Promise

Since the passage of the Missouri Energy Efficiency Investment Act (MEEIA), Ameren Missouri has developed and implemented the largest portfolio of energy efficiency programs in Missouri's history. The programs are not only beneficial to customers, the environment, and the state of Missouri, but can also be financially beneficial to Ameren Missouri if performance goals are met. MEEIA makes it the policy of the state to value demand-side investments equal to traditional investments in supply and delivery infrastructure with a goal of achieving all cost-effective demand-side savings.

In January 2012, Ameren Missouri filed its three-year MEEIA plan, which was approved through a unanimous Stipulation and Agreement by Ameren Missouri's regulatory stakeholder group. The approved plan provides contemporaneous program cost recovery, throughput-disincentive relief through shared net benefits, and a performance incentive tied to both savings targets and net benefits.

As a result of this regulatory structure and its integrated resource planning, Ameren Missouri has made energy efficiency a priority as a low-cost resource. The energy efficiency plan outlined savings targets to begin at 0.6% in 2013 and increase to 0.8% of its annual load by 2015. To achieve these savings, Ameren Missouri plans to invest approximately $150 million over the three year cycle on cost-effective energy efficiency programs that help residential and business customers better manage their energy consumption and costs.

Through the first year (2013) of the three year cycle, Ameren Missouri has achieved gross savings of 337,000 MWh and net benefits of more than $141,000,000. Programs for residential customers include rebates for improvements made to lighting, heating and cooling, refrigerator and appliance recycling, home performance, and new home construction. Commercial, institutional and large industrial customers can receive cash incentives for building retrofits, retro-commissioning, and energy-efficient design and technology for new construction. For more information and a complete list of programs, visit Ameren Missouri at ActOnEnergy.com.

After one program year of a three year cycle, Ameren Missouri's regulatory structure looks promising in appropriately balancing the interests of customers, shareholders, and environmental stakeholders.

PROGRAM DESIGN

Utility energy efficiency programs vary in design in order to fulfill a wide variety of ratepayer needs, including residential, commercial, and industrial customers. Stakeholder participation in the design of utility programs offers a platform for interested parties to develop consensus around elements of program design. While most states across the Midwest allow the utilities to manage their energy efficiency programs, some states have opted to use a Third Party Administrator (TPA) to implement a portfolio of energy efficiency programs across the state.

Utility Program Design

Utilities serve a wide variety of customer needs across the residential, commercial, and industrial sectors, and the segments that comprise these sectors. To meet specific end-user needs within each segment, utilities operate a portfolio of programs.

Utility energy efficiency programs targeted at residential customers include those that provide: home energy audits; whole home energy efficiency retrofits; refrigerator and freezer recycling; lighting enhancements; rebates for high efficiency appliances, furnaces, water heaters, insulation, and windows; HVAC maintenance; behavior change/ consumer information initiatives; pool pump and timer upgrades; shade tree plantings; financing; and low-income weatherization assistance.

Utility energy efficiency efforts targeted at commercial and industrial (C&I) customers often take the form of "key accounts" programs. Some of these programs offer guidance and strategies to optimize the energy efficiency of commercial and industrial building envelopes, while others are focused on improving the efficiency of operating equipment such as lighting, pumps and motors, refrigeration and kitchen equipment, and mechanical HVAC systems.

Most utilities also offer some form of custom solutions program to meet the needs of a particular commercial or industrial customer. These programs entail highly customized elements focused on improving the energy efficiency of a unique commercial structure or operation or an industrial process or series of processes. And today, most utilities also support these customers by offering building operator certification programs within their service territories.

See www.midwestindustrial.org for a more complete listing of industrial programs offered by many utilities in each state in the Midwest.

Not every utility will offer the same set of programs within its portfolio. Rather, program selection is determined by specific customer needs and by strategies designed to produce maximum feasible energy efficiency savings within their service territories.

Lighting Utility Midwest Exchange Network (Midwest LUMEN)

Across all sectors, the nation consumes around 700 TWh of electricity annually to light homes and businesses – this accounts for roughly 19% of total electricity use. According to the U.S. Department of Energy, the adoption of solid-state lighting technologies has the potential to cut projected consumption 46% annually by 2030. At today's energy prices, LED adoption will amount to $250 billion in savings over the next 20 years, with $30 billion saved in 2030 alone.

Realizing the need for region specific information on innovative program approaches and energy efficient technologies, MEEA initiated a multi-state, multi-sponsor network on solid-state lighting for energy efficiency program administrators, planners, and others working to utilize SSL technologies to reach energy efficiency targets. Lighting Utility Midwest Exchange Network (Midwest LUMEN) provides a regional network for utility advanced lighting program professionals to share best practices, processes, and programs, as well as information and resources to make more informed decisions about the advantages of energy efficient technologies. Following a successful launch in the summer of 2013, Midwest LUMEN is growing and is on track to meet tri-annually throughout the Midwest and provide a wealth of benefits to its members and partners throughout the Midwest.

Stakeholder Participation

Just as stakeholder participation is valuable in the development of energy efficiency policies at the state level, so too is it valuable in providing input at the programmatic level. The goal of the stakeholder group is to bring together a cross-section of interested parties around a particular set of issues with the objective of developing consensus for a proposed solution. The group may include utility representatives, regulators, consumer advocates, environmental groups, customers, and consultants. In the Midwest, 8 states convene formal stakeholder groups to address energy efficiency. There are differences across the region in the membership and scope of the stakeholder groups; some were created by legislation, while others are efforts of government agencies. Some states have used the stakeholder group to either examine efficiency policies or to get efficiency efforts progressing in their state and then have discontinued them. Other states have adopted long-term stakeholder approaches under which the stakeholder group meets regularly over a longer or indefinite period of time. Some are convened on a statewide basis, while others are utility-specific.

In general, MEEA believes that a statewide collaborative is more beneficial to all of the participants than utility-specific efforts for a variety of reasons. First, a statewide effort allows for better communication and sharing of information across a broader spectrum of interested parties. Utilities can learn from one another, share common challenges with regulators and other stakeholders, and use the group to identify potential solutions. It is quite likely that if one utility

has identified an issue, that it will affect others as well. Second, it is a more efficient use of the time and resources of government agencies, advocates, and others involved in the stakeholder process. With a statewide stakeholder group, participants can better focus their resources, rather than having to spread their resources covering multiple utility-specific groups. Third, a statewide process allows for better reporting by ensuring that information is reported consistently across the board. More detailed information on the structural components and objectives of the stakeholder efforts in the Midwest can be found in **Appendix 5**.

Regardless of the structure or objective of the stakeholder group, there are several valuable qualities that should be considered when formulating a stakeholder group. These include:

- Have a broad group of knowledgeable stakeholders representing a variety of interests
- Be open to the public
- Have clearly defined objectives
- Be managed by an independent facilitator
- Have regularly scheduled meetings with an agenda
- Have open communication and information sharing
- Have consistent reporting mechanisms

A well run stakeholder process will work to overcome differences among the parties, while moving efficiency forward with soundly developed programs, adequate reporting, and solid practices for evaluation, measurement, and verification.

State Program Design

While most states allow their utilities to manage their own efficiency programs, some states have opted to use a Third Party Administrator (TPA) to run core energy efficiency programs across the state. Like utility-operated energy efficiency programs, the TPA's programs are funded by the ratepayers. A TPA provides a portfolio of energy efficiency programs across the state, thereby creating a greater level of consistency and uniformity for all program participants. The TPA can be used as a tool to overcome the utilities' reluctance to offer energy efficiency programs to their customers. In addition, the TPA can play a critical role for smaller utilities, primarily cooperatives and municipal utilities that may not have the expertise or personnel to cost-effectively run energy efficiency programs.

While Vermont, New York, and Wisconsin each have a TPA that is operational and has been successful in delivering energy efficiency programs across their respective states, Indiana had been in the process of selecting a TPA for years four, five, and six of their demand-side management programs. However, this process was put on hold during the SB 340 legislative debate and will sunset at the end of 2014 as a result of its passage. The TPA typically manages a portfolio of programs that are marketed to customers across the state. The types of programs operated by the TPA include:

Residential Programs

- Home Performance with Energy Star
- Residential lighting
- Home energy audit
- Appliance recycling
- Multifamily housing
- HVAC
- Low income weatherization
- Educational

Commercial & Industrial Programs

- High efficiency motors and pumps
- HVAC equipment
- Agricultural
- Commercial refrigeration
- Programs aimed at specific market segments (restaurants, big box stores, etc.)

EVALUATION, MEASUREMENT & VERIFICATION OF ENERGY SAVINGS

As public policy has shifted from simply spending ratepayer funds on energy efficiency programs to establishing targets for energy savings, the accurate evaluation, measurement, and verification (EM&V) of these savings has taken on a more important role. Policymakers and utilities want to ensure that (1) the utilities are actually meeting the energy efficiency targets, (2) that ratepayer funds are being judiciously spent, and (3) that the energy efficiency programs are cost-effective.

Lawrence Berkeley National Laboratory (LBNL) has defined evaluation as "the performance of studies and activities aimed at determining the effects of an energy efficiency program or portfolio[20]." In the same report, LBNL defined measurement and verification as "data collection, monitoring, and analysis associated with the calculation of gross energy and demand savings from individual sites or projects[21]." When properly done, EM&V provides policymakers and utilities with the necessary tools to ensure that energy savings are realized and achieved in a cost-effective manner.

Consistent measurement and reporting is a logical and necessary part of any energy efficiency program or portfolio. Policymakers need effective evaluation, measurement, and verification for both transparency and credibility purposes. Evaluation is important for a variety of reasons, including that it:

- Allows policymakers to ensure that ratepayer funds are being spent prudently
- Helps highlight that energy efficiency is a resource that can be counted on now and in the future
- Demonstrates the ability to rely on and plan energy efficiency as part of the utility's broader resources
- Enables policymakers and utilities to show consistency as well as create a common denominator across utilities and states
- Serves as the basis for translating energy savings into air pollution reduction

Because policymakers need to ensure that the EM&V is unbiased and accurate, the analysis is nearly always conducted by an independent consultant, and the results are submitted to the appropriate regulatory body. In general, the expense of conducting the EM&V analysis is incorporated into the program costs and is therefore borne by the ratepayer. Typically, the cost of performing a thorough EM&V analysis is between 3% and 5% of the program costs.

One of the current problems facing regulators and utilities is that different methodologies are used by the independent consultants to conduct the EM&V analysis. This makes it difficult to compare programs among utilities within a state and across a region. Regional transmission system operators have erred on the side of caution when allowing efficiency to be bid into the wholesale capacity markets, if allowed at all, due to uncertainty related to the reliability of the energy savings.

In the Northeast and Mid-Atlantic, policymakers, utilities, and industry stakeholders are realizing the benefits of addressing EM&V on a regional basis. By doing so, they are achieving a greater level of consistency across the region, thereby making it possible to bid energy efficiency into the forward capacity markets operated by the independent system operators. The Northeast Energy Efficiency Partnerships (NEEP) convened a regional EM&V Forum, bringing together interested stakeholders "to support the development and use of consistent protocols to evaluate, measure, verify, and report the savings, costs, and emission impacts of energy efficiency and other demand-side resources[22]." The success of NEEP's EM&V Forum is demonstrated by the Regional Transmission Organizations (NY ISO and ISO New England) allowing energy efficiency to be bid into the market.

Building on the efforts in the Northeast, the U.S. Department of Energy has launched the Uniform Methods Project to "establish easy-to-follow protocols based on commonly accepted engineering and statistical methods for determining gross savings for a core set of commonly deployed energy efficiency measures[23]." In addition, DOE is also addressing EM&V protocols through the State and Local Energy Efficiency Action Network's (SEE Action) Evaluation, Measurement, and Verification Working Group. The Working Group is addressing the credibility of the data, the timing of results, and the costs of the analysis. Both of these initiatives have representatives from the Midwest. For those state policymakers who are unable to actively participate in either initiative, it is important that at a minimum they follow the developments of these organizations and discuss the potential implications within their jurisdiction.

Cost-Effectiveness Tests

When evaluating energy efficiency programs and portfolios, regulators and utilities want to ensure that the activities are cost-effective. In doing so, they compare the relative performance of an energy efficiency investment to the cost of energy produced and delivered in the absence of such an investment. There are five tests used in evaluating the cost-effectiveness of energy efficiency programs which originated in California's 1983 manual, Standard Practice for Cost-Benefit Analysis of Conservation and Load Management Programs. The tests introduced in that manual, with some updates, are still used today for determining cost-effectiveness of energy efficiency at the measure, project, program, and portfolio level[24].

The total resource cost test (TRC) is the most commonly used benefit-cost test for determining whether a program is worth pursuing. The TRC is the primary test in 9 of the 13 Midwestern states. However, the test's requirement to quantify non-energy benefits has caused some to suggest[25] that the program administrator cost test (PACT) would be more appropriate for the purpose of evaluating a specific program. PACT is the primary test in Michigan. **Table 3** provides the benefits, costs, strengths, and weaknesses of each test and **Table** 4 identifies the cost effectiveness tests that are utilized in the Midwest.

Table 3: Definitions and Descriptions of Benefit-Cost Tests

Name	Question This Test Seeks to Answer	Benefits	Costs	Strengths	Weaknesses
Total Resource Cost Test (TRC)	Will the total costs of energy in the utility service territory decrease?	Energy-related costs avoided by the utility; Capacity-related costs avoided by the utility, including generation, transmission, and distribution; Additional resource savings (i.e., gas and water if utility is electric); Monetized environmental and non-energy benefits; Applicable tax credits[26].	Program overhead costs; Program installation costs; Incremental measure costs (whether paid by the customer or utility)[27].	Determining whether a program is worthwhile; identifying programs that lower total system cost[28].	Requires quantification of "all" non-energy benefits, which may be infeasible in practice and are thus near-universally ignored in TRC calculations[29].
Program Administrator Cost Test (PACT) **Utility Cost Test (UCT)** **Administrator Cost Test** **Utility Resource Cost Test (URCT);**	Will the cost to the utility/ program administrator increase?	Energy-related costs avoided by the utility; Capacity-related costs avoided by the utility, including generation, transmission, and distribution[30].	Program overhead costs; Utility/ program administrator incentive costs; Utility/ program administrator installation costs[31].	Determining appropriate level of incentives; No need to quantify non-energy benefits[32].	Considers only administrative costs[33].
Participant Cost Test (PCT) **Participant Test**	Will the participants benefit over the measure life? (Benefits and costs from the customer's perspective of the customer installing the measure)	Incentive payments; Bill savings; Applicable tax credits or incentives[34].	Incremental equipment costs; Incremental installation costs[35].	Evaluating program design and program marketing; Setting program contribution levels[36].	Not useful for determining whether the program is worthwhile[37].
Societal Cost Test (SCT) **Societal Test**	Is the utility, state, or nation better off as a whole?	Energy-related costs avoided by the utility; Capacity-related costs avoided by the utility, including generation, transmission, and distribution; Additional resource savings (i.e., gas and water if utility is electric); Non-monetized benefits (and costs) such as cleaner air or health impacts[38].	Program overhead costs; Program installation costs; Incremental measure costs (whether paid by the customer or utility)[39].	Broader public-interest perspective than TRC test[40].	The TRC test requires quantification of non-energy benefits, which may be infeasible[41].
Rate Impact Measure (RIM) **Non-Participant Test**	Will utility rates increase?	Energy-related costs a, and distribution[42].	Program overhead costs; Utility/ program administrator incentive costs; Utility/ program administrator installation costs; Lost revenue due to reduced energy bills[43].	Assessing average costs to non-participants; serving as a warning of possible cost-shifting impacts[44].	Can be used erroneously to reject programs with zero program cost; Ignores benefits to non-participants; Should be used in conjunction with resource planning as a comparison with alternative price impacts[45].

Table 4: Use of Benefit-Cost Testing*[46]

State	Uses tests?	TRC [1]	PACT [2]	PCT [3]	SCT [4]	RIM [5]	Primary Test
Illinois	Yes	●					TRC
Indiana	Yes	●	●	●		●	TRC
Iowa	Yes		●	●	●	●	SCT
Kansas	Yes	●	●	●		●	TRC
Kentucky	Yes	●	●	●		●	TRC
Michigan	Yes	●	●	●	●	●	PACT
Minnesota	Yes		●	●	●	●	SCT
Missouri	Yes	●		●	●	●	TRC
Nebraska	Yes	●	●	●			TRC
Ohio	Yes	●	●				TRC
South Dakota	Yes	●				●	TRC
Wisconsin	Yes	●	●		●		TRC

[1] Total Resource Cost Test
[2] Program Administrator Cost Test
[3] Participant Cost Test
[4] Societal Cost Test
[5] Rate Impact Measure
* No program evaluation requirements have been identified for North Dakota

While evaluation and measurement is performed on a program-by-program basis, reporting this information to the state can provide numerous benefits. These include: the measurement of annual savings from both gas and electric utilities, the accounting of program expenditures and of the cost of saved energy, the measurement of avoided emissions based on the utilities' generation portfolios, and the ability for the state to quantify local job creation.

It is important that policymakers understand each of the tests, what they measure, and their relative strengths and weaknesses. As **Table 4** illustrates, each test accounts for different benefits and costs. A recent report commissioned by the National Home Performance Council addresses the "Best Practices" for ensuring that energy efficiency is appropriately valued and accounted for, thereby ensuring that cost-effective energy efficiency measures are adopted[47]. See **Appendix 6** for a summary of which benefits and costs are accounted for by each test.

Net & Gross Accounting

With ratepayer-funded energy efficiency programs, policymakers need to ensure that the ratepayer funds are achieving their desired goals and that the energy savings are being properly attributed to the utility programs. Doing so requires policymakers to decide whether to require utilities to report gross savings or net savings.

Gross savings are the change in demand that is attributed to the energy efficiency programs for actions taken by customers regardless of whether the program influenced them to take the actions. Net savings are the subset of the gross savings directly attributable to the utility program. In other words, without the utility program the customer would not have taken the action. Ideally, calculating net savings accounts for both freeriders (resulting in a reduction in savings) and spillover (resulting in an increase in savings).

Two issues that have been identified in numerous studies and by policymakers are freeridership and spillover with respect to energy efficiency programs. As Haeri and Khawaja point out in their piece, *The Trouble with Freeriders: the debate about freeridership in energy efficiency isn't wrong, but it is wrongheaded*, freeriders have long been studied by researchers and policymakers at the intersection of social science and public policy[48]. Freeriders are those customers who benefit from energy efficiency programs, even though they would have taken the energy saving initiative without the utility incentive. For example, a freerider is a customer who purchases a CFL because of the environmental benefits rather than the utility price buy-down. Another example would be a customer who purchases a new ENERGY STAR product because his/her old one no longer works and buys the most efficient unit, regardless of price. In both cases, the individual benefits from the utility energy efficiency program even though he/she would have made these purchases for reasons other than the utility incentive. Conversely, spillover refers to those customers whose purchase of an energy efficient technology is related to the promotion but is never counted. For example, they purchase a product because of the display which includes a rebate discount, but fail to mail-in the rebate[49].

In both the freerider and spillover cases, the issues involved relate to the attribution of energy savings to the utility's energy efficiency program. In the case of the freerider, energy savings are claimed that would have been made without the utility program; and in the case of the spillover, energy savings are not being claimed that should be claimed. As such, freeriders would reduce the actual savings the utility can claim while spillover would increase the actual savings the utility can claim. The net of freeriders and spillover are used to determine net savings.

Measuring these savings is complex and has been the subject of numerous reports by organizations such as the Oak Ridge National Laboratory, the Electric Power Research Institute, and various consulting firms. As **Table 5** illustrates, the Midwestern states are evenly divided between gross and net savings, with Indiana and Wisconsin using both measures. Selecting a net or gross savings approach is a key question that states face, but it is also hotly debated. What is important is that the energy savings are methodically and accurately measured using one of the methodologies, that policymakers understand what is being measured as well as the differences between the two, and that savings are accurately attributed and communicated. At MEEA's 2012 annual membership meeting, an expert panel was held to discuss perspectives, differences, benefits, and challenges to using a net savings or gross savings approach. MEEA published these perspectives in a white paper in 2013[50].

STATEWIDE ENERGY REPORTS

Table 5: Gross or Net Reporting[51]

State	Gross or Net	Measures Freeriders	Measures Spillover
Illinois	Net	Yes	Planned
Indiana	Gross	Yes	Planned
Iowa	Both	No	No
Kansas	Gross	No	No
Kentucky	Net	Yes	Yes
Michigan	Both	Yes	Yes
Minnesota	Gross	No	No
Missouri	Both	Yes	Yes
Ohio	Gross	No	No
South Dakota	Net	Yes	Yes
Wisconsin	Both	Yes	Yes

Notes:
* Nebraska reporting varies per utility
** No energy efficiency program reporting has been identified for North Dakota.

Several states in the Midwest publish annual reports on the energy efficiency programs conducted in their state. This information can be extremely useful in determining the cumulative impacts of energy efficiency programs in reducing energy use, increasing monetary savings, and in stimulating economic development.

Wisconsin's Focus on Energy program releases numerous evaluation reports on its energy efficiency programs[52]. These numbers shed light on the positive impact the programs are having in the state. In 2012, Focus on Energy reported that in the first year of the study period alone, these programs created over 1,400 job-years and $178 million in value added[53].

Michigan also provides annual reports on its energy efficiency programs. The state's Energy Efficiency Portfolio Standard-enabling legislation, Public Act 295 of 2008, requires that the Michigan Public Service Commission submit a report on its efforts to implement energy conservation and energy efficiency programs and make recommendations for energy conservation legislation.

Michigan's report on 2012 energy efficiency program activities highlighted the fact that Michigan has exceeded its energy savings targets ever year its programs have been in place[54]. For every dollar spent on energy efficiency programs in Michigan in 2012, customers will receive benefits of more than $4. Further, energy efficiency resources were obtained at less than a third the cost of new generation.

EFFICIENCY, CUSTOMER CHOICE, AND MUNICIPAL AGGREGATION

Historically, electric and natural gas utilities were viewed as natural monopolies that needed to be regulated by the state. In exchange for a reasonable return on its investment, the utility was obligated to serve every customer within its service territory. The 1990s witnessed the move towards customer choice in the electric utility industry. In the Midwest, Illinois, Michigan, and Ohio have made the move towards customer choice, with Illinois and Ohio also allowing for municipal aggregation. Municipal aggregation legislation allows for cities and counties to aggregate the consumer demand and buying power and to contract with an alternative energy supplier to meet demand.

In general, the incumbent utility responsible for the delivery of natural gas or electricity is still responsible for providing energy efficiency services to all the customers in its service territory. In Ohio, the Northeast Ohio Public Energy Council (NOPEC), the aggregator on behalf of 174 communities, has contracted with FirstEnergy Solutions Corporation to deliver the Powering Our Communities (POC) program. This program has resulted in $16 million of grants distributed to support 330 energy efficiency projects among NOPEC's member communities. In Illinois, the Citizens Utility Board (CUB) has urged residents of communities considering aggregation to "find out what energy efficiency measures, if any, your community plans to include in its contract with an alternative supplier[55]."

PUBLIC FACILITY ENERGY EFFICIENCY

Beyond simply enacting legislation and regulations to advance energy efficiency within the state, state and local governments can provide vision and leadership for their constituents.

According to a recent report by The Associated Press-National Opinion Research Center's Center for Public Affairs Research, more than 80% of respondents feel that state and local governments play a significant role in increasing energy savings in the United States[56]. Governments demonstrate the value of energy efficiency and reduce the amount of the state's revenue that is spent on energy purchases by having an agency dedicated to energy policies, setting goals for reducing energy use by state agencies, establishing high standards for the efficiency of state-owned and operated buildings, and implementing policies that promote energy efficiency in public-service buildings. As **Table 6** illustrates, every Midwestern state has an energy office and allows for performance contracting to save energy. In addition, many states have adopted other policies aimed at managing the state's public facility energy consumption as well as encouraging others to follow its lead.

Table 6: State Public Facility Energy Efficiency Policies

State	State Energy Office	State Energy Plan or Vision[57]	State Agency Energy Reduction Requirement	Energy Efficiency in New State Buildings	Recognition or Award Program	Performance Contracting	Public Building Energy Benchmarking
Illinois	●	●	●	●	●	●	● **
Indiana	●	●	●	●	●	●	
Iowa	●				●	●	● *
Kansas	●				●	●	
Kentucky	●	●	●	●	●	●	
Michigan	●	●	●	●	●	●	● +
Minnesota	●	●	●	●	●	●	●
Missouri	●		●	●	●	●	●
Nebraska	●	●				●	
North Dakota	●	●				●	
Ohio	●	●		●		●	●
South Dakota	●	●		●		●	
Wisconsin	●		●	●		●	●

* indicates a state pilot is underway for state owned/operated building benchmarking.
** indicates a state pilot is complete for state owned/operated building benchmarking.
+ indicates the state is considering building energy benchmarking for state owned/operated buildings.

STATE ENERGY REDUCTION PROGRAMS

Saving energy in state facilities reduces expenditures of tax dollars and allows policymakers to use those dollars for other services, such as education, police, or social services. As such, policymakers often see the benefit of reducing the state's energy consumption in existing buildings through requiring energy audits, state reduction goals, benchmarking, and performance contracting. Several states in the Midwest have also adopted energy efficiency standards or requirements for new government buildings, including adhering to third party building certifications or participating in the U.S. Department of Energy's Better Building Challenge.

Audits
Energy audits help building owners determine how a building is losing energy and how it can be made more efficient[58]. In some states, agencies were directed to undertake comprehensive energy audits and perform retrofits. Iowa, for example, underwent a thorough energy audit and retrofit program that covered energy use and technologies and strategies for reducing energy consumption by state agencies. Similarly, Ohio required all state agencies to conduct energy audits by 2007.

Reduction Goals
One tool states use to drive efficiency savings is a goal for state agencies to use less energy over time. These goals are structured to reduce energy usage relative to a baseline measurement of current energy use. Typically, these goals are established as multi-year energy reduction targets. For example, in 2007, the Illinois legislature passed legislation that directed all state agencies to reduce their energy use by 10% over a 10-year period. Similarly, in Michigan, PA 295 of 2008 set a goal of a 25% reduction of grid-based energy use by the state government by 2015, required state agencies to establish an energy reduction coordinator to work with the state energy and budget offices to reduce energy use, and required the training of state employees on how to conserve energy[59]. In Missouri, Governor Jay Nixon issued Executive Order No. 09-18 in April 2009, requiring all state agencies whose building management falls under the Office of Administration to adopt policies designed to reduce energy consumption by 2% each year for the next 10 years[60].

State Facility Benchmarking

Another method to encourage reductions in energy use is via benchmarking. Under a benchmarking policy, relevant entities track and publicly report their energy use. This process adds transparency to energy usage and can create pubic pressure to do reduce energy use. The U.S. EPA has developed a free public tool called Energy Star Portfolio manager to standardize and to assist in this process. This tool has been adopted by several state governments and municipalities.

Some states require benchmarking of state energy consumption. **Figure 5** shows the current status of state facility building benchmarking requirements. In Wisconsin, SB 459 of 2006, the Energy Efficiency and Renewables Act, required the Department of Administration (DOA) to prescribe and annually review energy efficiency standards for all equipment that consumes energy[61]. Six of the largest agencies are required to submit a biannual report detailing plans for energy cost reduction in the facilities it occupies, and the DOA institutes rules promoting energy conservation in the energy conservation code. Along with reducing energy consumption and saving taxpayer dollars in existing government buildings, state policymakers often see multiple benefits from requiring that new state buildings be built with energy efficiency in mind.

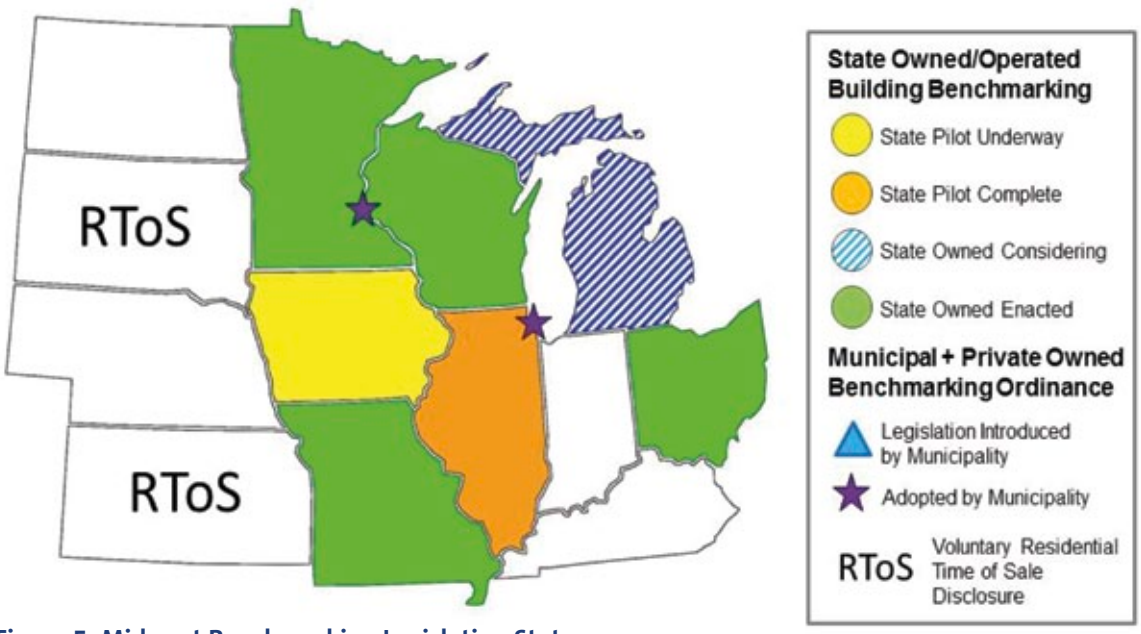

Figure 5: Midwest Benchmarking Legislation Status
Midwest Energy Efficiency Alliance, April 2014

Illinois: A study was completed by the State of Illinois in 2013, with the assistance of MEEA, to gain a perspective of the current status of building energy use within Illinois. As stated in Public Act 096-0896[62], this information would be used to recommend how energy labeling could be applied to state and public buildings. Due to the lack of an existing building energy and asset database, buildings owned by the State of Illinois were used to establish how building energy benchmarking and labeling could be used as a method of comparing energy usage.

The limited scope of the study utilized the existing procedures currently applied to manage energy consumption of state-owned buildings, as well as uncovered potential benefits and limitations of the carefully chosen tools used. Some benefits that became apparent during the collection and analysis of the building energy data, as well as during the performance labeling calculations, included:

- A state-owned facility which had already received an EPA ENERGY STAR Label, awarded to the top 25% most efficient buildings, was found to maintain its better-than-average energy use during the study period. Another, previously unanalyzed building was found to qualify for an ENERGY STAR Label, as well.
- Benchmarking and labeling a building is a relatively efficient process. It took approximately three to four hours for the experienced professionals to gather the necessary utility data, manually input and process this information using the benchmarking tool, as well as acquire an energy label for each building.
- During the study, errant utility data and issues with meter readings were also uncovered that will both benefit the state in immediate energy and monetary savings, as well as assist the state to more effectively monitor energy use.

Savings Through Efficient Products (STEP)

According to US Department of Energy, the average building wastes about a third of the energy it pays for. Despite the potential for substantial savings, energy retrofits continue to be an underutilized strategy across sectors. Under Illinois's Energy Efficiency Portfolio Standard (EEPS) law, the Department of Commerce and Economic Opportunity (IL DCEO) receives 25% of the EEPS funding to fund energy efficiency programs for low-income residents and public sector entities. One of the programs IL DCEO funds is the Savings Through Efficient Products (STEP) program, administered by MEEA. Through MEEA's Savings Through Efficient Products (STEP) program, qualified public facilities receive free energy saving products and a suite of materials and incentives to make deeper energy retrofits possible. STEP successfully breaks down barriers public facilities face when navigating the process of an energy efficiency retrofit by providing clear information, top-notch technical assistance, and flexibility.

STEP offers qualified public facilities high quality, energy saving products, including lights, exit signs, aerators, kitchen pre-rinse nozzles, occupancy sensors, vending machine controls, and more. The process is simple: STEP begins with a free onsite facility energy assessment to identify opportunities for upgrades. Next, MEEA orders applicable products and provides a comprehensive report outlining the free upgrades, details about bonus incentives available to support deeper retrofits, and information about additional statewide energy saving programs. Finally, the facility maintenance teams install the products within four months of delivery.

Whether a school, park, community center, library, fire station, or other public facility, beneficiaries can save enough energy to power a single family home in the first year alone.

Iowa: The state is currently completing a second phase of its benchmarking pilot program. This two-year building energy benchmarking project builds upon the first phase that was completed in 2012 and incorporated over 1,200 public buildings, owned by more than 100 building managers. Both phases will include a broad range of buildings owned and operated by cities, counties, public school districts, higher education, and State agencies. The goal of the second phase is to include an additional 800 buildings.

This project is being carried out in collaboration with the Iowa Energy Center at Iowa State University, Iowa Economic Development Authority, and the University of Northern Iowa. The partnership is continuing to complete most of the information gathering and has invited selected public facility owners to enter their facility's energy use data into a web-based benchmarking application. In Iowa, as in Minnesota, the project participants are using the Buildings, Benchmarks & Beyond (B3) tool to identify buildings that are the best candidates for energy audit investigations and further cost-effective improvements.

Michigan: In 2008, Public Act 295 (Part 3, Section 133) included a requirement for the Department of Management and Budget to collaborate with the Energy Office to establish a program for the energy analyses of all buildings owned or leased by this state. This assessment is projected to occur at each such building at least every five years. Although the state initially required the use of Energy Star Portfolio Manager, Michigan is currently considering the application of other tools.

Minnesota: In 2001, the State of Minnesota first enacted requirements for tracking energy usage in all public buildings[63] as a means to develop a comprehensive plan to maximize energy efficiency in existing public buildings. With the creation of the B3 Program, encompassing guidelines for new and existing buildings, the state's goal was to implement energy conservation measures that have a simple payback within 10 to 15 years.

Minnesota law was updated to require the Department of Administration and Commerce to maintain and update the benchmarking tool B3, previously developed in 2004, so that all public buildings (including state, county, and municipal buildings) can use the benchmarking tool to maintain energy use information for the purposes of establishing energy efficiency benchmarks, tracking building performance, and measuring the results of energy efficiency and conservation improvements[64].

Governor Mark Dayton reinstated the benchmarking requirement for each state agency, beginning July 1, 2011[65]. This required the continual updating of utility consumption data for state-owned buildings utilizing the B3 Energy Benchmarking website. The information collected in the program was merged with the state's accounting system to streamline enterprise tracking of energy consumption in state-owned facilities and combine it with payment of utility bills by state agencies.

Missouri: Executive Order (EO) 09-18 created the State Facilities Energy Conservation Program, recognizing that "operation of state buildings is a significant factor in the energy consumption of Missouri State Government buildings." The Executive Order (EO) directs the Office of Administration to manage operational costs of state government buildings. Interestingly, the EO recognizes the necessity to engage in-building occupants, "because energy conservation can only be successful when the building occupants understand and recognize the importance of the program's objectives."

Through a utility portal system developed by Facilities Management, Design & Construction (FMDC) Energy Management Office, the State of Missouri is capturing building energy use information, analyzing energy data, and identifying energy-inefficient facilities through benchmarks and constant soft commissioning of systems (soft commissioning is the use of software tools to test installed hardware in order to ensure it is operating as it was intended). The office has been taking necessary steps to improve efficiencies through operational enhancements or other methods. Its reports provide benchmarking data outlining electrical consumption, costs, and percentage of energy savings.

Ohio: On January 17, 2007, Governor Ted Strickland issued Executive Order 2007-02S, which mandated energy consumption reductions by the state and all agencies by 5% by June 2008 and 15% by June 2011[66]. The executive order also directed the Department of Administrative Services to measure and track energy consumption in state buildings and to calculate each organization's carbon footprint. Since then, the Ohio Department of Administrative Services adopted the Energy Star Portfolio Manager tool to assist in the energy and water consumption assessment of all state-funded buildings and track any performance improvements.

Although this Executive Order expired in January 2011, the Ohio Facilities Construction Commission, Office of Energy Services (OFCC-ES) has continued the Portfolio Manager program. These rules establish requirements, procedures, and guidelines for minimizing energy consumption in state-owned, funded, and leased facilities in a cost-effective manner.

Performance Contracting

Just like private-sector organizations, government agencies are examining the use of performance contracting to reduce their energy consumption and energy bills. Under performance contracting, a third party conducts the energy assessment and then finances and implements the improvements, sharing with the building owner – in this case, the government agency – the financial savings over the course of the contract. The Illinois Energy Performance Contracting Program began in 1996 as a ten year pilot project[67]. Over the life of the pilot program, more than $30 million in capital improvements were financed across seven state facilities. These investments resulted in annual energy costs savings of over $4.7 million annually[68]. The Illinois Department of Commerce and Economic Opportunity continues to work with local governments, schools, and other organizations to help them implement projects. As **Table** 7 indicates, every state in the Midwest allows performance contracting across the spectrum of public buildings.

Table 7: Performance Contracting

Applicable to the following jurisdictions/government organizations				
State	**Any Public Building**	**State, County, City or Town**	**School District, State College or University**	**Citation**
Illinois	√	√	√	§50 ILCS 515/1 Local Government Energy Conservation Act §105 ILCS 5, Article 19b, School Energy Conservation and Saving Measures §110 ILCS 62/1 Public University Energy Conservation Act §110 ICLS 805/Community College Energy Conservation and Saving Measures
Indiana	√	√	√	§IC 4-13.6-8 Energy Cost Savings Contract §IC 36-1-12.5 Guaranteed Energy Savings Contracts and Energy Efficiency Programs Used by School Corporations §IC 21-33-4 Covers State Colleges §IC 4-13.5-1.5 Energy Cost Savings Projects
Iowa	√	√	√	§473.13A Energy conservation measures identified and implemented §473.3 Energy Development and Conservation
Kansas	√	√	√	§KSA 75-37, 125 Energy conservation measure, financing; prior approval of plans and projects; definitions (passed as HB 2603)
Kentucky	√	√	√	§KRS 45.760 (14) §KRS 56.770 KRS 56.772 §KRS 56.774 §KRS 56.784 2008 Amendments to above bills 200 KAR5: 350 Guaranteed Energy Savings Performance Contracting
Michigan	√	√	√	§18.1253 Energy conservation improvements (State agencies) §41.75b Energy conservation improvements (Townships) §46.11c Energy conservation improvements (Counties) §68.36 and §78.24b Energy conservation improvements (Villages) §117.5f Energy conservation improvements (Cities) §380.1274a Energy conservation improvements (Schools) §389.122 Board of trustees; powers §389.122a Energy conservation improvements (Community Colleges)
Minnesota		√	√	§123B.65 Energy efficiency projects for School Districts §16B.4821 Provision of materials and services to MNSCU §16C.14 Energy Efficiency Installment Purchases §471.345 Uniform Municipal Contracting Law
Missouri	√	√	√	§8.231 Revised August, 2010, Guaranteed energy cost savings contracts §8.400 Revised August, 2010, Board may issue revenue bonds—Revised August, 2010 §8.805 Revised August, 2010, Energy savings in state building projects §8.800 Revised August, 2010 Definitions
Nebraska	√	√	√	§66-1062 Terms Defined §66-1063 Governmental unit; energy financing contracts; authorized §66-1064 Governmental unit; powers and duties §66-1065 Energy financing contract; contents; energy service company; bond requirements §66-1066 Energy financing contract; terms Legislative Bill 888 (pdf file)
North Dakota	√	√	√	§48-05-09 through 48-05-13 Guaranteed energy savings contracts (pdf file) Energy Performance Contract Term Limits (pdf file) §48-5-11 Amended 2003 (Chapter 396) (pdf file)
Ohio		√	√	§156.01 through 156.05 (State agencies) §307.04.1 (Counties §505.26.4 (Township) §717.02 (municipal corporations) §3313.372 (School districts)
South Dakota	√	√	√	§1-33B Guaranteed Energy Savings Contracts
Wisconsin	√	√	√	§66.0133 Energy Savings Performance Contracting. §16.858 Energy Conservation audits and construction projects

New Building Programs

State policymakers see numerous benefits to requiring that new state buildings be built with energy efficiency in mind. As **Table 8** illustrates, a number of Midwestern states have adopted energy efficiency standards or requirements for new government buildings or those leased by state agencies. Such policies not only help save taxpayer dollars, but also help the commercial building industry learn how to construct buildings to these higher efficiency standards.

One common way to ensure public buildings are being built to a higher efficiency standard is to require they meet a third-party building certification. This enables state governments to stipulate requirements without the need to use resources to develop a standard. Two popular and commonly used certifications are the U.S Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED)[69] certification and the Green Building Initiative's Green Globes certification[70].

Table 8: Examples of New Government Building Energy Efficiency Requirements

State	Authority	New Government Building Requirements
Illinois	The Green Buildings Act (July 2009)[71]	Illinois requires that all new state-funded construction or major renovations are required to seek LEED, Green Globes, or equivalent certification
Indiana	Executive Order 08-14[72]	Efficiency can be demonstrated through adherence to any of the following standards: a rating of Silver on the USGBC LEED rating system; a two-globe rating on the Green Building Institute Green Globe rating system; an EPA Energy Star building rating; or an equivalent rating under a system accredited under the American National Standards Institute.
Kansas	*K.A.R. 1-66, 67*[73]	Kansas requires all state-owned buildings to undergo an energy audit at least every 5 years to identify excessive energy usage; for leased buildings, an energy audit is required before State agencies may approve new leases or renew existing leases; energy efficiency performance standards are prescribed for new construction and renovations wherever feasible to ensure the buildings meet energy efficiency levels of Internal Energy Conservation Code 2006 or the equivalent ASHRAE standard. The State also operates the Facility Conservation Improvement Program (FCIP), which promotes and facilitates energy saving projects in public buildings[74].
Kentucky	HB 2 of 2008[75]	All construction or renovation of public buildings for which 50% or more of the total capital cost is paid by the state must be renovated or designed to meet high-performance building standards. This legislation also requires that all building leases for the state or any of its agencies meet ENERGY STAR high-performance building standards after July 1, 2018. Public buildings must purchase ENERGY STAR qualified products if life-cycle cost analysis determines they are cost-effective.
Michigan	Public Act 295, Sec. 131, 133	In 2008, Michigan set forth a goal of reduction of state government energy use by 25% by 2015, based on the 2002 baseline. The State Energy Office, along with the Department of Management and Budget, must establish a program for auditing state owned and leased buildings every 5 years and recommending a plan for reducing energy use. Under Executive Directive 2007-22, all state buildings occupied by state employees are required to be benchmarked using the ENERGY STAR Portfolio Manager tool[76].
Minnesota	Minn. Stat 16B 325[77]	In 2001, Minnesota required the Departments of Administration and Commerce to develop Sustainable Building Design Guidelines for new state buildings
Missouri	S.B. 1181[78]	In 2008, the state updated its energy code for state construction and renovations of buildings larger than 5,000 square feet. Under the new policy, the Missouri Department of Natural Resources (DNR) was required to establish energy efficiency standards for state buildings at least as stringent as the 2006 International Energy Conservation Code (IECC), as revised, by January 1, 2009. The standards apply equally to both state-leased and state-owned buildings. As a result, new state facilities and significant renovations of state facilities must be built to the latest version of the IECC.
North Dakota	State Building Code	State agencies are responsible for assuring that plans and specifications for alterations and new construction of their buildings comply with the state building code. Schools located in jurisdictions that have not elected to adopt and enforce the state building code are responsible for assuring that plans and specifications for alterations and new construction comply with the state building code[79].
Ohio	H.B. 251[80], Executive Order 2007-02S	In 1995, Ohio passed legislation requiring all state agencies to perform life-cycle cost analysis prior to the construction of new buildings and energy consumption analyses prior to new leases.
South Dakota	SD Codified Laws 5-14-32[81].	South Dakota law applies to all new construction projects and renovations by state agencies and mandates the use of high-performance building standards in new state construction and renovations. It requires that new or renovated state buildings achieve the U.S. Green Building Council's LEED Silver rating, a two-globe rating under the Green Building Initiative's (GBI) Green Globe rating system, or a comparable numeric rating.
Wisconsin	Executive Order No. 145[82] (2006), updated in 2012	The Department of Administration set energy efficiency goals for state facilities, office buildings, complexes, and campuses. These facilities reduced overall energy use per square foot by 20% by 2010, based on a weather-adjusted 2005 baseline. New state facilities are currently required to be 10% more efficient than the commercial code (this requirement was reduced from 30%).

* Iowa and Nebraska currently do not have new government building energy efficiency requirements in place.

In addition to these programs, a number of governmental entities have chosen to participate in the U.S. Department of Energy's Better Building Challenge. Entities participating in the Challenge promise to (1) conduct an energy efficiency assessment, (2) implement a plan to achieve energy efficiency savings, and (3) report energy savings results. As of February 2014, 16 public entities in the Midwest, accounting for 116,154,000 square feet of space, have voluntarily decided to participate in the Challenge[83]. These entities are listed in **Table 9**, below.

Table 9: Midwestern Participants in the Better Buildings Challenge

State/City/Public Entity	Sq. Ft. Committed
City of Chicago, IL	24,000,000
State of Minnesota	22,000,000
Michigan State University	20,000,000
State of Iowa	22,000,000
City of Toledo, OH	7,500,000
Kentucky Community and Technical College System	7,000,000
City of Milwaukee, WI	5,000,000
City of Cleveland, OH	4,500,000
Fort Atkinson School District (WI)	700,000
City of Columbia, MO	550,000
Will County, IL	514,000
Housing Authority of the City of Freeport	390,000
Aeon (Minnesota Affordable Housing Nonprofit)	1,800,000
Housing Authority of Knox County, IN	135,000
The Economic Development Authority of the City of Mankato, MN	65,000
Total	**116,154,000**

STATE RECOGNITION PROGRAMS

A number of states across the Midwest have found that recognition or reward programs are a valuable tool in promoting energy efficiency practices by businesses, governments, schools, community organizations, and citizens (see **Table 10**, below). Recognition programs are a low-cost tool that recognizes efforts to reduce energy consumption through the application of new technologies, processes, or behavioral changes. These recognition programs are often sponsored by the energy office, the environmental or natural resources department, or the public utilities commission. In addition, they can be sponsored in conjunction with a nonprofit organization or third-party administrator. While many of the recognition programs include energy efficiency or conservation within a broader spectrum of environmental excellence, sustainability, or pollution prevention, some states have a reward specifically for energy efficiency. Recipients are often recognized at an awards ceremony and provided a plaque or certificate of recognition. The award is also announced to the local media, alerting customers, colleagues, competitors, and the general public of the recipients' success.

Table 10: Midwestern States with Recognition Programs*

State	Recognition	Purpose
Illinois	Illinois Governor's Sustainability Award	Presented by the Illinois Sustainable Technology Center, this award recognizes public and private organizations in Illinois that have demonstrated a commitment to environmental excellence through outstanding and innovative sustainability practices, including energy conservation.
Indiana	Indiana Governor's Award for Environmental Excellence	Open to public and private organizations as well as Indiana citizens, the Award for Energy/ Renewable Resources includes energy efficiency improvements in technologies or buildings.
Iowa	Iowa Environmental Excellence Awards	Public or private organizations can apply for projects including energy efficiency technologies, processes, or education programs.
Kansas	Kansas Pollution Prevention Awards	The annual award recognizes "Reduction in Energy Usage" as one of the criteria. It is open to public and private organizations and community groups.
Kentucky	Energy Leadership Award	The award recognizes leaders in the Kentucky energy field who have made significant contributions by promoting and utilizing energy efficiency and alternative energy sources as a way to achieve their sustainability goals.
Michigan	Governor's Award for Excellence in Energy Efficiency (Executive Directive No. 2007 – 22)	Presented annually, this award recognizes and rewards state department or agency progress in implementing cost-effective energy efficiency and energy conservation measures and for achieving energy savings.
Minnesota	Minnesota Governor's Award for Pollution Prevention	Public and private organizations can be nominated for a variety of pollution prevention initiatives, including energy conservation and efficiency efforts.
Missouri	Missouri Governor's Award for Environmental Excellence and Pollution Prevention	Recognizes individuals, employers, municipalities, and institutions working to benefit both Missouri's economy and environment. The award is sponsored by the Missouri Chamber of Commerce and Industry, Missouri Department of Natural Resources, and Bridging the Gap.

* Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin do not have active recognition programs

Community Competitions for Energy Efficiency

In the business and sporting worlds, competition can lead to greater teamwork, innovation, and changes in behavior. These changes can also be brought about through structured, friendly competitions between communities. In Minnesota, Kansas, and Iowa, competitions have been used to reduce energy consumption and to educate residents about energy efficiency. In each state, local non-profit organizations have worked with community officials and others to organize the competition.

Minnesota's Energy Challenge: In 2006, the Center for Energy and Environment launched the Minnesota Energy Challenge (MEC). The MEC is a website that allows a resident to identify energy savings actions that he or she can take, educates him or her on the energy savings attributed to a particular action, and then allows the individual to assign the savings to a particular team of his or her choice to track a group's savings[84]. Since the program's inception, over 30,000 residents have pledged to reduce their energy use. The MEC also added a youth energy education program to its portfolio in 2012 and these programs continue today.

Milwaukee's Me²

The City of Milwaukee is positioning itself to be a sustainability leader in the Midwest. Led by the Milwaukee Green Team, the city has adopted policies and implemented programs that seek to align economic and environmental interests. As part of this effort, the city has taken an aggressive approach to promoting and supporting energy efficiency improvements. An executive order committed the city government to reducing its energy consumption by 15% by 2012.

The City adopted energy efficiency performance measures for all departments, used performance contracting to upgrade city buildings and street lighting for energy efficiency, piloted LEED certification for city buildings, and identified energy saving opportunities for the City Hall complex. In addition, the city sought to build their green economy by developing financing programs for city residents and businesses wishing to make energy efficiency improvements, including incentives for energy savings, financing options for residents and businesses, and an innovative Clean Energy Financing program to help property owners pass on project capital costs to tenants through the use of a Municipal Special Charge. Me²'s successes so far include 2,248 Home Energy Evaluations completed, 1,267 homes improved, and 138 business projects completed. For more information, see www.smartenergypays.com.

Kansas' Take Charge! Challenge: With a grant from the Energy Foundation in 2009, the Climate and Energy Project (CEP) based in Hutchinson, Kansas[85] created the "Take Charge!" Challenge, a pilot competition program with 6 cities to reduce their energy usage. The focus was on reducing energy consumption, saving money, and creating local jobs. CEP convened a local leadership team made up of community and business leaders to support the challenge. In 2011, CEP partnered with the Kansas Energy Office to host a 22-city competition. Although this competition has since ended, the energy savings statewide was 110.2 billion BTUs of gas and electricity with a value of $2,341,025. Additional completed results include:

- 1,141 Efficiency Kansas audits
- 152 Efficiency Kansas whole house retrofits
- 309,154 bulbs switched at www.takechargechallenge.com
- 5,022 programmable thermostats installed
- 404,974 Kansans attended Take Charge! events or presentations
- 1,093 total Take Charge! events or presentations
- 3,279 volunteer hours valued at $55,743

Iowa's Get Energized Competition: The Get Energized, Iowa! Competition pitted four small Iowa communities against one another in 2012 to see which could reduce residential electric usage the most. The contest succeeded in getting strong reductions in electricity and gas. Across the four communities, residents reduced electric usage by an average of 4% and gas usage by an average 10%. That included all 2,000 electric meters, whether people participated in the competition or not. Project organizers were Iowa Policy Project and the Center for Energy & Environmental Education at the University of Northern Iowa (UNI). Communities saved a total of 557,550 kWh of electricity and 80,301 therms of gas. Community size ranged from 800 to 2,000 people. Although the competition ended in 2012, UNI researchers are returning to the four communities in spring 2014, one and a half years after the competition, to investigate if peoples' energy use behavior changed. They will find out if Get Energized, Iowa! participants are continuing the behaviors they adopted to save energy. Results will be available in fall 2014[86].

RESIDENTIAL AND COMMERCIAL EFFICIENCY

Residential and commercial buildings account for 40% of our nation's energy use[87].

Historically, residential energy efficiency has also been a significant percentage of ratepayer funded energy efficiency programs. These market segments have both seen innovation in the design of policy drivers to encourage energy efficiency.

HOME PERFORMANCE PROGRAMS

There are a variety of ways to pursue residential and commercial energy efficiency. In the residential building segment, these include ratepayer-funded energy efficiency programs such as whole home programs and third-party recognition programs. These different methods of reducing energy use are each described in more detail below.

Touchstone Energy Homes

Touchstone Energy Cooperatives is the nationwide branding alliance of more than 700 rural electric systems. As part of its energy efficiency programs, Touchstone Energy created the "Touchstone Energy Home Program," an energy efficiency building standards program designed to achieve greater comfort in the home and reduce utility bills. Unlike the Energy Star home program that relies on a point system, to qualify for the Touchstone Energy Home designation, a home must meet or exceed all the requirements and not simply reach a specified point score. The requirements differ by geographic zone, and there is flexibility for individual cooperatives to set higher standards and to offer rebates or other incentives.

Cooperatives in Iowa, Indiana, and Kentucky have supported related building contractor training and have seen Touchstone Energy homes built in their service territories. For more information, see www.touchstoneenergy.coop.

Whole Home Programs

A systems-based, whole home approach to residential energy efficiency upgrades is key to deeper energy savings in the residential sector. Typical energy saving measures in a whole home program include: audits (diagnostic or walk-through), air sealing, attic and wall insulation, mechanical systems, ventilation, and health and safety measures. These measures combine to improve the comfort, safety, and efficiency of homes.

One approach to whole home programs is the national Home Performance with ENERGY STAR® (HPwES) program run by the U.S. Department of Energy[88] and sponsored locally by state agencies, utilities, and non-governmental organizations across the country. HPwES connects homeowners with qualified contractors and energy auditors who assess each home's performance and recommend renovations resulting in energy savings and improved home comfort.

Home Performance with ENERGY STAR® eliminates the guess-work that often accompanies home improvement by taking a systems-based building science approach. The first step is a comprehensive home energy assessment that specifies how to address comfort issues and save energy. Next, qualified contractors perform the improvements. After the upgrade, there is a "test-out" to ensure the upgrade produced the intended results. Furthermore, a quality assurance program works behind the scenes helping contractors hone their craft and improve customer satisfaction while giving homeowners confidence that the home improvements have been completed properly.

As detailed by **Table 11**, there are whole home programs operating in all 13 Midwestern states. Some utilities offer home performance programs that are not Home Performance with ENERGY STAR® programs.

Table 11: Whole Home Programs in the Midwest

State	Program	Administrator	Website
Illinois	Illinois Home Performance with ENERGY STAR®/ Home Energy Performance	Ameren Illinois	www.actonenergy.com/for-my-home/explore-incentives/home-energy-performance
	Illinois Home Performance with ENERGY STAR®/ Energy Impact Illinois	Elevate Energy	www.energyimpactillinois.org/residential/
	Illinois Home Performance with ENERGY STAR®/ Home Energy Savings	Commonwealth Edison/ Nicor Gas	www.nicorgasrebates.com/programs/hes
	Illinois Home Performance with ENERGY STAR®	Department of Commerce and Economic Opportunity	www.illinoishomeperformance.org/
	HomeCheck®	MidAmerican Energy	http://www.midamericanenergy.com/ee/il_res.aspx
Indiana	Home Weatherization Program	Indiana Michigan Power	http://electricideas.com/Residential/_HomeWeatherizationProgram
	Residential Home Energy Assessment	Energizing Indiana	https://energizingindiana.com/programs/residential-home-energy-assessments/
	Smart $aver®	Duke Energy	https://www.duke-energy.com/indiana/savings/smart-saver.asp
Iowa	Home Energy Assessment	Alliant Energy	http://www.alliantenergy.com/SaveEnergyAndMoney/EnergyAssessments/Home/030844
	HomeCheck®	MidAmerican Energy	http://www.midamericanenergy.com/ee/ia_res.aspx
Kansas	How$smart	Midwest Energy, Inc.	http://www.mwenergy.com/howsmart.aspx
Kentucky	Kentucky Home Performance	Kentucky Housing Corporation	http://www.kyhomeperformance.org/
Michigan	Home Performance with ENERGY STAR®	Consumers Energy	http://www.consumersenergy.com/eeprograms/HPHome.aspx?id=4129
	Comprehensive Home Performance Program	Efficiency UNITED	http://www.efficiencyunited.com/documents/Comprehensive-Resi2.jpg
Minnesota	Home Performance with ENERGY STAR®	Alliant Energy	www.alliantenergy.com/SaveEnergyAndMoney/EnergyAssessments/Home/029889
	Home Performance with ENERGY STAR®	Xcel Energy	www.xcelenergy.com/Save_Money_&_Energy/For_Your_Home/Home_Efficiency/Home_Performance_with_ENERGY_STAR_-_MN
Missouri	Missouri St. Louis Regional Home Performance with ENERGY STAR®	Missouri Botanical Garden's EarthWays Center	http://www.missouribotanicalgarden.org/sustainability-conservation/sustainable-living/at-home/hpwes.aspx
	Home Performance with ENERGY STAR®	Columbia Water & Light	http://www.gocolumbiamo.com/WaterandLight/Home_Performance/homeperformance.php
	Home Performance with ENERGY STAR®	City Utilities of Springfield, MO	http://www.cityutilities.net/conserve/pgm-homeperformance.htm
	Home Performance with ENERGY STAR®	MGE/KCP&L	http://www.hpwes.net/
	ActOnEnergy® PerformanceSavers Program	Ameren Missouri	http://www.ameren.com/sites/AUE/UEfficiency/Pages/Home.aspx
Nebraska	HomeCheck®	MidAmerican Energy	http://www.midamericanenergy.com/ee/ne_res.aspx
North Dakota	Home Performance with ENERGY STAR®	Red River Valley Community Action	http://www.401-e.com/home-performance-with-energy-star/
Ohio	Home Performance Solutions	Columbia Gas of Ohio	https://www.columbiagasohio.com/ways-to-save/save-energy-money/home-performance-solutions
	Home Performance with ENERGY STAR®	Dominion East Ohio	http://deohpwes.com/
	In-Home Energy Program	AEP Ohio	https://www.aepohio.com/save/programs/In-homeEnergySavings/default.aspx?ctype=h
	Home Performance with ENERGY STAR®	Greater Cincinnati Energy Alliance (parts of Ohio and Kentucky)	http://www.greatercea.org/residential-energy-efficiency
	Residential Energy Audit Program	First Energy Ohio	http://energysaveohio-home.com/residential-energy-audit/
South Dakota	HomeCheck On-Site	MidAmerican Energy	http://www.midamericanenergy.com/ee/sd_res_homecheck_onsite.aspx
Wisconsin	Home Performance with ENERGY STAR®	Focus on Energy	http://www.focusonenergy.com/residential/efficient-homes/home-performance-energy-star

Third Party Home Recognition Programs

Third-party recognition of efficiency upgrades in existing homes is a recent development in the home performance industry. Because common upgrades, such as air sealing and insulation, tend to be invisible, they are easily undervalued when considering the worth of a home. Despite this difficulty, these measures represent important home assets that provide residents with lower energy bills and increased comfort; thus, they deserve to be valued alongside more familiar or visible assets such as granite counter tops or swimming pools. As thousands of homeowners across the Midwest participate in home performance programs, third party documentation of the improvements they are making has become critical to not only accurately valuing home performance, but also driving demand for efficient homes.

A series of recent studies has shown that home buyers in today's marketplace value residential energy efficiency improvements. A 2012 analysis of 1.6 million recent home sales in California found that after holding all relevant variables constant, homes with third-party green recognition sold for 9% more on average than those without recognition[89]. Also, a 2012 survey of home buyers' attitudes and preferences by the National Association of Home Builders found that 90% of respondents would be willing to pay 2% to 3% more for an efficient home[90].

Third party recognition enables homeowners to communicate their home's efficient features to potential home buyers. It also provides home buyers with the confidence they need to navigate an often confusing marketplace. In the Midwest, ENERGY STAR® and LEED for homes are common certifications for new residential construction, and scoring systems such as U.S. Department of Energy's Home Energy Score and RESNET's Home Energy Rating System (HERS) Index are popular methods for recognizing already efficient homes. For homes which have undergone a significant energy upgrade, Illinois offers a robust third-party home recognition system (below).

Illinois Home Performance with ENERGY STAR (IHPwES)

Illinois Home Performance with ENERGY STATE (IHPwES) is a home performance with ENERGY STAR® program administered by MEEA. Certificates of Completion are issued to all homeowners who realize savings of 15% or more on their home energy upgrades. Since the program's inception in 2011, over 2,500 homeowners have qualified to receive Silver and Gold Certificates. Illinois Home Performance (IHP) is also a U.S. Department of Energy Home Energy Score Partner, which provides opportunities for homeowners with already-efficient homes to gain recognition for their performance without completing any additional upgrades.

Homeowners are recognizing the value of their efficiency investments by listing their Certificates on local Multiple Listing Services (MLS). Illinois's largest MLS, Midwest Real Estate Data (MRED), has a special checkbox for Illinois Home Performance. By thoroughly documenting the measures installed during a home energy upgrade, providing third-party recognition by well-known and respected entities, and closely integrating the recognition process with the real estate industry, IHP hopes to increase the value of the Illinois housing stock and drive demand for energy efficiency throughout the Midwest.

IHP identified the need for an infrastructure of trained real estate agents and appraisers who are knowledgeable about residential energy efficiency. In 2013-2014, IHP partnered with a local real estate association to provide tuition discounts to students enrolled in courses that included information about residential energy efficiency and IHP Certificates. This efficiency-program-meets-real-estate-training is one of the first partnerships of its kind, and IHP looks forward to expanding the availability of licensed energy efficiency education to provide Illinois real estate professionals with continuous education units and so they may begin to recognize the value of energy efficiency upgrades.

COMMERCIAL BUILDING BENCHMARKING

Traditionally, building energy efficiency programs have focused on reducing energy consumption of newly constructed buildings through codes and compliance strategies. However, the number of existing buildings composes far more of the building stock year after year. Consequently, many policymakers and utilities are turning their attention to the existing building market. The numbers clearly show this market is ripe for energy savings:

- As of 2012, approximately 84% of all housing units are more than 15 years old[91]. According to the Department of Housing and Urban Development, approximately 1% of existing residential units (including single family homes, apartment buildings, and condominiums) are replaced each year with new construction[92]
- The average age of a commercial building in the U.S. is 41.7 years[93] and some studies suggest the typical commercial building uses twice the energy of similar, efficiently renovated buildings[94]
- The majority of existing residential and commercial buildings are becoming more energy intensive. The total energy consumption at a building site in 2009 was about 48% higher than consumption in 1980[95]. Growth in demand for appliances and electronic equipment, such as computers and entertainment systems, is at least partly responsible for this increase[96]

Building Benchmarking is a tool that building owners and managers, and increasingly municipalities, counties, and state government agencies are using to track and to gauge the annual energy consumption of a building in relation to similar buildings or an applicable standard such as a building code. The results of building energy benchmark assessments are then used to guide investments in envelope and operating equipment enhancements to improve energy efficiency. This type of building energy management can be expanded to create a competitive environment among building owners, encouraging greater energy efficiency performance via market forces. As such, benchmarking can support growth of the local economy, particularly jobs related to energy efficiency, while reducing greenhouse gas emissions, conserving resources, and enhancing electricity reliability.

To start, municipal and state governments can implement these policies solely within their own building portfolios to lead by example, and then move to mandate similar requirements for privately owned and operated buildings. Others may prefer to utilize nationally recognized, voluntary programs or introduce the policies via an incremental approach to the private sector. Some examples of these optional programs include the Department of Energy's Better Buildings Challenge[97] and Building Owners and Managers Association's Kilowatt Crackdown[98].

Municipal Ordinances

Cities and states can expand these voluntary actions by mandating property owners, or the government itself, to benchmark building energy consumption and publically disclose the annual energy use. Currently, 9 cities and 2 states (Washington and California) have adopted these types of policies with many more considering similar legislation. In the Midwest, both Chicago and Minneapolis have enacted municipal ordinances requiring benchmarking, as well as reporting of energy and water usage data for commercial buildings with more than 50,000 square feet. The Minneapolis ordinance was passed in February of 2013 and defines commercial buildings as spaces used for offices, retail, grocery stores, hotels, sports facilities, places of worship, schools, and health care facilities. Space uses exempt from disclosing their energy use information include residential uses, industrial uses, warehouses, and congregant living facilities.

Chicago's benchmarking ordinance differs in that it also requires disclosure by multi-unit residential buildings above 50,000 square feet. This stipulation is currently controversial, since large residential buildings often contain privately owned residences. Split incentives and numerous property owners can complicate efforts to invest in energy efficiency upgrades. Some of the concerns voiced by residents of large multi-family buildings are similar to those of commercial building owners: that requiring energy disclosure could burden owners with extra costs to track energy usage and to install retrofits. Building owners also voiced concerns that their properties could lose value if their disclosures showed the buildings to be inefficient, and that they had little control over their tenants' energy use. Under Chicago's ordinance, residential buildings will also have more time to comply with this ordinance, which reflects the contention surrounding this issue.

Building Operator Certification® (BOC)

In large commercial facilities, energy-efficient controls and equipment alone do not maintain savings. The key to sustaining energy savings is proper training of the building operator. The Building Operator Certification (BOC®) Program is a nationally recognized, competency-based training and certification program that helps commercial, public, and industrial building operators immediately reduce energy consumption through low or no cost efforts at their facilities.

Operators earn Level I certification by attending 8 days of technical training, completing 8 exams, and performing 5 hands-on energy efficiency project assignments in their facilities. The more advanced Level II BOC Certification provides an additional 61 hours of training and three facility based projects to ensure deep and persistent savings. The industry-recognized credential earned by building operations and maintenance staff offers employers a way to identify skilled operators qualified to implement efficient operational measures.

Energy and cost savings are quickly realized by organizations that enroll staff in the program, and the program's attributable energy savings are well documented by numerous independent, third-party program evaluations. BOC achieves measurable energy savings by training individuals who are directly responsible for day-to-day building operations. More than 90% of BOC graduates and their supervisors report that BOC training has saved energy, saved money, and improved comfort and safety in their facilities.

MEEA administers the Midwest regional BOC program in 8 states: Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, and Ohio through partnerships with more than 50 utility, state government, and community college partners. In addition, MEEA delivers BOC in Wisconsin on behalf of the statewide Focus on Energy Program and is engaged in expansion to new states. From 2003 to 2013, MEEA certified more than 3,600 Midwest building operators and engineers saving over 274 million kWh and 734,000 therms throughout the region.*

* Savings estimates are based on a 2012 Navigant Consulting evaluation of the Illinois BOC program and applied to all participants. An average facility size of 200,000 square feet was used.

Some municipalities have included additional stipulations within their benchmarking ordinances to encourage energy reduction measures to be implemented. For example, San Francisco requires all "owners of nonresidential buildings…to obtain energy audits, as well as to annually measure and disclose performance[99]." By including energy reduction projects to be implemented, cities and states can directly attribute the energy savings towards their sustainability goals. For additional information on Minneapolis' and Chicago's ordinances please see **Appendix** 7.

Inaugural State of Illinois Veterans Workforce Development Program

In 2012, MEEA partnered with the developer of the Building Operator Certification® Program (BOC), the Northwest Energy Efficiency Council (NEEC), and the Illinois DCEO State Energy Office, to develop a pilot, the first of its kind in the nation, to use BOC to help unemployed and underemployed veterans transition at no cost to meaningful careers in the burgeoning green jobs sector. The program was created to address the issue of unemployment among returning servicemen and women, which in Illinois was 9.9% in 2012 for post-9/11 veterans compared to 7.9% for nonveterans. The pilot program also partnered with the Illinois Department of Veterans Affairs (IDVA) and several other state and local organizations to leverage resources and target veterans with experience and skills that are readily transferable to commercial building operations and maintenance. Franklin Energy became MEEA's first official employment partner to aid in the transition for career development opportunities for veteran graduates of the BOC program in December 2013. CLEAResult and Ecova also joined the first wave of employment partners to offer tuition and networking opportunities in February of 2014.

Enrolled veterans engaged in eight days of technical training on energy-efficient building operations and maintenance, a mentoring program, and several employment workshops led by local workforce partners, which focus on topics such as resume building, interviewing skills, and job searching. Through the mentoring program, facilities personnel at local organizations volunteer to help veterans complete hands-on projects such as lighting surveys and facility energy use profiles. Upon graduation, BOC-certified veterans are ready to apply the concepts learned in training to make immediate no-to-low cost improvements to buildings, such as energy efficiency retrofit projects and indoor air quality improvements, which generate significant cost and energy savings.

The entire Illinois pilot program was provided free to qualified veterans through generous sponsorship from the DCEO State Energy Office, with additional funds for the veterans pilot provided by the U.S. Department of Labor State Energy Sector Partnership grant, which is administered by DCEO's Office of Employment and Training in conjunction with the Land of Lincoln Workforce Alliance. The program also received federal Workforce Investment Act funds through the DuPage County Workforce Development Division. The pilot is also a Clinton Global Initiative America Commitment to Action. In the fall of 2013, the BOC Veterans Program completed its first full program year with six veteran graduates.

To learn more, visit www.cgiamerica.org for a full list of project partners anddetails on upcoming BOC series. If you are interested in supporting the program, please visit www.boccentral.org.

Energy Use Disclosure

A related approach adopted by some states and communities is to require the disclosure of estimated energy costs before either the sale of a property or the signing of a lease. For leases, landlords are required to provide estimated energy costs to potential tenants before signing the document. Such a requirement can be made for either residential or commercial leases. This information allows prospective tenants to consider energy costs as part of their budgeting and decision-making process. At the same time, with this information publicly available, it encourages the landlord/building owner to take steps to make the rental property more energy efficient. The State of Maine has had such a requirement since 2006[100]. The Maine statute required the state's Public Utilities Commission to file a report on the effectiveness of the statute in disseminating the information to tenants. In the Midwest, Ann Arbor, Michigan has required landlords to disclose information for more than 25 years.

Similarly, around the nation, communities have adopted ordinances requiring that energy usage be disclosed prior to the sale of an existing or new home, and that estimated energy consumption be disclosed for new homes. In some instances, municipalities require energy audits be performed. For example, Austin, Texas requires a homeowner who is selling a home that is 10 years old or older to disclose the results of a required energy audit to potential home buyers during the "option period" during which a home buyer can cancel the contract[101]. Similar to the ordinances adopted for rental properties, requirements such as Austin's allows the home buyer to compare the total monthly energy costs of multiple houses. It also allows sellers of energy efficient homes to potentially ask more for their houses because of the energy investments they have made.

Disclosing Energy Efficiency Improvements
Another approach to educating home buyers on the efficiency of a home is a required disclosure by the seller or purchaser of energy efficiency improvements made to the home. This is the approach adopted in Kansas. Kansas statute K.S.A. 66-1228 stipulates that "the person selling or building a previously unoccupied new residential structure which is a single family home or multifamily units of four units or less" provide to the purchaser or potential purchaser such information[102]. See **Appendix 8** for the Kansas Energy Efficiency Disclosure form.

Greening the Multiple Listing Service (MLS)

The Multiple Listing Service, or MLS, allows prospective home buyers or renters to search for a house, townhouse, condominium, or apartment that meets the needs of their families. Efforts are being made across the nation to provide green features and certifications within MLS listings. For example, information regarding the residence's Energy Star certification, LEED for Home standards, Home Energy Rating System (HERS) rating, Energy Star appliances, energy efficient windows, low-e windows, and other green features would be searchable within the MLS database.

In the Midwest, the MLS databases for Chicago, IL; Des Moines, IA; Elkhart County, IN; Traverse City, MI; and Minnesota's Twin Cities include green features. See **Appendix 9** for a sample MLS form with green fields from the MLS of Elkart County, Inc.

Environmental Health and Indoor Air Quality
As homes and other buildings are made more efficient, the building envelope is made tighter, which can lead to other issues that policymakers, builders, and owners may need to consider. A tight building means that it traps unwanted gases and fumes inside the structure. At the same time, fresh air from outdoor sources does not naturally seep into the structure. To address this issue, some communities and utilities require air quality testing to be done as part of their energy efficiency home improvement or new home construction programs. Testing can entail investigating the presence of radon as well as gases that are "off gassed" from common household products like paints, carpeting, and countertops as well as from mechanical equipment such as furnaces and water heaters. In order to take full advantage of the financial incentives, the owner may need to address any issues that are detected in the air quality testing.

BUILDING ENERGY CODES

Building energy codes contain minimum energy efficiency provisions for residential and commercial buildings and can include requirements for the efficiency of the windows, the levels of insulation in walls, basements and ceilings, the level or air leakage and the efficiency of the heating, cooling, and lighting equipment used in commercial buildings. Energy codes can have either a prescriptive approach or a performance approach, where efficiency measures in one area can be traded off with other areas (the whole building approach).

Energy codes are recognized as a simple and cost-effective way to reduce energy consumption, reduce energy bills, make housing more affordable, reduce air pollution, and improve air quality. Energy codes are important because it is much cheaper and easier to save energy before a building is constructed. Buildings consume 40% of the world's raw materials and energy, and today's buildings may be around for 75 years. Therefore, if energy efficiency components are not incorporated in new construction, savings opportunities are lost over the lifetime of the building.

The adoption of building energy codes has accelerated across the Midwest. Eight states have adopted either the 2009 International Energy Conservation Code (IECC) or the latest code, the 2012 IECC, which is the most recently published version of the model energy code, for either residential or commercial construction[103]. **Figure 6** illustrates the adoption of statewide residential and commercial building energy codes across the Midwest.

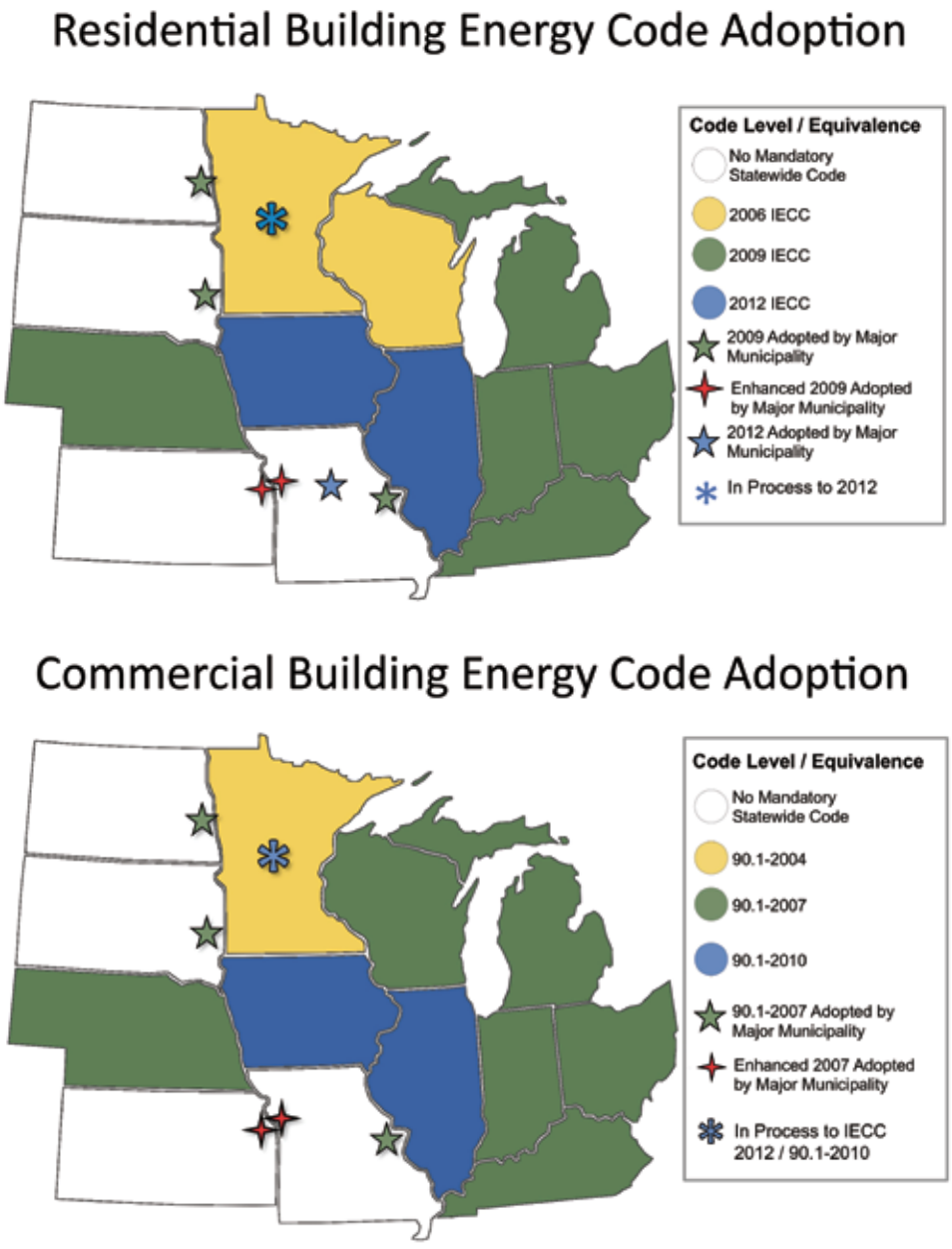

Figure 6: Residential and Commercial Building Energy Code Adoption
Midwest Energy Efficiency Alliance, April 2014

This surge in adoption activity brings about a concurrent push for improvement in compliance, since a code for which there is low compliance accomplishes little energy savings. Training programs are ongoing in several states, including Illinois, Indiana, Michigan, Minnesota, Nebraska, and Ohio. In addition, Illinois and several other states have begun developing robust policies for third-party enforcement. For example, several municipalities in Iowa have implemented a third-party system using the Home Energy Rating System (HERS). Despite these activities, comprehensive training efforts remain scarce and the infrastructure to inspect and ensure compliance remains inadequate. Efforts to date have largely been driven by state and local governments, and utility involvement in these codes efforts has been insignificant. If utility efforts were geared to providing training and tools to increase education and enforcement, this could lead to a significant increase in actual compliance, which in turn could produce very significant gains in energy savings.

The potential energy savings from the adoption of the 2009 IECC for residential dwellings and the ASHRAE 90.1-2007 standard (or equivalent 2009 IECC) for non-residential structures across the Midwest (see **Table 12**, above) totals 61.5 trillion BTUs per year by 2015 (assuming a 100% compliance rate), a figure that doubles by 2020 reflecting the rapid accumulation of savings once codes are in place. The 2015 savings are equivalent to the energy use of more than 500,000 Midwest households[104].

Table 12: Estimated Annual Savings from Statewide Adoption of the 2009 IECC[105]

State	Estimated Annual Savings by 2015 (trillion BTUs)		Estimated Annual Savings by 2020 (trillion BTUs)	
	Residential	Commercial	Residential	Commercial
Illinois	6.0	3.6	11.8	7.3
Indiana	5.0	3.8	9.9	7.8
Iowa	1.1	0.8	2.2	1.6
Kansas	2.4	2.5	4.8	5.1
Michigan	2.5	4.0	4.8	8.3
Minnesota	3.4	4.1	6.7	8.5
Missouri	3.1	4.5	6.1	9.3
Nebraska	0.9	1.4	1.7	2.9
North Dakota	0.6	0.7	1.3	1.4
Ohio	3.4	1.9	6.8	3.9
South Dakota	0.9	1.7	0.9	1.8
Wisconsin	2.2	1.5	4.3	3.1
Subtotal by class	31.50	30.50	61.30	61.00
Total Savings (All)	61.5		122.3	

As these numbers clearly indicate, there are tremendous energy savings attainable through the adoption of building energy codes. In addressing building codes, policymakers need to examine three distinct areas: adoption, compliance, and measurement. In addition, stakeholders need to be involved throughout the process. Each has its own set of issues, and yet each is related to and informs the other. The following are some best practices for each of the three areas:

Adoption

The most straightforward approach to ensure that the latest building energy code is adopted is for the state legislature to enact legislation requiring its automatic adoption. In the Midwest, only Illinois has such a provision on the books. Wisconsin has a requirement that the latest code be considered.

- **Statewide Adoption:** Statewide adoption of the latest code provides for consistency across the state, thereby avoiding a patchwork of different codes in different jurisdictions. This helps ensure that contractors, inspectors, and others involved in the building process are following the same code regardless of the local jurisdiction. In home-rule states, where statewide adoption is not practical, MEEA urges the largest political subdivisions (cities and counties) to adopt the latest code and encourages the smaller jurisdictions nearby to follow their lead. It is important, as much as possible, to adopt the suite of codes published by the International Code Council (ICC). Many of the codes, such as the residential and mechanical code, contain requirements that are interrelated with those in the energy code.
- **State-Specific Amendments:** Whether or not states automatically adopt the latest energy code, it is important that amendments do not water down or weaken the stringency of the code[106]. The energy performance of a building built under a modified code should be equivalent to that of a building built under the national building energy code. The only difference should be the body which governs the code.
- **Stretch Codes:** In adopting an energy code, policymakers should ensure that it incorporates an appendix with more stringent standards. These are often called "stretch codes." In 2009, the Massachusetts Board of Building Regulations and Standards adopted an appendix to the state's building energy code containing a primarily performance-based stretch code. This stretch codes allows municipalities and towns to voluntarily adopt a building energy code that is approximately 20% more energy efficient than the base code and encourages building designers and developers to build or renovate buildings in a flexible, cost-effective manner that meets a percentage energy reduction below the base code rather than prescribing specific energy efficiency measures to be installed[107].

Compliance

Despite a significant amount of resources devoted to the issue from code officials, practitioners, and code advocates, compliance with the energy code remains low. The few studies on the subject indicate that compliance rates range between 16% and 70%. Many reasons exist for the lack of compliance, including: local building departments and state code offices are chronically underfunded; the energy code changes much more rapidly and more substantively (especially lately) than other codes making it difficult for both practitioners and officials to keep up with the latest requirements; and building officials rightly focus on quality of life and safety first.

Even in states with a strong enforcement infrastructure such as California, non-compliance rates vary, within a certain amount of error, from 28% to 100% for specific items[108]. **Table 13** summarizes several studies conducted over the past 10 years of energy code compliance rates[109].

Any law, ordinance, or regulation that requires some form of enforcement is relatively useless without the tools and resources needed to enforce it. A building code without an enforcement mechanism is simply a list of recommendations. Just like safety codes, energy codes need to be enforced. However, in these challenging economic times, local governments lack the financial and other resources necessary to enforce building energy codes. To address these hurdles, policymakers should look at funding mechanisms and other means of accessing the human capital needed to enforce energy codes. Fee structures, third-party inspection, compliance collaboratives, and utility building code programs are all considered best practices for improving municipal infrastructure for code enforcement.

Table 13: Code Compliance Rates Achieved by Selected States

State	Code	Residential Compliance Rate	Source
Maine	No statewide code at the time	16%	PUC and Maine Housing (2008)[110]
Massachusetts	1998 MA Residential Code	46.4% for Envelope; 20% for Duct Sealing	XEnergy (2001)[111]
Vermont	2005 Vermont Residential Building Energy Code	70%	NMR et.al. (2009)[112]

- **Fee Structure:** As with building safety inspections, a fee structure needs to be established for plan review and inspection. While the fee needs to be high enough to cover the expenses, it should not be so high as to discourage construction. The fee needs to create a dedicated funding stream for building energy codes to ensure that it is not used to cover other governmental expenses.
- **Third-Party Inspection:** Many local governments lack the resources to adequately enforce the safety codes, let alone the energy codes. One approach to address this resource issue is for local governments to rely on independent, third-party inspectors who have specialized knowledge of the energy code. These individuals contract with either the building department or the permit applicant. Regardless of whom these third-parties contract with, they are empowered with the authority to review plans for compliance with the energy code as well as with the enforcement and inspection authority relating to the building energy code during the construction. In developing a third-party inspection program, the local government must ensure:
  - » Inspectors are overseen or have been approved by the government agency. Oversight can occur through a Registered Design Professional (who would, in turn, be approved by the authority having jurisdiction)
  - » The inspector or inspection firm has no financial interest in the project being inspected
  - » That inspection reports are reviewed and approved by the appropriate government agency
  - » The inspector has the appropriate certifications that are the result of having passed the necessary examinations
- **Compliance Collaboratives:** There are a number of groups that should be involved in the code process, including code officials, architects, contractors, homebuilders, advocates, and others interested in and knowledgeable about building energy codes. This stakeholder group, or compliance collaborative, should meet regularly and on an ongoing basis and include participation from state and local stakeholders to address implementation and enforcement of the current code (see below for an example from Nebraska).
- **Utility Building Code Programs:** Utilities have the potential to be useful partners in improving compliance rates. Through work in new construction programs for both commercial and residential buildings, many utilities have expertise in the construction of energy efficient buildings and are familiar with code compliance. From this experience, utilities can become partners in developing and providing the necessary training, education, and tools that would drive an improvement in compliance. Utilities, however, should not be involved in the actual inspection and determination of compliance for a given building. That work should always be left to state or local building inspectors or designated third party inspectors.

Utilities can provide assistance to local enforcement of building codes by:

» Sponsoring multiple types of training programs as well as technical support for local building officials and builders
» Conducting a "gap analysis" for the state inspection infrastructure that identifies other obstacles and hurdles that hinder the ability of building departments to achieve full compliance
» Providing performance test rebates for diagnostic testing for air infiltration and duct leakage
» Creating statewide compliance collaboratives that focus on addressing compliance with building energy codes
» Training and certifying individuals and maintaining a catalog of "Special Plan Examiners and Inspectors" who are trained in the energy code as a supplement to code officials and who could then reduce the burden on code officials with respect to the energy code (third party enforcement)

Given the opportunity of new code adoption in the Midwest, and the increased efficiency funding and savings targets of Midwestern utilities, the time is ripe for the exploration of how utilities can support increased code compliance and implementation of stretch codes.

What the Midwest must do is gather the proper stakeholders (state and local code officials, state energy officials, utilities, regulators, evaluators, etc.) and begin to discuss how utilities can get involved and how to attribute savings to their involvement. Utilities need to be assured that, if they use ratepayer funds to support codes work, they will be allowed to claim savings and will be evaluated fairly and properly. Once such an arrangement is created in the codes program, it should be applicable across the entire state and could be a model for other states in developing their own codes programs. Consequently, to make this type of policy work, a number of technical and policy related issues need addressing, including the following:

» Specifying the appropriate role for utilities
» Fully describing the methodology for determining, attributing, and allocating energy savings
» Developing the appropriate methodology to determine cost-effectiveness
» Understanding the state specific process involved in setting up this type of program
» Ensuring that all stakeholders understand and support the program
» Integrating the program into the utilities' portfolio of energy efficiency programs and ensuring they receive credit towards the requirements under the states' respective Energy Efficiency Portfolio Standard

For more information regarding utility assistance on building energy codes, see MEEA's report *Utility Programs and Building Energy Codes*[113].

Measurement

Once a code has been adopted and effective compliance policies are put into place, the final step consists of measurement in order to determine whether the new code is having an effect. Measurement refers to determining the rate of compliance within a given jurisdiction (whether local or state). This section can be separated into three components.

- **Surveying Officials:** First, evaluators should survey officials in a wide range of municipalities to gain an understanding of compliance practices as well as the obstacles experienced by officials that inhibit strong code compliance.
- **Code Compliance Evaluations:** Second, on a regular basis the evaluators should perform actual measurements of code compliance using an approved statistical sampling methodology. Evaluations consist of having a third party (neither the builders nor code officials) reviewing actual construction to see whether it complies with the code.This applies to both plan reviews and actual constructions. Through these evaluations, states and local jurisdictions can determine whether compliance is improving. More importantly, it can pinpoint problem areas, such as the specific requirements that are being missed on a regular basis. Knowing these facts can help in the modification of adoption and compliance efforts. For example, understanding the areas that are consistently in non-compliance enables compliance training to be targeted to specific topics and also gives code officials directions of focus.

Nebraska's Codes Collaborative

The Nebraska Energy Office reached out to MEEA and the Building Codes Assistance Project (BCAP) to begin discussions about forming an energy code compliance collaborative in late 2012. A stakeholder group was quickly established and the Nebraska Energy Code Compliance Collaborative held its first meeting in January 2013. A broad range of stakeholders are represented at the collaborative, including homebuilders, code officials, gas and electric utilities, local and state government officials, architects, engineers, energy raters, commercial building managers, and academics. The collaborative has held five meetings to date, with an average of 25 members in attendance at each meeting, and formed five sub-committees to address Funding, Training, Outreach, State and Local Policy, and Measurement and Evaluation. MEEA continues to support the collaborative in a leadership role by chairing the meetings, being a member of multiple sub-committees, and spearheading the Utility Code Support initiative.

In addition to the ongoing code training efforts organized through the Nebraska Energy Office, the collaborative has recently started the state's first commercial compliance baseline study. Under the guidance of a third-party evaluator, students from the University of Nebraska will be trained to collect field data and receive academic credit for their involvement. Another collaborative initiative is to educate members of the state's unique unicameral legislature about the benefits of the Nebraska Energy Code and how it is enforced. The collaborative is also working to develop a utility code support program in which Nebraska's electric utilities, which are all publicly owned, invest in supporting increased building energy code compliance. These utilities do not have an Energy Efficiency Portfolio Standard mandate, so utility code support will be made as a business decision. MEEA has been instrumental in developing the data, framework, and methodologies that will allow the utilities to assess the full benefits of supporting increased building energy code compliance.

- **Converting Compliance into Actual Energy Savings:** A third step in the measurement section is converting the compliance rates into actual energy savings. As the purpose of energy codes is to save energy, it is important to understand the magnitude of savings that a well-enforced code can generate. Again, this information can aid in targeting subsequent compliance efforts to ensure that energy savings are maximized.

INDUSTRIAL EFFICIENCY

The industrial sector remains the largest consumer of end-use energy[114].

Nationally, industrial customers account for over 30% of the nation's energy use (see **Figure** 7). Although this sector employs many energy-intensive processes, which demand large amounts of energy, the industrial sector also has the greatest potential for savings. Beyond lighting programs, industrial programs offer the highest levels of achieved energy savings to date. Further, industrial energy efficiency has the lowest cost of saved energy nationally[115].

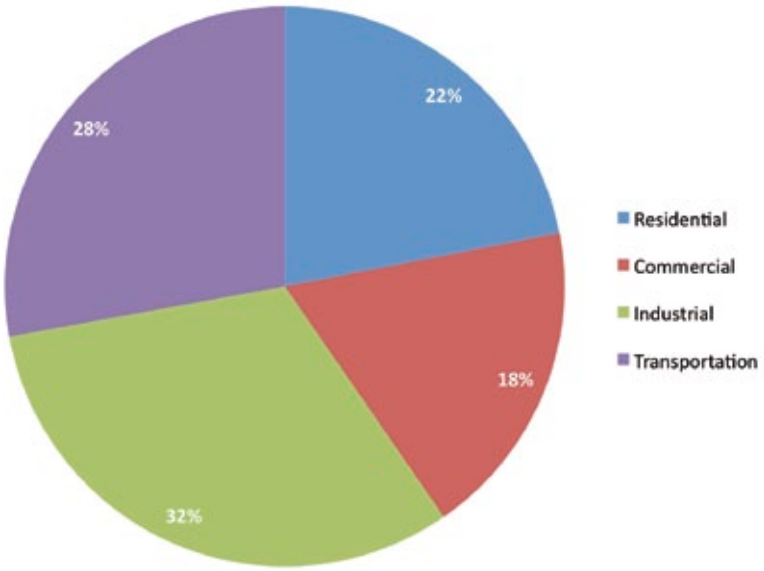

Figure 7: Total U.S. Energy Consumption by Sector, 97,387.3 Trillion Btu
Energy Information Administration, 2011

MIDWEST INDUSTRIAL ENERGY CONSUMPTION

The Midwest is home to much of the nation's manufacturing and industrial capacity. Manufacturers in the Midwest vary greatly in both what they make and the energy they consume. They include large and small firms involved in the production of automobiles, petroleum and coal products, machinery, chemicals, building supplies, medical supplies, metals, food processing, computers and electronics technology, and many other goods[116].

According to the Energy Information Administration (EIA), 4 of the 10 states ranked highest for industrial sector energy use are in the Midwest; 9 rank in the top 25[117] (**see Figure 8**). In 2011, industrial energy consumption in the Midwest reached 8,841 trillion Btus of energy, or 29% of the total U.S. industrial energy consumption[118].

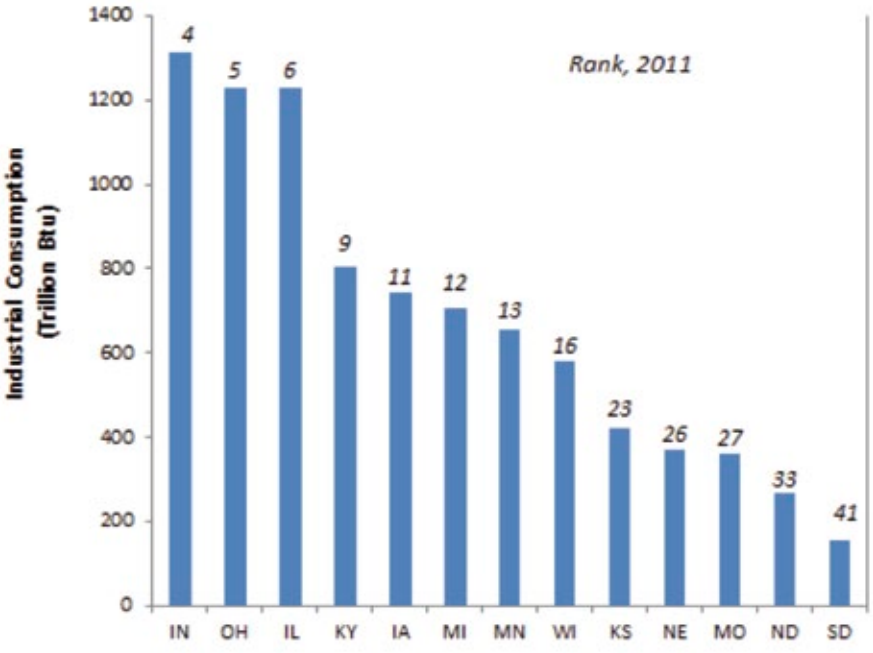

Figure 8: Industrial Energy Consumption in the Midwest, 2011 State Rank
Energy Information Administration, 2011

Most if not all of these manufacturers compete in national and international markets. As such, it is important for their products to be competitively priced by global standards. While there are many factors that go into competitive pricing – including labor, raw materials, transportation, and marketing – energy is also a significant factor. Accordingly, many manufacturers are acutely aware of the cost of energy and its effect on production costs and the firm's bottom line. In proceedings before state commissions and policymaking bodies, manufacturers often tout the importance of low energy rates to their business. From an economic development perspective, states and utilities also tout low energy rates to attract new businesses and maintain existing ones.

However, there is more to the cost of energy than rates. If a business can use less energy in its processes, it can also reduce its energy bills and increase competitiveness. According to a report by the National Association of Manufacturers and the Alliance to Save Energy, the "strategic deployment of energy efficiency is an indispensable component of any effort to improve productivity[119]." One strategy to help businesses maintain competitiveness is through affordable and effective energy efficiency policies and programs. Industrial energy efficiency policies can include the following:

- Promoting a robust portfolio of utility energy efficiency programs
- Combined Heat and Power (CHP)
- Tax incentives
- Financing
- Industrial Opt-Out/Self-Direct policies

Utilities are permitted to recover the costs of their energy efficiency programs from their customers under state policies. This is referred to as the Cost Recovery Mechanism (CRM), often appearing as a line item on a customer's bill, and is based on customer usage. The CRM allows the customer to know how much is being collected and aggregated with funds from other customers for system-wide energy efficiency efforts. Because industrial energy usage is large, the CRM charge on a customer's monthly bill can also be high, and unless the customer takes advantage of utility programs, he or she may not see direct benefits from reduced energy consumption on their bill.

UTILITY INDUSTRIAL ENERGY EFFICIENCY PROGRAMS

Industrial energy efficiency offers great potential for energy savings throughout the Midwest. Policymakers and utilities cannot afford to overlook this potential as they establish the program offerings in their states and service territories. If a utility is expected to meet a target for energy savings under an energy efficiency portfolio standard (EEPS), then it will need to achieve some savings from its industrial customers, just as it will need to realize savings from its residential and commercial customers. Oftentimes industrial energy efficiency is the most cost-effective type, so it is vital for policymakers to ensure that utilities develop a robust portfolio of prescriptive and custom programs targeted at industrial customers.

Prescriptive Programs

Prescriptive programs offer businesses fixed financial incentives or rebates for implementing improvements or technologies that reduce energy consumption. For example, there may be a set incentive for changing lighting or upgrading an HVAC system to more efficient technology. Prescriptive programs often provide incentives for systems upgrades to lighting, HVAC (controls, replacements, and tune- ups), compressed air systems, motors, refrigeration, food service equipment, steam trap repair and replacements, water heaters, and insulation.

In addition to prescriptive incentive programs, utilities offer a variety of other energy efficiency programs targeted at their industrial customers. These include energy audits, custom programs, Strategic Energy Management, retro-commissioning, new construction, and load response programs.

Energy Audits

Energy Audits provide an opportunity for a utility to help its business customers identify energy savings opportunities. These can range from online, do-it-yourself audits to a more in-depth walk-through of the industrial facility. A walk-through enables utility and customer representatives to identify potential energy savings, from the building's exterior to technologies on the manufacturing floor. The costs associated with these audits will often depend on whether the business customer implements any of the recommendations found in the audit report.

Custom Programs

Custom Programs provide businesses with incentives for installing high efficiency equipment or technologies that are not among the prescriptive technologies or for implementing process improvements that reduce overall energy consumption and peak demand. There is often a required return on investment (ROI) for these programs, usually ranging from 1 to 10 years, and rebate amounts depend on the amount of real or expected energy savings. This ensures that these are cost-effective projects that would not have been implemented without utility rebate funds.

Spotlight on Xcel Energy's SEM Program

- Funds a walk-through and a one-day course to evaluate energy-intensive processes and to benchmark energy management practices
- Funds 75% of engineering studies to identify additional energy savings opportunities
- Holistic process efficiency program targeted at large industrials
- Xcel received large process efficiency energy savings thanks to the program

Strategic Energy Management (SEM)

Strategic Energy Management (SEM) allows the customer to identify and adopt a strategic energy management approach that focuses on long-term goals rather than short-term savings. By adopting an SEM approach, the business customer examines its entire energy usage and adopts "best practices" for its operations. For the SEM approach to be successful, it should include appropriate goal setting as well as tracking and reporting for energy savings. In addition to generating long-term energy savings, SEM can result in a better understanding by the business customer of its energy consumption, a stronger relationship between the utility and its customers, long-term energy and cost savings, and increased property values. Other utility programs are working to integrate national SEM-focused certification programs such as ISO 50001, the Department of Energy's Superior Energy Performance program and ENERGY STAR®'s Building Manager.

Retro-Commissioning

Retro-commissioning provides in-depth energy usage analysis of a business customer's systems and identifies energy saving opportunities. The analysis can include monitoring energy use for up to 18 months, using specialized software. Often times, the utility provides incentives for installing the necessary software, as well as for energy savings credited to the retro-commissioning program.

Spotlight on ComEd's RCx Program

Recently completed fifth program year:

- 133 RCx projects completed
- 86.5 GWh saved
- 2.2M therms saved

Program elements:

- Utilizes an approved service provider network
- Incentive design – Program covers all costs for the engineering study and asks for an implementation commitment

New Construction Programs

New construction programs incentivize building owners to construct buildings with energy efficiency in mind. These programs can allow building owners to take advantage of prescriptive incentives offered by the utility (lighting and HVAC). These rebates are often available "pre-steel in the ground," so that they actually influence the design of the building instead of simply offering custom or prescriptive rebates.

Load Response

Utilities can reduce demand during times of peak usage by using load response programs. Through these programs, industrial customers of a specified size agree to reduce their demand during times of peak use in return for a financial incentive provided by the utility. In doing so, they reduce the stress placed on the system and avoid the need for the utility to build and operate new peak generating units, which are expensive. See http://midwestindustrial.org/ for a list of many of the utility-operated industrial efficiency programs in the Midwest. Demand response is also discussed further in the next section.

INDUSTRIAL SELF-DIRECT AND OPT-OUT POLICIES

Through Opt-Out policies, industrial and large energy users are permitted to "opt-out" of paying all or a portion of the Cost Recovery Mechanism (CRM) with the understanding that they are pursuing energy efficiency improvements on their own. Similarly, under Self-Direct policies, a large energy customer is given the authority to direct how it will spend all or a portion of its cost recovery charge. The Self-Direct policies can closely resemble an Opt-Out program depending on how the legislation is structured in an individual state, although generally, Self-Direct policies require more accountability than do Opt-Out policies. According to the American Council for an Energy-Efficient Economy (ACEEE), while these programs vary greatly from state to state, they share 4 underlying principles:

- Clearly defined eligibility
- Granted "relief" from utility CRM fees
- Administered by entities other than the large energy user (generally the utility, state commission, or state energy office)
- Energy savings are expected in exchange for the relief offered[120]

As of 2012, 24 states have adopted either Opt-Out or Self-Direct policies for industrial and other large energy customers in response to requests by the industrial community[121]. This is up from 15 states in 2009. As **Figure 9** illustrates and **Table 14** shows in more depth, 7 Midwestern states have adopted for some form of Opt-Out or Self-Direct policy.

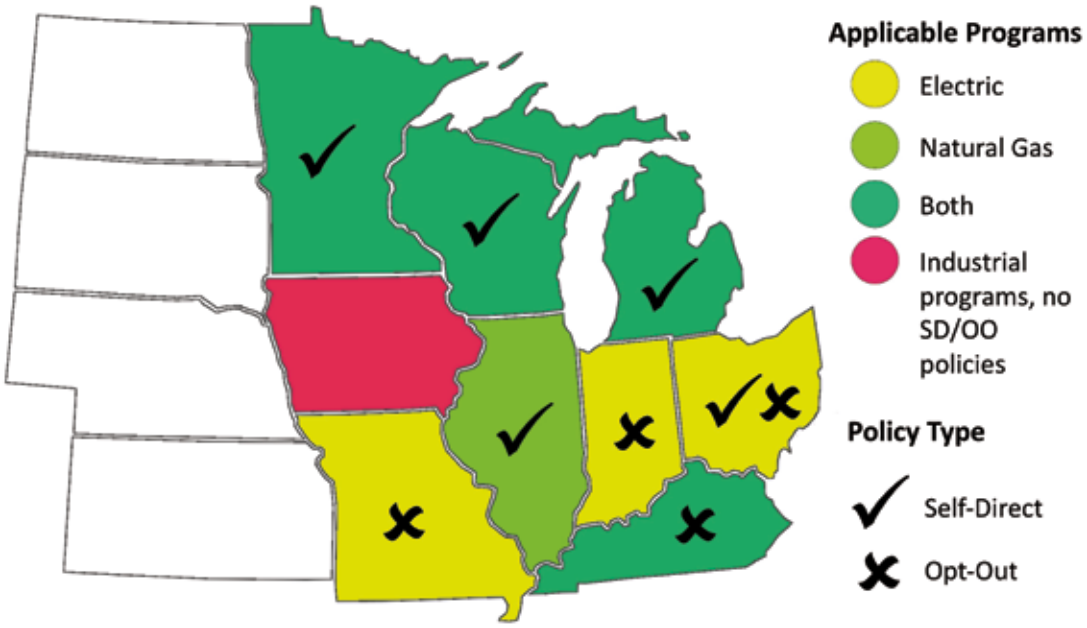

Figure 9: Industrial Energy Efficiency Self-Direct and Opt-Out Policies
Midwest Energy Efficiency Alliance, April 2014

Table 14: Midwest Industrial Opt-Out or Self-Direct Policies*

State	Statute	Utility	Opt-Out or Self-Direct	Spend or Energy Savings Goal	Threshold
Illinois	Public Act 96- 0033 (2007)	Gas	Self-Direct		Aggregate of 4 million therms in service territory or 8 million therms in the state.
Indiana	SB 340	Electric	Opt-Out		Electric capacity of more than 1 MW at a single site
Kentucky	KRS 278.285	Electric and Gas	Opt-Out		The commission shall allow individual industrial customers with energy intensive processes to implement cost-effective energy efficiency measures in lieu of measures approved as part of the utility's demand-side management programs if the alternative measures by these customers are not subsidized by other customer classes.
Michigan	460.1093 Self-directed energy optimization plan.	Gas and Electric	Self-Direct	Energy savings	In 2011, 2012, or 2013 – 1 MW/site or 5 MW Aggregate. In 2014 or any year thereafter, 1 MW aggregate.
Minnesota	2011 Minn. Stat. 216B.241 Energy Conservation Improvement	Gas and Electric	Self-Direct	Not identified	Peak electrical demand of minimum 20,000 kilowatts or 500 million cubic feet of natural gas annually.
Missouri	Missouri Energy Efficiency Investment Act	Electric	Opt-Out		(1) Demand of at least 5,000 kW for the past 12 months; (2) Interstate Pipeline Pumping Station; or (3) 2,500 kW of demand for past 12 months AND "comprehensive" demand or energy efficiency program in place saving equivalent of utility programs.
Ohio	S.B. 221 (127th General Assembly)	Electric	Both	Spend; AEP does not set energy savings goals for its industrial Self-Direct program[122].	More than 700,000 kilowatt hours per year or is part of a national account involving multiple facilities in one or more states.
Wisconsin	2005 Wisconsin Act 141	Electric and Gas	Self-Direct	Spend	Energy demand of at least 1,000 kilowatts of electricity per month or of at least 10,000 decatherms of natural gas per month and that, in a month, is billed at least $60,000 for electric service, natural gas service, or both, for all of the facilities of the customer within the energy utility's service territory.

* Iowa does not have Self-Direct or Opt-Out. Kansas, Nebraska, North Dakota, and South Dakota do not have required programs. Indiana eliminated its EEPS policy through SB 340 in 2014. This legislation also includes an opt-out for large customers. New legislation is currently being considered.

The Indiana Utility Regulatory Commission (IURC), in its March 21, 2012 order (Cause No. 43955), stated "the Commission believes that, during the initial stages of the creation of a statewide DSM program, any Opt-Out or Self-Directed options could interfere with the TPA's ability to fully implement the Core Programs, which include commercial and industrial programs, throughout the State. Accordingly, the request for the adoption of self-directed programs is denied at this time." The Commission goes on to state that it is "not permanently foreclosing consideration of cooperative self-directed programs proposed by a utility and its large commercial and industrial customers, supported by sufficient evidence and designed to be consistent with the Commission's goals and objectives in the Phase II Order[123]." The discussion of an Opt-Out for industrial customers began again in early January 2014 when the state senate proposed legislation (SB 340) that would require every utility to offer an industrial Opt-Out. The state senate amended the legislation to eliminate the energy efficiency portfolio standards (EEPS) policy in Indiana, in addition to the Opt-Out provision. SB340 became law in March 2014.

In some cases, these large industrial firms understand the importance of energy to their processes and effectively manage their energy consumption and costs through the use of efficient technologies and practices. For others, this may not be the case. To ensure that all customers are making progress toward using energy more efficiently, it is important that policymakers develop stringent implementation and evaluation, monitoring, and verification practices for Opt-Out and Self-Direct programs, just as they have for utility ratepayer-funded energy efficiency programs. That way, all customer classes are working towards energy efficiency. These policies should address the following:

- Energy savings
- Funding collection and expenditure
- Evaluation, measurement, and verification
- Attribution of energy savings

Energy Savings

Like policies for the utilities industry, industrial energy efficiency policies should shift from measuring funds expended to energy saved. Setting goals for energy savings will encourage large energy customers to take advantage of Opt-Out or Self-Direct policies. The funds these customers use in lieu of paying the Cost Recovery Mechanism (CRM) fees or to have the ability to self-direct their expenditures should be used to meet the same energy savings targets as the utility-operated programs.

Funding Collection and Expenditure

One of the issues that industrial customers raise with respect to the CRM is the cost of utility-sponsored energy efficiency programs. They see this line item on their bill as driving up costs and supporting other customers, some of whom may be competitors. As such, they are asking policymakers for the authority to determine how these funds will be spent. In this instance, policymakers have a responsibility to other customers and the utilities to ensure that these customers are, in fact, making the investments in energy efficiency technologies and processes they claim to be making.

To do so, policymakers should create independent accounts for these customers that clearly show how much customers have contributed and against which energy efficiency investments and improvements the amount can be charged. It is important that these customers be given a specified amount of time- possibly several years — in which to spend these funds. If the customer fails to spend these funds, then the money should become available for utility-directed industrial energy efficiency improvements. Conversely, if they "overspend" in early years, they should be able to recoup the expense over time.

Finally, should an industrial customer fail to either adequately spend the amount by the specified deadline or fail to achieve energy savings from their investments, the commission or regulatory body should be authorized to levy a financial penalty as well as direct the industrial customer to participate in the utility-offered programs.

Evaluation, Measurement and Verification

Policymakers and utilities have recognized the importance of evaluating, measuring, and verifying energy savings resulting from utility or statewide energy efficiency programs. They have required independent, third-party analysis to ensure that ratepayer dollars are spent wisely AND achieve the promised energy savings.

Industrial customers who elect to opt-out or self-direct should have their energy efficiency programs held to the same standard to which the utilities are held, including the following:

- A firm baseline should be established based on historical energy usage
- Measurement and verification of the energy savings should be required of the customer
- Programs that are implemented before the Opt-Out or Self-Direct decision is made should not count towards the overall energy savings
- The tests used should be the same as those for the utility, and tests should be transparent and relevant
- The same economic measures used for utilities should be employed to determine cost-effectiveness Reporting of the energy savings should be filed with the commission or appropriate regulatory agency

Attribution of Energy Savings

Policymakers need to ensure that the utility is not penalized for large energy-consuming customers who choose to take advantage of the state's Opt-Out or Self-Direct policies. There are two approaches to this. The first is to give the utility credit for the energy savings achieved by its industrial customers through their Self-Direct programs. The second is for the baseline established for these customers to be subtracted from the utility's baseline and therefore not count in identifying the utility's energy savings goals. Typically, the energy saved by self-directed customers counts towards a state's energy efficiency portfolio standard, while the industrial load is removed from consideration when calculating a utility's baseline goals under an Opt-Out policy.

COMBINED HEAT & POWER (CHP)

Combined Heat and Power (CHP), or cogeneration, is the simultaneous production of heat and mechanical or electrical energy from a single fuel source. CHP and policies encouraging its deployment have both been around for some time. There is no single CHP technology, but it includes reciprocating engines, turbines, micro-turbines, fuel cells and other technologies. CHP can also include on-site generation facilities, waste-heat recovery, and the systemic integration of a variety of technologies, applications, and fuels at one facility. In many cases, CHP uses natural gas, process-related fuels, high-pressure steam, or waste heat that would typically be released into the atmosphere to generate electricity, while

using the resulting or remaining heat to replace fossil-fuel fired heat sources, thereby conserving fuels. Because CHP is located on-site, close to its point of use, there are system, environmental, and economic benefits that can be derived from its effective use. In terms of overall efficiency, when appropriately designed, CHP can achieve 60-80% overall efficiency, factoring in both electricity generation and heat usage. This is significant when one considers the average central power plant is only about 30% efficient[124]. In order for states to adequately incorporate CHP into their energy supply, they have adopted a number of policies that address a variety of issues, including interconnection policies, incentives, back-up rates, local permitting, and net metering. Within the energy industry and across policymaking bodies, there is no clear consensus on whether CHP is an energy efficiency resource or a renewable energy technology. In the Midwest, some policymakers have included CHP and waste energy recovery in the energy efficiency category. Others include it in their renewable energy portfolio, and some categorize it by itself. State CHP policies differ with respect to certain issues, such as the capacity limit, the need for a standard agreement, or a net metering requirement. These issues are described in more detail and are also listed in **Table 15**.

Highlights of Ohio's Senate Bill 315

- Allows certain types of waste heat recovery technologies to be counted as a renewable resource under the state's renewable portfolio standard (RPS)
- Allows types of waste heat recovery technologies as well as CHP to be counted under the state's EEPS

Because CHP is traditionally developed, owned, and operated by the customer, the investment comes from the industrial site or an energy service company. Utilities see little, if any, benefit from its deployment, as CHP reduces the utility's electric load (though may increase gas consumption), reducing the utility's overall revenue. Utilities are concerned about the potential risk to the electric grid and system reliability should the generator fail to operate and the utility is called on to supply the industrial site with power. For this reason, the utility still needs to plan for and build back-up generating capacity should the facility go off-line. Many of these issues are common to behind-the-meter generation installations, whether CHP or distributed solar. There are many important CHP-related policies that can be addressed in order to encourage further development:

Interconnection Standards: Interconnection standards are requirements for connecting generation resources to the grid. Standardized application forms, contracts, fee structures, and size requirements help to streamline the development process.

Feed-In Tariff: A feed-in tariff is a policy mechanism used to incentivize clean energy generation wherein the utility purchases the electricity produced by the generator at a set price that is reflective of the cost of generation rather than the utility's avoided cost. It is important to determine how much the utility should pay the customer for electricity it purchases from the CHP facility.

Standby Rates: As noted above, a utility must plan to provide power to the industrial customer if the local generation fails to operate or is down for maintenance and the customer requires grid backup. One outstanding question is how much the utility should charge the industrial customer for ensuring backup generation is available.

Energy Efficiency or Renewable Portfolio Standards: Legislators or regulators typically determine what technologies are allowed to count towards an EEPS or renewable portfolio standard (RPS). Does a CHP facility count towards a utility's requirements under an Energy Efficiency Resource Standard, Renewable Portfolio Standard, or neither?

Financial Incentives: Financial incentives can take the form of tax credits or exemptions on low-interest loans and credit enhancements, among others. Does the state provide financial incentives for which CHP projects can qualify?

Table 15: Combined Heat and Power in the Midwest[125]

State	Interconnection Statute	System Capacity Limit	Standard Agreement	Net Metering Required	Net Metering Statute	Efficiency or Renewable Statute	CHP Installations as of July 2013[126]		
							Sites	kW	2011-13
Illinois	§ 220 ILCS 5/16-107.5	No Specified Limit	Yes	No	§ 220 ILCS 5/16-107.5 83 Ill. Adm. Code, Part 465	EEPS § 220 ILCS 5/8-104	139	1271,272	5
Indiana	170 IAC 4-4.3	No limit specified	Yes	No	170 IAC 4.2	RPS 170 IAC 17-1-1 et. seq.	38	2,266,568	3
Iowa	IAC 199—15.10 (476)	10 MW	Yes	No	Iowa Code 476.43		35	630,299	0
Kansas	Kansas Statutes 66-1263	200 KW for non-residential 25 KW for residential	Yes	Yes	Kansas Statutes 66-1263		17	134,455	0
Kentucky	KRS 278.465 et seq.	30 MW	Yes	Yes	KRS 278.465 et seq.		7	123,120	0
Michigan	MCL 460.1175	No limit specified	Yes	No	Public Act 295 of 2008	Renewable MCL § 460.1001	92	3,164,817	4
Minnesota	Minn. Stat. 216B.1611	10 MW	Yes	No	Minn. Stat. § 216B.164	Efficiency Minn. Stat. § 216B.241 (9)	55	918,464	0
Missouri	R.S. Mo. §386.890	100 kW	Yes	Yes	R.S. Mo. §386.890		21	236,220	1
Nebraska	R.R.S. 70-2001, et seq.	25 kW	No	Yes	R.R.S. 70-2001, et seq.		17	105,092	0
North Dakota		100 kW		Yes	ND Admin. Code 69-09-07	Renewable ND Century Code § 49-02-24 et seq.	12	68,430	0
Ohio	Ohio Admin Code 4928.11 and 4901:1-22	20 MW	Yes	No	Ohio Revised Code 4928.67 Ohio Admin Code 4901:1-10-28; 4901:1-21-13;	CHP in Efficiency S.B. 315 Waste Heat Recovery in either EERS or RPS, but not both ORC 4928.64	52	522,233	5
South Dakota	S.D. Admin. Rules 20:10:36	10 MW	Yes	No		Renewable SDCL § 49-34A-101 et seq.	5	24,200	0
Wisconsin	Wis. Stat. § 196.496	15 MW	Yes	No	PSCW Order, Docket No. 05-EP-6	Renewable Wisc. Stat. 196.025(4)(a)2	94	1,570,144	9

DEMAND RESPONSE AND SMART GRID IMPLEMENTATION

Demand response and smart grid implementation both represent emerging areas at the intersection of demand-side management and technology deployment.

Although demand response programs have existed for some time, their potential growth and impact have greatly expanded due to the implementation of a smarter grid. The sections below discuss both demand response and smart grid implementation in more detail, including how the smart grid enables further demand response opportunities.

DEMAND RESPONSE

When the demand for electricity is greater than the available supply (whether on a local or regional level), stress is placed on the entire system, from the power plant through the transmission grid and the distribution system. A number of factors can contribute to this situation – often referred to as peak demand events – including extreme weather conditions (excessively hot or cold days), generating facilities being off-line, fallen power lines, and natural disasters. To alleviate this stress, policymakers and utilities have developed demand response programs. According to the Federal Energy Regulatory Commission (FERC), demand response is defined as the ability of customers to respond to either a reliability trigger or a price trigger from their utility system operator, load-serving entity, Regional Transmission Organization / Independent System Operator (RTO/ISO), or other demand response provider by lowering their power consumption[127].

In developing demand response policies, regulators and utilities are incentivizing customers to use less electricity at times of high energy use, thereby reducing peak energy usage and freeing up both generation and grid capacity. In doing so, they are hoping to avoid major blackouts across large sections of the grid. According to the FERC's A National Assessment of Demand Response Potential, in the most aggressive scenario, the nation could see a "14% reduction in peak demand for 2019, compared to a scenario with no demand response programs[128]." Utilization of demand response is poised to increase over time as the dissemination of smart meters and automated metering infrastructure continue to increase and electric grid planners plan for more utilization of demand response. In most of the states in the Midwest (**Table 16**), demand response programs are operating or in the pilot phase.

Table 16: Demand Response Policies in the Midwest

State	Authority	Summary
Illinois	Energy Infrastructure Modernization Act	Requires electric utilities to "file an energy efficiency and demand response plan with the Commission to meet the energy efficiency and demand response standards for 2011 through 2013."
Indiana	Order in Cause No. 43566 (July 28,2010)	The Indiana Utility Regulatory Commission's Demand Response Order "required all jurisdictional electric utilities to file tariffs or riders authorizing the participation of retail customers, through their utility provider, in the applicable regional transmission organization's ("RTO") demand response programs[129]."
Iowa	Iowa Code Section 476.17	Adopted in 1981, authorizes the Iowa Utilities Board to require utilities to create peak load energy conservation measures, which have come to include demand response.
Kansas	Final Order in GMX-441-GIV (Nov 14, 2008)	In its order, the Kansas Corporation Commission stated its belief that demand response programs can shave demand peaks, thereby mitigating the need for expensive new power generation.
Kentucky		Individual utilities in Kentucky operate demand response programs for certain customer classes.
Michigan	Public Act 295 of 2008	The Clean, Renewable, and Efficient Energy Act, passed in 2008, considers demand response as part of load management to address strategies and technologies to decrease or shift peak energy demand.
Minnesota	Docket No: E-999/CI-09-1449 (Feb 8, 2011)	Minnesota PUC found that the ability of utilities to expand their demand response programs through contracts with third parties may be beneficial.
Missouri	Mo. Rev. Statutes 393.1075.	Demand response is included in the Missouri Energy Efficiency Investment Act. within the definition of demand-side program.
Nebraska	2011 Nebraska State Energy Plan[130]	Calls for increasing opportunities for DSM and energy efficiency, including strategies focused on having consumers manage their peak time energy consumption. Identifies irrigation as a DSM opportunity.
North Dakota		Individual utilities in North Dakota operate demand response programs for certain customer classes.
Ohio	Ohio Revised Code 4928.64	Includes within the definition of "alternative energy resource" energy resources that a mercantile customer commits for integration into the electric distribution utility's demand response, energy efficiency, or peak demand reduction programs as provided under division (A)(2)(c) of section 4928.66 of the Revised Code, including, but not limited to, any of the following: (a) A resource that has the effect of improving the relationship between real and reactive power; (b) A resource that makes efficient use of waste heat or other thermal capabilities owned or controlled by a mercantile customer; (c) Storage technology that allows a mercantile customer more flexibility to modify its demand or load and usage characteristics; (d) Electric generation equipment owned or controlled by a mercantile customer that uses an advanced energy resource or renewable energy
South Dakota	SD Admin Rules 20:10:38:06	Provides for the measurement and verification of demand response measures.
Wisconsin		Wisconsin's major utilities have operated demand response programs for many years.

There are a number of benefits to demand response programs, including the following:

- Can provide a revenue stream to the participating customer
- Relatively inexpensive "low hanging fruit" that can be captured as part of a utility's resource plan
- Considerably less expensive than purchasing power on the spot market or building peaking units that would be used very infrequently
- Helps to avoid blackouts or brownouts
- No carbon dioxide implications for the utility, which is not true of natural gas peaking units
- The Independent System Operators are actively seeking greater demand response to help them manage system reliability
- "Aggregators of Retail Customer" (ARCs) are the new entrants into the energy arena and will work with customers to aggregate the demand response and bid it into the wholesale market, taking the onus off the customer to have in-house energy expertise and resources devoted to managing the demand response program

Although demand response policies are often applicable to residential, commercial, and industrial customers, the magnitude of the potential for energy shifting for industrial customers is significant. As such, demand response programs tie into the state's or utilities' industrial energy efficiency programs, in some instances. Because industrial customers are significant consumers of energy, often during times of peak energy demand, they have the ability to shave the peak considerably by shifting their load. By comparison, it would take a lot of refrigerator or air conditioner controls (or both) to equal the amount saved by one industrial customer.

Since the Midwest has significant manufacturing and agricultural energy customers, it is important that state policymakers examine their demand response policies to ensure that:

- Customers are involved in the development of demand response programs and educated about their benefits
- Policies are coordinated with regional independent system operators to ensure maximum effectiveness
- Customers are properly compensated for voluntarily reducing their consumption during times of peak demand
- The benefits and drawbacks of third-party ARCs for demand response are considered, in addition to considering how to properly involve and grow this group of energy businesses
- Effective measurement and verification of demand response is undertaken

SMART GRID POLICIES & PROJECTS

Smart grid technologies have the potential to play a major role in the future of energy efficiency. Although these technology solutions are still in the process of being implemented, they are poised to significantly impact energy efficiency practices by allowing for increased information sharing and device control.

A smart grid entails the deployment of advanced technology that enables the movement of information between the utility and the consumer, between a utility and monitoring and control devices on its grid, and between and among utility control areas. The objective is to use information and control technologies to optimize grid operations.

Much of the initial emphasis on the smart grid has been on the utility side of the meter, including operating the grid more efficiently, monitoring voltages, and detecting outages. However, the promotion of demand-side management (i.e., on the customer's side of the meter) and energy efficiency strategies provides significant opportunities for customers. Time-of-use rates are one mechanism to influence consumers to change their energy consumption patterns (i.e., demand response). Smart technologies can provide consumers with dynamic information on their electricity usage and corresponding costs. Coupled with time-of-use rates, this information can enable customers to better manage their consumption and lower their energy bills. Some states in the Midwest, such as Illinois, require a reduction in peak demand in addition to a decrease in total demand. The rollout of smart grid technologies will make it simpler for users to reduce peak load.

A smart grid typically incorporates many different components, including the following:

- Advanced sensing and control devices including smart meters, supervisory control and data acquisition (SCADA), and distribution and substation automation
- Consumer energy monitoring and management devices and systems
- Real-time, digital, two-way telecommunications, including advanced metering infrastructure (AMI)
- Enterprise software and systems to enable utilities to manage the smart grid

Grid modernization, when coupled with smart end-use technologies, can help customers better manage their energy use. Customers can benefit from having real time data on their energy usage and costs. For example, programmable appliances can be run off-peak when rates are lower. In addition, customers may benefit from increased reliability (i.e., fewer brownouts due to high demand exceeding utilities' capacity to serve). To the extent that changes in consumers' electricity usage patterns result in less energy consumption (i.e., conservation), lower demand (i.e., decreased need to build carbon-based generation), or the ability to accommodate more renewable energy generation resources, customers' desire for efficiency and sustainability will be addressed. In some cases, customers will be better able to integrate their own distributed renewable generation sources into the utility's operations. Consumers will also benefit as energy usage at municipal buildings is better managed and the savings are directed towards local schools, police, or other priorities established by local government officials.

With the passage of the American Recovery and Reinvestment Act of 2009, the U.S. Department of Energy helped fund the deployment of smart grid technology across the nation. In the Midwest, IOUs, electric cooperatives, and municipal utilities have initiated a number of pilot projects to identify the benefits of and potential issues with the deployment of smart grid technologies.

Illinois S.B.1652, the "Energy Infrastructure and Modernization Act" was enacted by the General Assembly in 2012 over Governor Quinn's veto and provides performance standards that are tied to utility investments to service reliability improvements, while maintaining the ICC's oversight responsibilities.

The Energy Independence and Security Act of 2007 revised the Public Utility Regulatory Policies Act of 1978 (PURPA) and required states to consider two new standards for smart grid investments and information. The states were not required to adopt the standards, but merely consider actions such as prioritizing smart grid investments over non-advanced technology investments, allowing utilities to fully recover and earn a fair rate of return on smart grid investments, allow electricity purchasers and other qualified parties access to time-based wholesale and retail prices and usage information, etc.[131].

There are a number of policies that policymakers will need to consider, including the following:

- How does smart grid deployment integrate with a state's EEPS?
- What information will the commission need to approve deployment and recovery of the associated costs?
- Will the state adopt dynamic pricing (or time-of-use rates)?
- How will the state and utilities handle the transition to a modern grid?
- How will customers be educated about the benefits of the grid modernization and be engaged to take advantage of it?
- How do home energy management systems and smart appliances fit into the EEPS programs?
- How will customer data be handled?
- What are the reporting requirements?

According to the Smart Grid Information Clearinghouse, there are smart grid activities taking place in all of the Midwestern states. **Table 17** lists a sample of the smart grid projects in each of the states conducted by IOUs, electric cooperatives, and municipal utilities. The Smart Grid Information Clearinghouse (http://www.sgiclearinghouse.org/) is a comprehensive resource for information related to the smart grid, including details on smart grid projects and lessons learned from existing deployment projects.

Table 17: Smart Grid Projects and Pilots in the Midwest[132]

State	Project	
Illinois	Ameren Illinois Automated Metering Project Commonwealth Edison Smart Grid Deployment under S.B. 1652^	Illinois Institute of Technology Perfect Power Project (with Exelon/ ComEd and Galvin Energy Initiative) Naperville Smart Grid Initiative
Indiana	AEP Smart Grid Demonstration Project: Virtual Power Plant Simulator (Indiana Michigan Power) City of Auburn Smart Grid Project Duke Smart Grid* Indianapolis Power &Light Smart Grid Project Maquoketa Valley Rural Electric Cooperative**	Marshall County Rural Electric Membership Corporation** MISO Smart Grid Project Northeastern REMC AMI project South Central Indiana Smart Grid – PURPA Standards Vectren DSM* Wabash Valley Power Smart Grid Project
Iowa	Interstate Power and Light AMI Project	Iowa Association of Municipal Utilities Smart Grid Project
Kansas	Kansas City Power & Light SmartGrid Midwest Energy Smart Grid Project	Westar Energy Smart Grid Project
Kentucky	Cumberland Electric Membership**	South Kentucky Rural Electric Cooperative Smart Grid Project
Michigan	Consumer Energy Smart Meter Pilot Project Detroit Edison Smart Grid Project	Detroit Edison Smart Grid Storage Demonstration Project Whirlpool Corp. Smart Grid Project
Minnesota	ALLETE (Minnesota Power) Smart Grid Advanced Metering Infrastructure Interstate Power and Light (Minnesota) AMI Project Lake Country Power – Automated Meter Reading	Minnesota Valley Cooperative Light & Power Association** Traverse Electric Cooperative** Stearns Electric Association AMI Project
Missouri	Ameren UE AMI Project Black River Electric Co-op AMI Project City of Fulton, MO Smart Grid Project	Kansas City Power & Light (Green Impact Zone Smart Grid Demonstration) The Boeing Company – Boeing Smart Grid Solution
Nebraska	Stanton County PPD – Advanced Metering Infrastructure Initiative Cumming County PPD – Smart Grid Project	Nebraska Public Power District Smart Meter Installation
North Dakota	Bismark State College Capital Electric Cooperative, Inc.** Nordak Electric Cooperative**	Traverse Electric Cooperative** Verendrye Electric Cooperative**
Ohio	City of Painesville Smart Grid Storage Demonstration Project City of Wadsworth Smart Grid Project City of Westerville Smart Grid Project Columbia Gas of Ohio AMR	Columbus South Power Company (dba AEP Ohio) Smart Grid Regional Demonstration Project Duke Energy Ohio* First Energy Service Company Smart Grid Project
South Dakota	Black Hills Power Smart Grid Project Excel Energy* Lake Region Electric Association** MidAmerican* Montana Dakota Utilities*	NorthWestern Energy* Otter Tail Power* Sioux Valley Southwestern Electric Co-op Smart Grid Project Traverse Electric Cooperative**
Wisconsin	Alliant Energy AMI project American Transmission Company LLC Smart Grid Project American Transmission Company LLC II Smart Grid Project Chippewa Valley Electric Cooperative** Madison Gas and Electric Smart Grid Project	Waukesha Electric Systems Smart Grid Regional Demonstration Project Wisconsin Power and Light Smart Grid Project Xcel Energy (Northern States Power Wisconsin) AMI Project

^ Not in Smart Grid Information Clearinghouse but identified in recently enacted legislation
* Not in Smart Grid Information Clearinghouse but identified on state commissions' websites
** U.S. Department of Agriculture (USDA) funded projects

Given the number of smart grid pilots and project across the region, commissions have an opportunity to collect and share lessons learned for the benefit of utilities, stakeholders, and consumers in their state. Mechanisms for doing so include:

- Sponsored practitioner conferences and workshops
- Best industry practices guidelines
- Policy white papers examining issues like customer privacy
- Sponsored statewide stakeholder collaboratives
- Consumer publications that illustrate the benefits of smart grid in the state's energy efficiency and sustainability plans
- Proceedings examining dynamic pricing/time-of-use rates

ENERGY EFFICIENCY FINANCE

One barrier to energy efficiency confronting all classes of customers – residential, commercial, industrial, governmental, and agricultural – is the availability of financing.

Investments in energy efficiency require the end user to spend money up front on energy efficiency improvements (insulation, lighting, more efficient motors or appliances, etc.) with the promise that the consumer will use less electricity and/or natural gas, and thereby spend less on their electric and gas bills.

However, these investments can be expensive, and the end user may not have the cash readily available to make such an investment. Traditional lending programs with high interest rates may make the investment uneconomic. Additionally, the amount individual projects save depends at least partially on occupant behavior. This has hindered the ability to aggregate loans to sell on the secondary market, in the manner mortgages are bundled, and mitigated the interest of large private capital investment[133]. This has hindered the private capital market, which has been either unable or unwilling to make significant headway in financing energy efficiency improvements on a large scale. To overcome these barriers, policymakers, utilities, economic development organizations, and others have developed a number of financing tools, including Property Assessed Clean Energy initiatives, on-bill financing, low-interest loans, and state revolving funds.

PROPERTY ASSESSED CLEAN ENERGY FINANCING

One state-authorized approach allows local governments to finance investments in energy efficiency and renewable energy made by property owners within their jurisdiction. The program is called Property Assessed Clean Energy (PACE) financing. Under this program, the local government creates a land-secured taxing district for the purposes of energy efficiency and renewable energy improvements. Local homeowners and commercial building owners voluntarily decide to participate and make improvements to their property. Local governments finance the up-front costs of these improvements, which are then repaid through an assessment on the property owner's property taxes for up to 20 years[134].

As of May 2014, authorizing legislation or other authority for PACE financing has been enacted in 31 states plus the District of Columbia, including 6 in the Midwest – Illinois, Michigan, Minnesota, Missouri, Ohio, and Wisconsin (see **Table 18** for details on PACE policies in the Midwest)[135]. As **Figure 10** demonstrates, PACE financing is truly a bipartisan issue, with legislation passed in both Democratic- and Republican-controlled state legislatures.

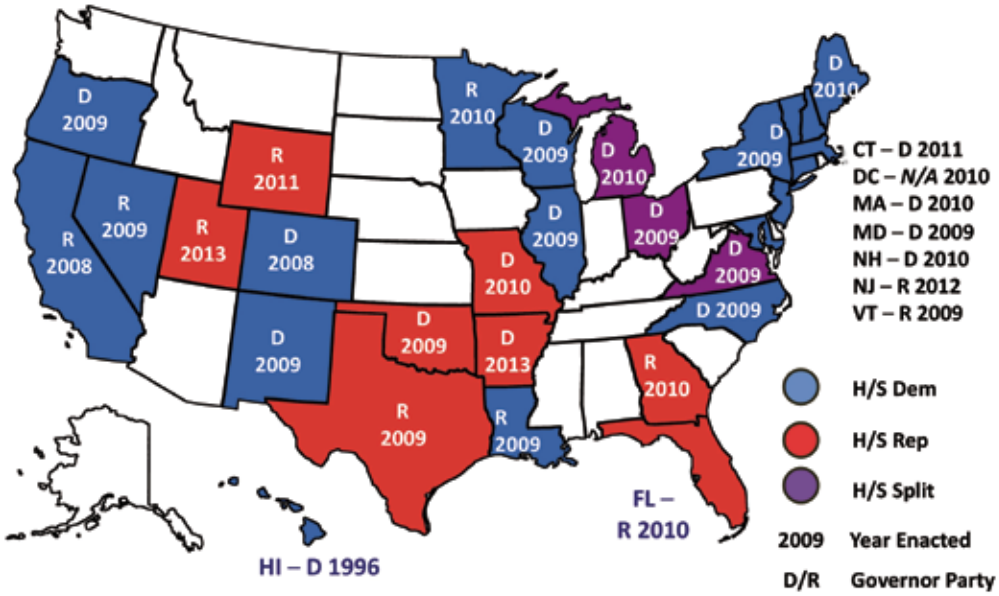

Figure 10: PACE Financing is a Bipartisan Issue, Party Composition when PACE-Enabling Legislation Passed
Midwest Energy Efficiency Alliance, April 2014

Table 18: PACE Financing in the Midwest

State	Statute	Sectors	EE Technologies	Terms
Illinois	Illinois Municipal Code 65 ILCS 5/1-1-11	Commercial, Industrial, Residential, Agricultural, Property Owners	Unspecified	Locally Determined
Michigan	Act 270 of 2010	Commercial, Industrial	Wide range of technologies including lighting, chillers, HVAC, CHP/ Cogeneration, Heat recovery, Energy Mgmt. Systems/ Building Controls, Caulking/Weather-stripping, Duct sealing, Building Insulation, Windows, Doors, Roofs, Motor Vehicle Charging, Water Usage Reduction Measures	Locally Determined
Minnesota	216C.436 Energy Improvements Program for Local Governments	Commercial, Industrial, Residential, Multi-Family Residential	Custom/Others pending approval, Electric Vehicle Charging Equipment	Loan maturity may not exceed the lesser of the weighted average of the useful life of improvements or 20 years; interest rates locally determined, but must be sufficient to cover program costs
Missouri	Missouri Revised Statute Chapter 67	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Multi-Family Residential, Agricultural, Institutional	Wide range of technologies including Lighting, HVAC, Heat recovery, Energy Mgmt. Systems/Building Controls, Caulking, Weather-stripping, Insulation, Windows, Doors, Comprehensive Measures, Whole Building, and Custom measures	Financing contracts limited to 20 years or less; improvements must display a positive economic benefit over the life of the contract.
Ohio	ORC 1710.01	Commercial, Industrial, Residential, Multi-Family Residential, Low-Income Residential, Agricultural	Unspecified Technologies, (Must be permanently affixed to real property)	Low-interest; 30 years
Wisconsin	Wis. Stat. § 66.0627	Commercial, Industrial, Residential	Locally Determined	Terms determined by municipality; Improvements must result in savings-to-investment ratio of greater than 1.0 for projects of $250,000 or more

In states where PACE financing has been enacted, several communities or regions have actively been pursuing commercial PACE to help business owners finance energy efficiency improvements. While residential PACE has been limited for reasons discussed below, commercial mortgages are not subject to the same requirements as residential mortgages. As such, some jurisdictions across the nation remain committed to commercial PACE and are actively using this tool to finance energy efficiency improvements.

Edina, MN Launches Commercial PACE

In November 2011, the Edina, MN City Council adopted the Edina Emerald Energy Program, making it the first municipality in Minnesota – and one of the few in the nation – to take advantage of the Property Assessed Clean Energy financing. With the installation of solar panels at Grandview Tire and Auto, the first commercial PACE financing was successfully finalized, drawing notice from other Edina businesses as well as other Minnesota communities.

As the market for energy efficiency retrofits in commercial buildings is expected to nearly double to reach $152 billion worldwide by 2020, the commercial PACE market has potential to grow significantly[136].

There has been much discussion regarding PACE programs for homeowners and the actions of the Federal Housing Financing Agency (FHFA), which has effectively shut down residential PACE programs for the time being. The FHFA supervises, regulates, and oversees Fannie Mae, Freddie Mac and the Federal Home Loan Banks (FHLBs). In doing so, FHFA seeks to ensure their safety and soundness as well as supports a stable mortgage market. On July 6, 2010, the FHFA released a "Statement on Certain Energy Retrofit Loan Programs" wherein it expressed concern regarding PACE financing in that "such loans acquire a priority lien status over existing mortgages," and in doing so "post unusual and difficult risk management challenges for lenders, services and mortgage securities investors." The agency went on to urge "state and local governments to reconsider these programs" and asked for a "pause" so that FHFA's concerns could be considered[137].

In response to FHFA's actions, legislation has been introduced in Congress to remedy this situation. While Federal legislation most likely provides the best solution to the FHFA situation, California has also sued the agency in Federal District Court. The court ordered FHFA to conduct a rulemaking and consider the input of interested parties. In response to the District Court's order, FHFA issued an Advance Notice of Public Rulemaking (ANPR) on January 26, 2012, in which it sought input on PACE programs and responses to specific questions[138]. FHFA has received thousands of comments in response to the ANPR. It is unlikely that the agency will voluntarily reverse its decision, so several states have explored options to kick-start residential PACE by ensuring the Federal lenders' interests take precedence over PACE assessments in case of default. This situation remains unresolved at this time and continues to limit the feasibility of residential PACE programs. However, commercial PACE programming is growing rapidly in the Midwest, with PACE programs in the design or implementation process in numerous jurisdictions.

ON-BILL FINANCING

Another financing tool utilized by some utilities is to allow customers to finance energy efficiency improvements and to repay the cost of the improvements plus interest through an on-bill financing program. With such a financing mechanism, the monthly amount to repay the loan is added on to the utility bill over the life of the loan. In several programs, the repayment schedule is set such that the monthly savings exceeds the monthly amount repaid on the loan, thereby allowing the customer to realize financial savings immediately. Depending on the utility, these programs are available for both residential and commercial customers. There are a number of potential customer benefits of such a program:

- Provides customers with an easy path to financing energy efficiency improvements
- Encourages private investment in energy efficient technologies
- Low or no up-front costs
- Low-interest rates
- Easy repayment plans
- Ability to take utility bill payment history into account rather than simply a credit score
- Can work with rebate and other incentive programs
- Can supplement government funding (if it's available)
- Can be utilized by residential, commercial, and industrial customers

Secretary of Agriculture Proposes Lending Program for Consumer Energy Efficiency Improvements

On July 17, 2012, Agriculture Secretary Tom Vilsack announced that the USDA was proposing a rule to establish policies and procedures to implement energy efficiency loan programs aligned with USDA's Rural Economic Development Energy Efficiency (REDEEE) effort. This proposed rule will help leverage and expand those programs for existing borrowers of the Rural Utilities Service to include a relending program that enables rural utilities and cooperatives to lend to homeowners and businesses. Eligible projects would include consumer energy efficiency improvements, energy audits, small scale renewable energy systems, demand-side management investments, and consumer education and outreach programs. The proposed rule was published in the Federal Register (pp. 43723-43734) on July 26, 2012.

This new lending program has the potential to help consumers overcome the financing barriers and significantly increase investment in energy efficiency in rural communities, and those state policymakers who regulate electric co-ops should be aware of and review this rule when it is finalized.

Utilities may have concerns regarding (1) exposing their shareholders to financial risks posed by defaults, (2) going beyond their core business function by becoming loan underwriters, or (3) the expense of upgrading their billing systems to handle on-bill financing[139]. Each of these concerns can be properly managed to provide utilities the assurances that they desire. For example, policymakers can create a loan loss reserve fund using public benefit funds to make the utility whole in the case of defaults. Third-party entities can get the utility out of the business of underwriting the loans, and simply use the utility billing and collections process to handle the monetary transactions. Such an approach is being utilized by Energy Pioneer Solutions (EPS) in Nebraska. EPS, which is currently working with 14 utilities in the state, conducts the assessment, performs the energy efficiency improvements, and provides the financing for energy efficiency improvements. With the customer's consent, EPS gains access to usage data from the utility at the beginning of the process, and then the loan and interest are repaid as a line item on the customer's monthly energy bill. And, because they have access to the usage data, EPS is able to quantify the energy savings from the energy efficiency investment. Finally, EPS has structured these loans such that they are transferable to the next property owner, should the current owner sell the property before the loan is fully repaid.

There are two different types of on-bill financing - conventional loans and tariff-based financing. With the conventional consumer loan, the debt is assigned to the customer and repayment is made via the utility with a line item on the customer's monthly utility bill. With a tariff-based loan, the debt is actually assigned to the meter, which provides several significant benefits:

- Transferability from one owner or tenant to the next
- The repayment obligation may not appear as debt on the customer's credit reports
- Longer repayment terms of up to 20 years
- Encourages energy efficiency improvements to rental properties[140]

According to the American Council for an Energy-Efficient Economy (ACEEE), there are currently 20 states in which a utility is offering some form of on-bill financing for energy efficiency improvements[141]. The capital needed to develop an on-bill financing program typically comes from (1) third-party financial institutions, (2) utility funding, or (3) a state public benefits fund[142]. In some cases, on-bill financing is being advanced by the utility, in other cases by a local government and/or nonprofit organization, and in yet a third by state legislation requiring utilities to offer on-bill financing programs[143]. In both Kentucky and Indiana, on-bill financing is being pursued by local economic development and redevelopment organizations in conjunction with the local utility.

Michigan Saves

Michigan Saves is a nonprofit organization dedicated to making energy improvements easy and affordable. Created with an initial $6.5 million grant from the Michigan Public Service Commission, Michigan Saves has created a network of contractors and credit unions to provide consistent offerings and financing across the state. Initially targeted at residential customers, the Michigan Saves program has recently expanded to the commercial sector. The program is driven by local contractors, who coordinate their efforts with utilities by knowing what rebates or incentives are available as well as helping the customer line-up needed financing with one of the participating credit unions. In addition, Michigan Saves manages a loan loss reserve fund, to be accessed in the rare case of a default.

Another concern that consumer advocates have raised is the potential for customers to have their utility services disconnected for failing to pay their utility bill, which incorporates both the energy services and the loan repayment. However, these programs are generally structured such that the customer will receive an immediate savings on their utility bill, even while paying back the loan. This is done by ensuring that the monthly energy savings are greater than the monthly payment on the loan. As such, the utility has reduced the risk of defaulting on the loan because the overall monthly payment will be less than it was before the investments in energy efficiency. This is the approach taken in Kentucky by the Mountain Association for Community Economic Development's on-bill program, in which they ensure that the loan is repaid through a portion of the savings that the customer achieves.

In Illinois, the 2009 ICC Reform Act requires utilities to establish on-bill financing programs for energy efficiency improvements or appliances. The Illinois program is a conventional lending program that is connected to the individual, not the meter. As such, the customer must pay off the loan upon the sale of the property. In addition, the customer's utility service can be disconnected for nonpayment, and in the event the customer makes a partial payment, the utility bill is paid before the loan.

Across the nation and the Midwest, on-bill financing programs vary from utility to utility with respect to eligibility, technologies available for financing, minimum and maximum loan amounts, and loan terms. In 2013, the Illinois General Assembly passed legislation requiring an electric utility or gas utility serving more than 100,000 customers on or after January 1, 2013 to offer an Illinois Commerce Commission-approved, on-bill financing program to owners of multi-family master-metered residential or mixed-use master-metered buildings with 5 or more residential units no later than December 31, 2013. The loan program is administered by AFC First and funded by participating gas and electric utilities. More information is available on the state's energy efficiency loan program website[144].

OTHER ENERGY EFFICIENCY FINANCING TOOLS

In addition to PACE and on-bill financing, a number of states, utilities, and lenders across the Midwest are working to help provide customers access to capital necessary to make investments in energy efficiency. These financing tools include state and local lending programs, point-of-sale financing, and unsecured personal financing. Point-of-sale loans are similar to a credit card or line-of-credit, where the local merchant arranges for financing through a large financial institution, not unlike the financing of appliances through a "big box" retailer. In this instance, the utility is simply the intermediary connecting its customer to the lender.

Loan Loss Reserve Fund

One of the most effective credit enhancements is the creation of a loan loss reserve (LLR), which lowers the risk to the financial institution while simultaneously leveraging the program's capital. This allows programs to take a "portfolio approach" to credit structuring. Loss reserves can be as low as 2% but are more often around 10%. This money is set aside to cover certain losses. For example, a 10% LLR on a $20 million portfolio would cover up to $2 million of the financial institution's losses due to default. Sometimes, there is also a first loss percentage that determines how much of the first losses the reserves will cover. This is typically 80%-90%. A properly structured 10% loss reserve fund, for example, can support 10 times more funds than a comparable rebate. With $1,000, a program can provide a one-time $1,000 rebate or can establish a loss reserve fund that supports a $10,000 revolving loan fund, which can be recapitalized through interest payments and loaned again and again. Instead of supporting just one retrofit, that $1,000 can be used to support many. Iowa's fund helps ensure that private sector lenders will make loans for energy efficiency to industrial, agricultural, and commercial businesses.

A related mechanism is a debt service fund (DSF), in which case capital is put aside to cover interest payments in the event of late payments or defaults by program participants. Some states like Iowa have taken the step of helping to secure private capital for energy efficiency improvements through the creation of a loan loss fund.

Revolving Loan Funds

State revolving loan funds (RLFs) have existed since the 1970s and 1980s, when early states such as Nebraska and Texas developed RLFs with money from petroleum related fees[145]. Today, the vast majority of states have at least one RLF, including 11 states in the Midwest.

RLFs allow programs to lend to participants from a single fund that is re-seeded with principal and interest payments from participants. The fund is in turn lent to future participants. RLFs can be structured in such a way that interest payments are sufficient to cover administrative overhead and default rates so that the capital base is kept intact and the pool of funds to draw from long term is maintained.

Nebraska's Dollar and Energy Savings Loan Program, a RLF administered by the Nebraska Energy Office created over 20 years ago, is still active today. In this program, the Energy Office invests in the loan by purchasing 50%-75% of the loan from the lender at 0% interest[146]. Nebraska's program has financed over 25,000 projects totaling more than $200 million[147].

Sector-Focused Financing

As with the on-bill financing programs, the energy efficiency financing programs can vary with regard to their target audience as well as the eligible products, and the size and terms of the loans. What these programs offer is access to capital for residents, local governments, colleges, and businesses across the state rather than in a particular utility service territory or a jurisdiction that is pursuing PACE financing. As **Table 19** indicates, there are examples of these state policies and programs across the Midwest.

Table 19: Examples of State Energy Efficiency Financing Programs

Target Audience	State	Program	Description
Municipalities	Illinois	Illinois Finance Authority Act	Aid municipalities by allowing for the issuance of bonds to finance energy efficiency projects[148].
	Iowa	Low-interest Revolving Loan Fund Energy Loan Program	Finance energy efficiency projects enrolled in Iowa's public Building Energy Management Program.
	Missouri	RSMo 640.169 and 651-686	The Division of Energy administers loans to local governments and schools for the purpose of financing all or a portion of the costs incurred in implementing an energy conservation project.
	Nebraska	Nebraska Energy Office's Dollar and Energy Savings Loan Program	Low-interest loans for qualified projects.
	Ohio	Ohio Energy Resources Division – Energy Loan Fund	Loans available for state agencies, local governments, and school districts. Loans generally used for energy efficiency retrofits, but cost-effective distributed generation systems may be eligible.
Universities, Schools and Hospitals	Iowa	Low-interest Revolving Loan Fund	Finance energy efficiency projects enrolled in Iowa's Building Energy Management Program.
	Michigan	Michigan Energy Revolving Loan Fund	Public Act 242 of 2009 created the Energy Efficiency and Renewable Energy Revolving Loan Fund (Energy Revolving Loan Fund) Program which provides low-interest loans to public and private entities for energy efficiency projects.
	Missouri	Energy Loan Program	Low-interest loans for qualified projects.
	Nebraska	Nebraska Energy Office's Dollar and Energy Savings Loan Program	Low-interest loans for qualified projects.
	Ohio	Energy loans for public and nonprofit projects	Loans available for public colleges and universities and 501(c)3 organizations. Loans generally used for energy efficiency retrofits, but cost-effective distributed generation systems may be eligible.
Small Businesses	Kansas	Efficiency Kansas	Low-interest loans.
	Michigan	Michigan Energy Revolving Loan Fund	Public Act 242 of 2009 created the Energy Efficiency and Renewable Energy Revolving Loan Fund.
	Nebraska	Nebraska Energy Office's Dollar and Energy Savings Loan Program	Low-interest loans for qualified projects.
	Ohio	Ohio Energy Resources Division – Energy Loan Fund	Loans available for energy efficiency projects at Ohio firms with fewer than 500 employees.
Manufacturers	Nebraska	Nebraska Energy Office's Dollar and Energy Savings Loan Program	Low-interest loans for qualified projects.
	Ohio	Ohio Energy Resources Division – Energy Loan Fund	Ohio manufacturers that have participated in the Energy Efficiency Program for Manufacturers (EEPM) and have completed the energy management diagnostic and plan development phases are eligible for loans to fund the implementation phase.
Residents/Homeowner	Kansas	Efficiency Kansas	Low-interest loans.
	Kentucky	Kentucky Home Performance (KHP)	Residents may be eligible to apply for a below-market unsecured loan in lieu of rebates for the installation of approved energy-efficient measures made to single-family residences participating in KHP.
	Nebraska	Nebraska Energy Office's Dollar and Energy Savings Loan Program	Working with financial institutions in the state, offers simple interest rates depending on the size and scope of the project. Also offers low-interest loans for qualified projects and appliances.
	Ohio	Ohio Treasurer's Eco-Link	ECO-Link is a partnership between the State Treasurer of Ohio and participating state banks that provides residents a 3% interest rate reduction for 5 or 7 years on bank loans when completing energy-efficient upgrades to their home.
	Wisconsin	Focus on Energy	Reduced financing rates on loans for efficient heating and cooling as well as Home Performance with ENERGY STAR customers.
Agriculture	Illinois	Ag Invest – Green Energy Loans	The Illinois State Treasurer's Office secures below-market interest rates for borrowers who finance their purchase or installation of energy efficient equipment with participating financial institutions.

Qualified Energy Conservation Bonds

The U.S. Treasury allocated $3.2 billion in volume bond caps to states based on population, which was sub-allocated to counties and municipalities with populations over 100,000 in proportion to the population of the state. **Table 20** shows the Midwest allocation of Qualified Energy Conservation Bonds (QECB)[149]. These are taxable bonds that come with a 70% credit on the interest. This can be paid either as a tax deduction, or as a direct credit, with the latter being far more popular. For example, if a county issued a $2 million QECB to reduce energy consumption in public buildings by 20%, with a 10% interest rate, the county would annually pay approximately $200,000 of taxable interest to the purchasers of the bonds. The county would then be eligible to receive a check rebating 70% of the $200,000 interest payment ($140,000) from the US Treasury Department[150].

QECB issuances are for a reduction in energy consumption in public buildings of 20% or more, mass commuting strategies that reduce energy consumption, grants and research into energy conservation, or for green community programs. At the same time, 70% of volume caps must be used for public institutions, with up to 30% used for private activity, including nonprofit organizations. The one area where there is some debate is in the green community programs designation, which could be particularly appropriate for Illinois Home Performance. The Illinois Finance Authority, for example, states that "green community programs may also qualify for use of QECB financing, as determined by the IRS." What is certain is that by utilizing the green community programs clause, the cap on private buildings (residential energy efficiency retrofits) no longer applies. The New York State Energy Research and Development Authority is using this approach and is able to lower its net cost of borrowing for its revolving loan fund to 2%, enabling it to lend at lower interest rates to residential borrowers.

Table 20: Midwest Allocation of Qualified Energy Conservation Bonds

State	U.S. Treasury Allocation
Illinois	$133,846,000
Indiana	$66,155,000
Iowa	$31,150,000
Kansas	$29,070,000
Kentucky	$44,291,000
Michigan	$103,780,000
Minnesota	$54,159,000
Missouri	$61,329,000
Nebraska	$18,502,000
North Dakota	$6,655,000
Ohio	$119,160,000
South Dakota	$8,343,000
Wisconsin	$58,387,000
Midwest Total	$734,827,000
U.S. Total	$3,200,000,000

On June 27, 2012, the IRS issued a guidance addressing (1) how to measure reductions in energy consumption in public buildings and (2) what constitutes a "green community program," including the use of loans, grants, or other repayment mechanisms to implement such programs. In defining a green community program, the IRS included "a loan (or other repayment mechanism) or grant program that is broadly available to members of the general public, including individuals or businesses[151]."

CONCLUSION

The Midwest has made great strides adopting policies and launching programs that promote energy efficiency by state and local governments as well as electric and natural gas utilities and their residential, commercial, and industrial customers.

These policies, programs, and practices have saved energy and money while creating thousands of local jobs.

Energy efficiency has grown dramatically over the last decade and is recognized as the most affordable solution to meet energy demand – costing less than any existing power source. In addition, these cost-effective investments consistently return more in benefits than they cost to implement.

Although the Midwest has saved a significant amount of energy through energy efficiency programs, the story of energy efficiency is larger than just saving energy. Energy efficiency programs save consumers money, make homes more comfortable, help reduce peak load, and are an excellent value. Further, energy efficiency can increase the competitiveness of local businesses by reducing their energy costs.

Above all, cost-effective energy efficiency is an excellent investment. As energy efficiency is poised to grow in coming years, we will continue to update this information and are happy to be an ongoing resource for energy efficiency policies and programs.

Appendix 1

Appendix 1: Energy Efficiency Targets and Ramp-Up				
State	**Electric Goal**	**Natural Gas Goal**	**Achieved by**	**Ramp-Up**
Illinois	2.00%	1.50%	2015/2017	Under the legislation, utilities were required to meet a goal of 0.2% savings through efficiency of energy delivered in 2009 and ramps-up to 2.0% by 2015 and every year thereafter. However, due to a spending cap of 2.015%, the targets for both ComEd and Ameren have been lowered by the Illinois Commerce Commission for years 2013 and 2014.
Indiana	2.00%	0	2019	Utilities were required to meet a goal of 0.3% efficiency in 2010, ramping up an additional 0.2% yearly through 2018 (1.9%) and an additional 0.1% in 2019 to reach a total of 2.0% annual energy efficiency over the course of 10 years.
Iowa	1.40%	1.00%	now	There is no statewide goal: each utility has its own plan and different annual goals. The utility plans reflect a ramp-up in the energy savings achieved through energy efficiency.
Michigan	1.00%	0.75%	2012/2012	Electric utilities were required to achieve 0.3% savings in 2009; 0.5% in 2010; 0.75% in 2011; and 1.0% in 2012 and each year thereafter. Natural gas utilities were required to achieve 0.1% savings in 2009; 0.25% in 2010; 0.5% in 2011; and 0.75% in 2012 and each year thereafter.
Minnesota	1.50%	1.50%	2010	There was no ramp-up schedule provided for in the Next Generation Energy Act of 2007. Legislation also authorized the Minnesota Department of Commerce, the regulatory body in Minnesota, to adjust these targets downward. Minimum savings targets are now 1%.
Ohio	2.00%	0	2019	The energy efficiency standard began with a requirement for 0.3% of the preceding three-year weighted average electricity sales to be met with efficiency in 2009, ramping up to 1.0% annually from 2014 to 2018, then increasing to 2.0% in 2019 through 2025.

Appendix 2

Appendix 2: Utility Cost Recovery Mechanisms in the Midwest		
State	**Citation**	**Cost Recovery Mechanism**
Illinois	220 ILCS 5/8-103 (e)	A utility providing approved energy efficiency and demand response measures in the state shall be permitted to recover costs of those measures through an automatic adjustment clause tariff filed with and approved by the Commission. The tariff shall be established outside the context of a general rate case. Each year, the Commission shall initiate a review to reconcile any amounts collected with the actual costs and to determine the required adjustment to the annual tariff factor to match annual expenditures.
Indiana	170 IAC 4-8-5	A utility is entitled to recover the reasonable cost of planning and implementing a demand-side management program in one or more of the following ways or any combination of them, as determined by the Commission: (1) The inclusion of the cost in the utility's base rates during a rate case using a balancing account, where appropriate, to reconcile the utility's recovered expenditures. (2) The periodic recovery of the cost incurred in excess of the cost that is included in the utility's base rates. (3) The inclusion of the capital cost, with accumulated allowance for funds used during construction (AFUDC), in the utility's rate base during its rate case, amortized over a period set by the Commission. (4) The accumulation, with a carrying charge, of the non-capital cost incurred and not otherwise recovered through the utility's base rates or through periodic adjustments in a deferred account to be amortized over a period set by the Commission. (5) A cost recovery mechanism proposed by the utility, other parties, or the Commission.
Iowa	Iowa Code 476.6.16.g	A rate-regulated gas or electric utility may recover, through an automatic adjustment mechanism over a period not to exceed the term of the plan, the costs of an energy efficiency plan approved by the Board. The Board shall periodically conduct a contested case proceeding to evaluate the reasonableness and prudence of the utility's implementation of an approved energy efficiency plan and budget.
Kansas	Final Order in 08-GMX-441-GIV	Approved on a case-by-case basis. It is the Commission's policy to consider proposals from utilities for riders to recover costs for energy efficiency programs.
Kentucky	278.285	Allows costs of approved programs to be incorporated into a surcharge that appears on the customer bill. The amount of the surcharge is determined based on five elements: program costs, projected lost revenues as a result of the programs, an incentive bonus, capital recovery, and true-up from the previous filing. Only the customer class that benefits from a given program should incur the associated costs of the program.
Michigan	PA 295 Sec. 89. (1)	The Commission shall allow a provider whose rates are regulated by the Commission to recover the actual costs of implementing its approved energy optimization plan. However, costs exceeding the overall funding levels specified in the energy optimization plan are not recoverable unless those costs are reasonable and prudent and meet the utility system resource cost test.
Minnesota	Minn. Stat. 216B.16 Subd. 6b	The Commission may permit a public utility to file rate schedules providing for annual recovery of the costs of energy conservation improvements. Investments and expenses of a public utility incurred in connection with energy conservation improvements shall be recognized and included by the Commission in the determination of just and reasonable rates.
Missouri	393.1075 RSMo. Cum. Supp. 2010	Provides for timely cost recovery for utilities for all reasonable and prudent costs of delivering cost-effective, demand-side programs.
Nebraska		All electric utilities in Nebraska are either public power districts or electric cooperatives. They are not regulated by the Nebraska Public Service Commission. Rates are set by the individual utility boards, and cost recovery for energy efficiency investments are decided by their respective boards.
North Dakota		Costs recovered on a case-by-case basis through rate proceedings.
Ohio	OAC 4901:1-39-07	With the filing of its proposed program portfolio plan, the electric utility may submit a request for recovery of an approved rate adjustment mechanism, commencing after approval of the electric utility's program portfolio plan, of costs due to electric utility peak-demand reduction, demand response, energy efficiency program costs. Any such recovery shall be subject to annual reconciliation after issuance of the Commission verification report issued pursuant to this chapter.
South Dakota	SDCL 49-34A	Commission has approved an Energy Efficiency Cost Recovery Rider on a case-by-case basis.
Wisconsin	Wisc. Stat. 196.374	The Commission shall ensure in ratemaking orders that an energy utility recovers from its ratepayers the amount the energy utility spends on energy efficiency programs.

Appendix 3

Appendix 3: Utility Lost Revenue Recovery Mechanisms in the Midwest		
State	**Citation**	**Lost Revenue Recovery Mechanism**
Illinois	Dockets 07-241 & 07-242	There are no policies to support decoupling for electric utilities. However, North Shore Gas (Docket 07-241) and People Gas (Docket 07-242) were approved for revenue-per-customer pilot programs in February 2008.
Indiana	170 IAC 4-8-6	The Commission may allow the utility to recover the utility's lost revenue from the implementation of a demand-side management (DSM) program sponsored or instituted by the utility. The calculation of lost revenue must account for the impact of free riders and the changes in the number of DSM program participants between base rate changes and on the revised estimate of a program-specific load impact that result from the utility's measurement and evaluation activities. The Commission may periodically review the need for continued recovery of the lost revenue as a result of a utility's DSM program.
Iowa	NOI-06-1	The Iowa Utilities Board considered decoupling for natural gas utilities and determined that it would consider automatic adjustment mechanisms or other rate design changes on a case-by-case basis.
Kansas	Final Order in 08-GIMX-441-GIV	The Kansas Corporation Commission (KCC) indicated in the final order that they would consider gas decoupling on a case-by-case basis. The KCC found that it has the broad authority to provide for performance incentives for energy efficiency programs, but has either rejected incentives when they have been proposed, or proposals have been withdrawn before a Commission ruling. No decoupling plans or performance incentives have been approved for any utility.
Kentucky	278.285	Allows utilities to include in customer bill surcharge the projected revenues lost as a result of approved cost-effective energy efficiency programs.
Michigan	Public Act 295	Allows natural gas utilities to request a symmetrical revenue decoupling mechanism as long as they are spending at least 0.5% of total revenues on energy efficiency programs. The law, however, does not mention electric utilities. The Michigan Public Service Commission previously authorized several electric decoupling pilots, but the Michigan Court of Appeals ruled in April 2012 that the Commission had no explicit statutory authority to implement decoupling for electric providers.
Minnesota	Minn. Stat 216B.2412	The Next Generation Energy Act of 2007 directed the Public Utilities Commission (PUC) to allow pilot programs to assess decoupling. In June 2009, in Docket E, G-999/CI-08-132, the MN PUC issued an order adopting the criteria and standards for decoupling pilots. Utilities were required to file notice of intent to file a decoupling pilot by June 1, 2010 and all proposals had to be filed by December 30, 2011. Two gas utilities, CenterPoint Energy and Minnesota Energy Resources Corporation, have received approval from the Commission to implement decoupling pilots in Docket Nos. G008/GR-08-1075 and G007, G011/GR-10-977, respectively. Though the statute authorizes decoupling for electricity, no decoupling pilots have been proposed or implemented by electric utilities.
Missouri	393.1075 RSMo. Cum. Supp. 2010	Provide timely earnings opportunities associated with cost-effective, measurable, and verifiable efficiency savings. The Missouri Public Service Commission has approved decoupling for gas utilities Atmos Energy and Missouri Gas Energy.
Nebraska		All electric utilities in Nebraska are either public power districts or cooperatives. Lost revenue charges, surcharges, or extra returns are not necessary for public power and nonprofit cooperatives to adopt cost-effective energy efficiency rates and programs.
North Dakota	Docket PU-06-525	Decoupling approved in natural gas rate design case for Xcel Energy.
Ohio	OAC 4901:1-39-07	Allows recovery of "appropriate" lost distribution revenues. An electric distribution utility may apply to the Public Utilities Commission of Ohio for approval of a revenue decoupling mechanism. However, gas utilities haven't been allowed to implement a true decoupling mechanism. Instead, they've been permitted to use straight-fixed-variable rate designs. These decisions are determined on a case-by-case basis for both electric and gas utilities. Duke Energy Ohio recovers lost revenues resulting from its portfolio of energy efficiency programs through the DSM rider. Dayton Power & Light currently has a case pending. AEP Ohio chose not to seek lost revenue recovery in their prior rate case.
South Dakota	Docket GE09-001	In 2010, the South Dakota Public Utilities Commission authorized a lost revenue adjustment mechanism for Northwestern Energy for both gas and electric efficiency programs.
Wisconsin	Dockets 6680-UR-116 and 6690-UR-119	In December 2008, decoupling was approved for the Wisconsin Public Service Corporation, which, specified as a "Revenue Stabilization Mechanism," allowed the utility to pursue a four-year pilot program. This pilot ended in 2012.

Appendix 4

Appendix 4: Status of Utility Incentive Mechanisms in the Midwest*		
State	**Citation**	**Utility Incentives**
Indiana	170 IAC 4-8-7	When appropriate, the Commission may provide the utility with a shareholder incentive to encourage participation in and promotion of a demand-side management (DSM) program. A utility may propose a shareholder incentive based on particular attributes of a DSM program and the program's desired results. A shareholder incentive may include, but is not limited to, the following: (a) a percentage share of the net benefit attributable to a (DSM) program; (b) authorization for the utility to a greater-than-normal return on equity for a rate-based (DSM) expenditure; and/or (c) an adjustment to a utility's overall return on equity in response to quantitative or qualitative evaluation of demand-side management program performance.
Kansas	Final Order in 08-GMX-441-GIV	The Commission's policy shall be to consider proposals for shared savings performance incentive plans where they are tied to specific energy efficiency programs the Commission considers most desirable. Approved Westar's Shared Savings mechanism in docket 10-WSEE-775-TAR.
Kentucky	278.285	Allows utilities to include in customer bill surcharge an incentive bonus associated with approved cost-effective energy efficiency programs.
Michigan	PA 295 Section 75	An energy optimization plan of a provider whose rates are regulated by the Commission may authorize a commensurate financial incentive for the provider for exceeding the energy optimization performance standard. The total amount of a financial incentive shall not exceed the lesser of the following amounts: (a) 25% of the net cost reductions experienced by the provider's customers as a result of implementation of the energy optimization plan. (b) 15% of the provider's actual energy efficiency program expenditures for the year.
Minnesota	Minn. Stat. 216B.16 Subd. 6c	The Commission may order public utilities to develop and submit for Commission approval incentive plans that describe the method of recovery and accounting for utility conservation expenditures and savings. In developing the incentive plans, the Commission shall ensure the effective involvement of interested parties. In approving incentive plans, the Commission shall consider: (1) whether the plan is likely to increase utility investment in cost-effective energy conservation; (2) whether the plan is compatible with the interest of utility ratepayers and other interested parties; (3) whether the plan links the incentive to the utility's performance in achieving cost-effective conservation; and (4) whether the plan is in conflict with other provisions of this chapter. The Commission may set rates to encourage the vigorous and effective implementation of utility conservation programs. The Commission may: (1) increase or decrease any otherwise allowed rate of return on net investment based upon the utility's skill, efforts, and success in conserving energy; (2) share between ratepayers and utilities the net savings resulting from energy conservation programs to the extent justified by the utility's skill, efforts, and success in conserving energy; and (3) adopt any mechanism that satisfies the criteria of this subdivision, such that implementation of cost-effective conservation is a preferred resource choice for the public utility considering the impact of conservation on earnings of the public utility.
Missouri	393.1075 RSMo. Cum. Supp. 2010	Ensures that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances these incentives.
Nebraska		All electric utilities in Nebraska are either public power districts or cooperatives. As such, they do not have stockholders, and there is no need for an incentive mechanism. As an example, Omaha Public Power District identified this in its 2009 report under the Public Utility Regulatory Policies Act (PURPA)[152].
Ohio	OAC 4901:1-39-07	Utilities can recover "shared savings."
South Dakota	SDCL 49-34A-8.2.	Provides incentive rates for improved performance and efficiency. In addition to any other rate authorized, the Commission may approve incentive rates to encourage improved performance and efficiency of public utilities. The rates are in the form of preapproved rate models made applicable as levels of performance are attained by the utility.
Wisconsin	Docket 6680-UR-114	Utilities can propose incentives as part of their rate cases for the voluntary utility-administered energy efficiency programs that are outside of the Focus on Energy program. The incentive is in the form of shared savings. Alliant (WP&L) has received Commission approval to utilize the shared savings mechanism for one of the programs it offers outside of the Focus on Energy program.

* Illinois, Iowa, and North Dakota do not have utility incentive mechanisms.

Appendix 5

Appendix 5: Status of Energy Efficiency Stakeholder Groups in the Midwest*

State	Stakeholder Group	Enabled	Facilitator	Participants	Objective
Illinois	Illinois Stakeholder Advisory Group	Public Act 095-0481	Future Energy Enterprises	Utilities, Illinois Commerce Commission Staff, DCEO, Environmental Advocates, and Consultants	Share information and experiences among stakeholders. Discuss technical reference manual, evaluation, measurement, and verification (EM&V) issues, and other issues of a more technical nature.
Indiana	Indiana DSM Coordination Committee (DSMCC)	Commission Order Cause No. 42693	Indiana DSMCC	Utilities, Office of the Utility Consumers Counsel, Office of Utility Consumer Counselor (OUCC), Citizen's Action Coalition of Indiana (CAC), and the Indiana Industrial Group-	Develop program designs. Develop a statewide database of program results. Create a periodic joint report for the Commission on the status of DSM programs.
Iowa	Iowa Energy Efficiency Collaborative	As part of settlement agreements for Investor-owned Utilities' (IOUs) current energy efficiency plans	Iowa Office of the Consumer Advocate	Utilities, Office of the Consumer Counsel, Department of Economic Development, Iowa Association of Electric Cooperatives, Iowa Energy Center, Iowa Interfaith Power & Light, Office of the Consumer Advocate, among others	Review various utility programs within the state. Address challenges and successes.
Kentucky	Utility-specific stakeholder groups		Individual utilities	Stakeholders identified by the utilities. May include industry, commercial, academic, housing, nonprofits, government, and chambers of commerce	Bring together key stakeholders to address utility plans and programs.
Michigan	Michigan Energy Optimization Collaborative	Included in orders approving Consumers Energy and Detroit Edison energy optimization plans	Michigan Public Service Commission (PSC) staff	Includes all electric and gas providers subject to the Commission's jurisdiction under Act 295. In addition, energy efficiency experts, equipment installers, and other interested stakeholders should be encouraged to participate in the collaborative	Recommend improvements to energy optimization programs for all providers. Provide program evaluation support. Develop needed re-design and improvements to energy efficiency programs. Update and refine the Michigan Energy Measures Database on the basis of actual experience. Promote economic development and job creation.
Minnesota	Energy Privacy Customer Data Series	Docket 12-1334	Administrative Law Judge	Public Utilities Commission, Dept. of Commerce, Attorney General's office, local government, regulated utilities, and environmental advocates	Provide commissioners with information necessary to proceed with requests for data or utilities' requests to restrict data access.
Missouri	Missouri Statewide Collaborative of the Missouri Energy Efficiency Investment Act	Missouri Public Service Commission (PSC) rule 4 CSR 240-20.094 (8)	The Division of Energy and the Missouri Energy Initiative co-hosted the first statewide collaborative meeting in July 2013.	Regulated utilities, PSC staff, Office of the Public Counsel, Missouri Division of Energy, Missouri Association of Rural Electric Cooperatives, Missouri Public Utility Alliance, and other stakeholders	Review various utility programs. Create a technical resource manual. Discuss statewide policy issues.
	Missouri Utility-Specific Collaboratives (Advisory)	In addition to PSC rule (above), utility-specific collaboratives also continue	Individual utilities	Utility, PSC staff, Office of the Public Counsel, Missouri Division of Energy, and other stakeholders	Provide input on the design, implementation, and review of demand-side management programs and market potential studies.
Ohio	Utility-specific stakeholder groups		Individual utilities	Stakeholders identified by the utilities. May include industry, commercial, academic, housing, nonprofits, government, and chambers of commerce	Address utility energy efficiency plans and programs.

* Kansas, Nebraska, North Dakota, South Dakota, and Wisconsin do not have formal stakeholder processes. (Wisconsin's Focus on Energy does hold stakeholder meetings specifically for trade allies and stakeholder meetings specifically for utilities. However, meetings are not open to the public.) Nebraska also has a Codes Collaborative, created in 2013, to support building energy code compliance.

Appendix 6

Summary Table of Benefits and Costs used in Cost Effectiveness Tests

	Benefits								Costs				
	Energy-related costs avoided by the utility	Capacity-related costs avoided by the utility	Incentive payments	Bill savings	Applicable tax credits or incentives	Additional resource savings	Monetized environmental and non-energy benefits	Non-monetized environmental and non-energy benefits	Program overhead costs	Incremental installation/ equipment costs*	Incentive payments**	Non-monetized costs	Lost revenue (bill savings)
TRC	●	●			●	●	●		●	●			
PACT	●	●	●	●	●				●		●		
PCT			●	●	●					●			
SCT	●	●				●		●	●	●		●	
RIM	●	●							●		●		●

Notes: * Includes installation and equipment costs if paid by program participant
** Incentives include installation and equipment costs if paid by program administrator/utility.

Appendix 7

Metropolitan Benchmarking and Disclosure Ordinances from Minneapolis, MN and Chicago, IL

Minneapolis Commercial Building Rating and Disclosure Ordinance

https://library.municode.com/HTML/11490/level3/COOR_TIT3AIPOENPR_CH47ENAIPO.html#COOR_TIT3AIPOENPR_CH47ENAIPO_47.190COBURADI

(1) Special abatement equipment is installed that controls emissions in such a way that those emissions are in compliance with the provisions of this chapter;

(2) The commissioner approves other means that ensure that emissions are in compliance with the provisions of this chapter; or

(3) The commissioner determines that such stack height requirements are not necessary to meet the minimum emissions standards of this chapter. (2008-Or-037, § 23, 5-16-08; 2013-Or-101, § 10, 12-6-13)

47.140. Reserved.

Editor's note—

Ord. No. 2008-Or-095, § 1, adopted December 12, 2008, repealed § 47.140, which pertained to abrasive blasting permit required. See also the Code Comparative Table.

47.150. Odor.

Odors shall be deemed unlawful if one (1) or more air contaminants migrate from the premises from which it originated for a period exceeding thirty (30) minutes' duration and interferes with the reasonable and comfortable use and enjoyment of property. (2008-Or-037, § 27, 5-16-08)

47.160. Paint Booth requirements.

(a) All spray painting of commercial and industrial materials must be conducted indoors and in a registered paint booth as required under section 47.40 of this Code. The paint booth must be equipped with exhaust filters capable of collecting paint, dust and other particles to minimize air pollution. Factors to be considered include filter size, filter material, capture efficiency, air volume, velocity, exhaust flow, and fire safety. The paint booth must be properly maintained according to the manufacturer's specifications.

(b) Commercial and industrial materials which are physically unable to be painted indoors, such as public infrastructure, are exempt from the paint booth requirements but must be contained sufficiently to minimize fugitive emissions. (2008-Or-037, § 34, 5-16-08)

47.170. Coffee roaster after burner requirements.

All coffee roasters installed after June 30, 2008, must be equipped with an afterburner to minimize emissions of particulate matter, formaldehyde, acetaldehyde, acrolein, smoke and odor. The afterburner must be compatible with the size, capacity and intended use of the coffee roaster. The afterburner must be operational at all times during roasting and the operating temperature must be within manufacturer recommendations. Coffee roasters installed prior to June 30, 2008 may be required to install such a device as deemed necessary by the commissioner to abate ongoing and chronic nuisance odor or other air pollution concerns. (2008-Or-037, § 35, 5-16-08; 2013-Or-101, § 11, 12-6-13)

47.180. Violations of this Code.

(a) Any person who violates any provision of this chapter shall be guilty of an ordinance violation and subject to the punishment and penalties of Chapter 1 and Chapter 2 of this Code.

(b)

License revocation. Any owner or operator of land, buildings, or structures who possesses a city license to conduct business, in addition to the fine, may have his or her license revoked for failure to comply with this chapter.

(c) Each day of failure to comply with federal, state, or municipal laws or rules shall constitute a separate violation of this Code. (2008-Or-037, § 36, 5-16-08)

47.190. Commercial building rating and disclosure.

(a) *Definitions.* The following words shall have the meaning ascribed to them, unless the context clearly indicates a different meaning:

Benchmark means to input the total energy consumed for a building and other descriptive information for such building as required by the benchmarking tool.

Benchmarking information means information related to a building's energy consumption as generated by the benchmarking tool, and descriptive information about the physical building and its operational characteristics. The information shall include, but need not be limited to:

(1) Building address;
(2) Energy use intensity (EUI);
(3) Annual greenhouse gas emissions;
(4) Water use; and
(5) The energy performance score that compares the energy use of the building to that of similar buildings, where available.

Benchmarking tool means the United States Environmental Protection Agency's Energy Star Portfolio Manager tool, or an equivalent tool adopted by the director.

Building owner means an individual or entity possessing title to a building, or an agent authorized to act on behalf of the building owner.

City-owned building means any building, or group of buildings on the same tax lot, owned by the City of Minneapolis containing twenty-five thousand (25,000) or more gross square feet of an occupancy use other than residential or industrial.

Covered building means:

(1) Any building containing at least fifty thousand (50,000) but less than one hundred thousand (100,000) gross square feet of an occupancy use other than residential or industrial shall be classified as a Class 1 covered building;
(2) Any building containing one hundred thousand (100,000) or more gross square feet of an occupancy use other than residential or industrial shall be classified as a Class 2 covered building.

The term "covered building" shall not include any building owned by the local, county, state, or federal government or other recognized political subdivision.

Director means the commissioner of the Minneapolis Health Department or the commissioner's designee.

Energy means electricity, natural gas, steam, heating oil, or other product sold by a utility for use in a building, or renewable on-site electricity generation, for purposes of providing heating, cooling, lighting, water heating, or for powering or fueling other end-uses in the building and related facilities.

Energy performance score means the numeric rating generated by the Energy Star Portfolio Manager tool or equivalent tool adopted by the director that compares the energy usage of the building to that of similar buildings.

Energy Star Portfolio Manager means the tool developed and maintained by the United States Environmental Protection Agency to track and assess the relative energy performance of buildings nationwide.

Tenant means a person or entity occupying or holding possession of a building or premises pursuant to a rental agreement.

Utility means an entity that distributes and sells natural gas, electric, or thermal energy services for buildings.

(b) *Benchmarking required for city-owned buildings.* No later than June first, 2013, and no later than every June first thereafter, each city-owned building shall be benchmarked for the previous calendar year by the entity primarily responsible for the management of such building, in coordination with the director.

(c) *Benchmarking required for covered buildings.* Building owners shall annually benchmark for the previous calendar year each covered building and obtain an energy performance score as available according to the following schedule:

(1) All Class 2 covered buildings by June first, 2014 and by every June first thereafter; and

(2) All Class 1 covered buildings by June first, 2015 and by every June first thereafter.

(d) *Disclosure and publication of benchmarking information.* The building owner shall annually provide benchmarking information to the director, in such form as established by the director's rule, by the date provided by the schedule in subsections (b) and (c).

(1) The director shall make readily available to the public, and update at least annually, benchmarking information for the previous calendar year according to the following schedule:

a. Each city-owned building by August thirtieth, 2013 and by every August thirtieth thereafter;

b. Each Class 2 covered building by August thirtieth, 2015 and by every August thirtieth thereafter;

c. Each Class 1 covered building by August thirtieth, 2016 and by every August thirtieth thereafter.

(2) The director shall make available to the public, and update at least annually, the following information:

a. Summary statistics on energy consumption in city-owned buildings and covered buildings derived from aggregation of benchmarking information for those buildings;

b. Summary statistics on overall compliance with this section;

c. For each city-owned building and covered building:

1. The status of compliance with the requirements of this chapter;

2. Annual summary statistics for the building, including energy use intensity, annual greenhouse gas emissions, water use per gross square foot, and an energy performance score where available; and
3. A comparison of benchmarking information across calendar years for any years such building was benchmarked.

(e) *Exemptions.* The director may exempt a building owner from the benchmarking requirements of subsection (c) if the building owner submits documentation establishing any of the following:

(1) The building is presently experiencing qualifying financial distress in that the building is the subject of a qualified tax lien sale or public auction due to property tax arrearages, the building is controlled by a court-appointed receiver based on financial distress, the building is owned by a financial institution through default by the borrower, the building has been acquired by a deed in lieu of foreclosure, or the building has a senior mortgage which is subject to a notice of default; or

(2) The building or areas of the building subject to the requirements of this section have been less than fifty (50) percent occupied during the calendar year for which benchmarking is required; or

(3) The building is new construction and the certificate of occupancy was issued less than two (2) years prior to the applicable benchmarking deadline established pursuant to subsection (c).

(f) *Providing benchmarking information to the building owner.* Each tenant located in a covered building subject to this chapter shall, within thirty (30) days of a request by the building owner and in a form to be determined by the director, provide all information that cannot otherwise be acquired by the building owner and that is needed by the building owner to comply with the requirements of this section. Where the building owner is unable to benchmark due to the failure of any or all tenants to report the information required by this subsection, the owner shall complete benchmarking using such alternate values as established by the director. The director shall periodically evaluate the quality of any alternate values established pursuant to this subsection and propose revisions that increase the quality of such values.

(g) *Violations.* It shall be unlawful for any entity or person to fail to comply with the requirements of this section or to misrepresent any material fact in a document required to be prepared or disclosed by this section.

(h) *Enforcement.* The director shall enforce the provisions of this section. If it is determined that a building owner or any person subject to the provisions of this section fails to meet any requirement of this section, the director shall mail a warning notice to the building owner or person. The notice shall specify the reasons why the building owner or person fails to meet the requirements set forth in this section. The notice shall indicate that the person has forty-five (45) business days to comply with the applicable requirement. Any building owner or person who fails, omits, neglects, or refuses to comply with the provisions of this section after the period of compliance provided for in the required warning notice shall be subject to an administrative penalty pursuant to Chapter 2 and the schedule of civil fines adopted by the city council. The provisions of Chapter 2 shall govern the appeal and hearing rights afforded to any such person. Additionally, failure to comply with this section may constitute good cause for the denial, suspension, revocation or refusal to issue the certificate of commercial building registration provided for pursuant to Chapter 174, Article IV of this Code or any applicable business license held by the building owner or person. This section may also be enforced by injunction, abatement, mandamus, or any other appropriate remedy in any court of competent jurisdiction.

(i) *Rules.* The director shall promulgate and publish such rules as deemed necessary to carry out the provisions of this section.

(j) *Severability.* If any portion of this section is determined to be invalid or unconstitutional by a court of competent jurisdiction, that portion shall be deemed severed from the regulations, and such determination shall not affect the validity of the remainder of the section. If the application of any provision of this section to a particular person or property is determined to be invalid or unconstitutional by a court of competent jurisdiction, such determination shall not affect the application of said provision to any other person or property. (2013-Or-007, § 2, 2-8-13; 2013-Or-101, § 12, 12-6-13)

FOOTNOTE(S):

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***Editor's note—** Ord. No. 99-Or-050, § 1, adopted May 21, 1999, repealed Ch. 47, §§ 47.10—47.190, which pertained to pollution in general. Ord. No. 99-Or-051, § 1, adopted May 21, 1999, enacted provisions designated as a new Ch. 47, §§ 47.10—47.270, to read as herein set out. Subsequently, Ord. No. 2008-Or-037, §§ 1—36, adopted May 16, 2008, amended Ch. 47, in its entirety, to read as herein set out. Prior to inclusion of said ordinance, Ch. 47 was entitled, "Minneapolis Air Quality Management Authority." Subsequently, Ord. No. 2013-Or-007, § 1, adopted February 8, 2013, amended the title of Ch. 47 to read "Energy and Air Pollution." See also the Code Comparative Table. (Back)*

City of Chicago Ordinance on Building Energy Use Benchmarking
http://www.cityofchicago.org/content/dam/city/progs/env/EnergyBenchmark/BenchmarkingOrdinance11SEP2013.pdf

City of Chicago

Office of the City Clerk

Document Tracking Sheet

SO2013-5384

Meeting Date:	6/26/2013
Sponsor(s):	Emanuel, Rahm (Mayor)
Type:	Ordinance
Title:	Amendment of Title 18 of Municipal Code by adding new Chapter 18-14 regarding building energy use benchmarking
Committee(s) Assignment:	Committee on Zoning, Landmarks and Building Standards

MA 158
SUB.

SUBSTITUTE ORDINANCE

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHICAGO:

SECTION 1. Title 18 of the Municipal Code of Chicago is hereby amended by adding a new Chapter 18-14, as follows:

Chapter 18-14. Building Energy Use Benchmarking

18-14-101 General.

18-14-101.1 Title.

This Chapter 18-4 of Title 18 shall be known as the Building Energy Use Benchmarking Ordinance of the City of Chicago, and shall be cited as such. It is referred to herein as "this chapter."

18-14-101.2 Scope.

This chapter applies to all covered buildings.

18-14-101.3 Definitions.

For purposes of this chapter the following definitions shall apply:

"Benchmark" means to track and input a building's energy consumption data and other relevant building information for twelve consecutive months, as required by the benchmarking tool, to quantify the building's energy use.

"Benchmarking tool" means the website-based software, commonly known as "ENERGY STAR Portfolio Manager," developed and maintained by the United States Environmental Protection Agency to track and assess the relative energy use of buildings nationwide. This term also applies to any successor system thereto, including any change or addition made to such tool by the United States Environmental Protection Agency.

"Building" means a structure, or part thereof, enclosing any use or occupancy.

"Certificate of occupancy" means the certificate issued by the zoning administrator or the building commissioner allowing building occupancy or use.

"Commissioner" means the city's commissioner of business affairs and consumer protection.

"Covered building" means any Group 1 covered building or Group 2 covered building, as defined by this chapter. The term "covered building" does not include any building with more than 10 percent occupancy use classified as Class D open air assembly units, Class G industrial units, Class H storage units, Class I hazardous use units, or Class J miscellaneous buildings and structures, as defined by Chapter 13-56.

"Data center" means a space specifically designed and equipped to meet the needs of high density computing equipment such as server racks, used for data storage and processing, as defined by the benchmarking tool.

"Energy performance score" means the 1 to 100 numerical score produced by the benchmarking tool, also known as ENERGY STAR score, or any successor score thereto. The energy performance score assesses a building's energy performance relative to similar buildings, based on source energy use, operating characteristics, and geographical location.

"Energy use intensity" or "EUI" means a numeric value calculated by the benchmarking tool that represents the energy consumed by a building relative to its size.

"Group 1 covered building" means any building or group of buildings that have the same property identification or index number (PIN), containing 250,000 or more gross square feet, as identified by the commissioner.

"Group 2 covered building" means any building or group of buildings that have the same property identification or index number (PIN), containing 50,000 or more gross square feet but less than 250,000 gross square feet, as identified by the commissioner.

"Gross square feet" means the total number of square feet measured between the exterior surfaces of the enclosing fixed walls of a building. The term "gross square feet" includes vent shafts, elevator shafts, flues, pipe shafts, vertical ducts, stairwells, light wells, basement space, mechanical or electrical rooms, and interior parking.

"Licensed professional" means a professional engineer or a registered architect licensed in the State of Illinois, or another trained individual as prescribed by rule.

"Owner" has the meaning ascribed to the term in Section 13-4-010.

"Reported benchmarking information" means descriptive information about a building, its operating characteristics, and information generated by the benchmarking tool related to the building's energy consumption and efficiency, as prescribed by rule. Reported benchmarking information includes, but is not limited to, the building identification number, address, square footage, energy performance score, energy use intensity, and annual greenhouse gas emissions.

"Residential occupancy" means any building occupancy use classified as any combination of Class A residential units, as defined by Chapter 13-56.

18-14-101.4 Solicitation of compliance information.

Within 30 days of a request by the building owner, each tenant of a unit in a covered building shall provide all information that cannot otherwise be acquired by the building owner and that is necessary for the building owner to comply with the requirements of this chapter.

Any owner of a covered building shall request such information no later than March 1 of the years in which benchmarking is required by Section 18-14-102.1. If the owner of a covered building receives notice that a tenant intends to vacate a unit which is subject to the requirements of this section, the owner shall request the information specified in this section within 10 days of such notice, and the tenant shall provide such information within 30 days of the request.

The failure of any tenant to provide the information required under this section to the owner of a covered building shall not relieve such owner of the obligation to benchmark the building as provided in Section 18-14-102.1, using all information otherwise available to the owner.

Failure of any tenant to provide the information required under this section to the owner of a covered building shall create a rebuttable presumption that the owner, tenant, or both have not complied with the time limits specified in this section.

If a tenant of a unit in a covered building fails to provide information to the owner of the building as provided in this section, the owner shall be considered to be in compliance with Section 18-14-102.1 with respect to the building if: (1) the owner proves that the owner has requested the tenant to provide such information as specified in this section; and (2) the owner has benchmarked the building as provided in Section 18-14-102.1, using all information otherwise available to the owner.

18-14-101.5 Enforcement.

(a) The commissioner is authorized to enforce this chapter. The commissioner is also authorized to adopt rules and regulations for the proper administration and enforcement of this chapter.

(b) Any person who violates this chapter may be subject to a fine of up to $100.00 for the first violation, and an additional fine of up to $25.00 for each day that the violation continues.

18-14-102 Energy use benchmarking, verification, and disclosure requirements.

18-14-102.1 Benchmarking.

(a) No later than June 1, 2014, and no later than June 1st each year thereafter, the owner of any Group 1 covered building shall benchmark such building for the previous calendar year; provided, however, the owner of any Group 1 covered building with 10 percent or more residential occupancy shall benchmark such building for the previous calendar year no later than June 1, 2015, and no later than June 1st each year thereafter.

(b) No later than June 1, 2015, and no later than June 1st each year thereafter, the owner of any Group 2 covered building shall benchmark such building for the previous calendar year; provided, however, the owner of any Group 2 covered building with 10 percent or more residential occupancy shall benchmark such building for the previous calendar year no later than June 1, 2016, and no later than June 1st each year thereafter.

(c) The owner of any covered building shall retain all information tracked and input into the benchmarking tool for a minimum of three years beyond the date on which benchmarking was required.

Exception: The commissioner may exempt from the benchmarking requirement the owner of a covered building that submits documentation, in a form prescribed by rule, establishing any of the following:

(i) The building is presently experiencing qualifying financial distress, as defined by any of the following: (1) the building is the subject of a qualified tax lien sale or public auction due to property tax arrearages, (2) the building is controlled by a court appointed receiver, or (3) the building has been acquired by a deed in lieu of foreclosure; or

(ii) The building had average physical occupancy of less than 50 percent throughout the calendar year for which benchmarking is required; or

(iii) The building is a new construction and the building's certificate of occupancy was issued during the calendar year for which benchmarking is required.

18-14-102.2 Data Verification.

Prior to the first benchmarking deadline prescribed by Section 18-14-102.1, and prior to each third benchmarking deadline thereafter, the owner of a covered building shall ensure that reported benchmarking information for that year is verified by a licensed professional. Such verification shall be in a form of a stamped and signed statement by a licensed professional attesting to the accuracy of the information. The owner of a covered building shall produce such statement for the most recent year in which verification of reported benchmarking information was required, in a form prescribed by rule, upon a written request by the commissioner.

Exception: The commissioner may exempt from the verification requirement the owner of a covered building that submits documentation, in a form prescribed by rule, establishing that compliance with this section will cause undue financial hardship. If no-cost or low-cost verification options are available, the commissioner may suggest that the covered building use such alternative options.

18-14-102.3 Disclosure.

(a) In accordance with the schedule prescribed by Section 18-14-102.1, the owner of any covered building shall submit reported benchmarking information for the previous calendar year, using the benchmarking tool, in a manner prescribed by the commissioner.

(b) The commissioner and the chief sustainability officer shall prepare and submit an annual report to the mayor and the city council reviewing and evaluating energy efficiency in covered buildings, including summary statistics on the most recent reported energy benchmarking information and a discussion of energy efficiency trends, cost savings, and job creation effects resulting from energy efficiency improvements.

(c) The commissioner is authorized to make reported benchmarking information readily available to the public.

Exception: To the extent allowable under applicable law, the commissioner shall not make readily available to the public any individually-attributable reported benchmarking information from the first calendar year that a covered building is required to benchmark.

Exception: To the extent allowable under applicable law, the commissioner shall not make readily available to the public any individually-attributable reported benchmarking information pertaining to a covered building that contains a data center, television studio, or trading floor that together exceed ten percent of the gross square footage of any such building until the commissioner determines that the benchmarking tool can make adequate adjustments for such facilities. When the commissioner determines that the benchmarking tool can make such adjustments, it shall report such determination to the mayor and the city council.

SECTION 2. This ordinance shall take effect 10 days after passage and publication.

Appendix 8

Kansas Energy Disclosure Form

http://www.kcc.state.ks.us/energy/energy_efficiency_disclosure.pdf

KANSAS ENERGY EFFICIENCY DISCLOSURE

As required by KSA 66-1228

Kansas law requires the person building or selling a previously unoccupied new residential structure which is a single family or multifamily unit of four units or less shall disclose to the buyer or a prospective buyer, at any time upon request or prior to the signing of the contract to purchase and prior to closing if changes have occurred or are requested, information regarding the energy efficiency of the structure. For new residential structures that are completed and suitable for occupancy, but unsold, the completed disclosure form shall be made available to the buyer or a prospective buyer by the builder or seller when the residence is shown and at any other time upon request.

Common Address or Legal Description of Residence:

_____

_____

_____

Part 1: Builder *must* describe the following energy efficiency elements of this house:

	Actual Value	2006 IRC/IECC* Zone 4	2006 IRC/IECC* Zone 5
Wall Insulation R-Value	_____	R-13	R-19 *(or R-13 cavity + R-5 insulated sheathing)*
Attic Insulation R-Value	_____	R-38	R-38
Foundation Insulation R-Value			
Basement Walls	_____	R-10/13**	R-10/13**
Crawlspace Walls	_____	R-10/13**	R-10/13**
Slab-on-Grade	_____	R-10, 2 ft depth	R-10, 2 ft depth
Floors over Unheated Spaces	_____	R-19	R-30
Window U-Value	_____	0.40	0.35

	Actual Value	Current Federal Manufacturing Standards***
Water Heater		
Gas or Propane (Energy Factor)	_____	0.67 – (0.0019 × _____ ****) = _____
Electric (Energy Factor)	_____	0.97 – (0.00132 × _____ ****) = _____
Heating and Cooling Equipment		
Warm-Air Furnace (AFUE)	_____	0.78
Air Conditioner (SEER)	_____	13
Air-Source Heat Pump-Cooling (SEER)	_____	13
Air-Source Heat Pump (HSPF)	_____	7.7

[Note: Federal standards for geothermal heat pumps are not available.]

Part 2: Builder *may* provide the following additional information about this house:

_____ This residence has been/will be built to meet the energy-efficiency standards of the International Energy Conservation Code of 2006 (IECC 2006).

_____ This residence has received a Home Energy Rating (HERS) index score of 100 or less based on an energy audit performed in accordance with the Mortgage Industry National Home Energy Rating Systems Standards (July 1, 2006) by a rater certified by Residential Energy Services Network (RESNET).

_____ This residence is an Energy Star Qualified Home and has been verified and field tested in accordance with RESNET standards by a RESNET-accredited provider.

Seller Signature: _____ Date: _____

Seller Name and Address: _____

Buyer Signature: _____ Date: _____

Buyer Signature: _____ Date: _____

** See reverse for more information on existing standards and explanation of abbreviations.*
*** The first R-value applies to continuous insulation; the second to framing cavity insulation.*
**** Equipment meeting federal standards may not always be available.*
***** Insert rated storage volume in gallons.*

May 2007

Appendix 9

Green Multiple Listing Service

Multiple Listing Service of Elkhart County, Inc.
RESIDENTIAL/FARM DATA FORM *MLS# _____

Fields marked with an asterisk (*) are required.

Class/Type: (Select One)
☐ Residential
☐ Farms
☐ Residential Lease

*Area: _____
*Address: _____ _____
Street # Street Name
*City: _____ State: _____ (2)
*Zip: _____(5) Zip+4 _____(4)
*List Price: _____ (10)

*WEB ☐ Yes ☐ No
*VOW ☐ Yes ☐ No
*VOW Address ☐ Yes ☐ No
*VOW AVM ☐ Yes ☐ No
*VOW Comment ☐ Yes ☐ No

*# of Rooms: _____ (2)
*# Bedrooms: _____ (2)
*# Above Grade Bedrooms: _____ (2)
*# Total Baths: _____ (2)

*Pool ☐ Yes ☐ No
*Fireplace ☐ Yes ☐ No
*Waterfront ☐ Yes ☐ No
*Short Sale ☐ Yes ☐ No
*REO/Foreclosure ☐ Yes ☐ No
*Auction ☐ Yes ☐ No
*Required if Auction Yes selected
*Auctioneer Name: _____
*Auctioneer License #: _____

*List Date: ___/___/___ *Expiration Date: ___/___/___
*List Agent: _____ *Voice Mail #: _____
Co-List Agent & Office: _____

Water Name: _____ Subdivision: _____ *Zoning: _____
*County: _____ *Township: _____ *Lockbox (Y/N): _____
*Lot Size: _____(30) *To Show Phone: _____
Owner Name: _____(30) *Agent/Owner Related (Y/N): _____
*Legal: _____ (150)

*Elementary: _____ *Middle School: _____ *High School: _____

*Above Grade Sq Ft: _____ (5) *Main Level Sq Ft: _____ (5) *Upper Level Sq Ft: _____ (5)
*Below Grade Finished Sq Ft: _____ (5) *Total Below Grade Sq Ft: _____ (5) *Combined Finished Sq Ft: _____ (5)

ROOMS	DESCRIPTION	*LEVEL (M,U,L,N)	ROOMS	DESCRIPTION	*LEVEL (M,U,L,N)
Living Room:		*	Bedroom 1:		*
Dining:		*	Bedroom 2:		*
Kitchen:		*	Bedroom 3:		*
Family Room:		*	Bedroom 4:		*
Other Room 1:		*	Bathroom:		*
Other Room 2:		*			

*Year Built: _____ (4)
*Water: _____ (12)
*Sewer: _____ (12)
Fireplace Description: _____ (12)
Utility Costs: _____ (12)

*BAC: _____ (12) (Buyer Agent Compensation)
Special Designations: _____ (12) (PRO, EAL, DC)
*Tax ID: _____ (18)
Secondary Tax ID: _____ (18)
*Taxes: _____ (6)

*Directions: _____ (150)

Virtual Tour Address: _____

Remarks

Public Remarks: _____ (512)
Agent Remarks: _____ (512)
Addendum/Supplement: _____ (4000)

The information on this document is correct to the best of our knowledge. All measurements are approximate.

Owner's Signature Date Agent Signature
Owner's Signature Date Agent Signature

Reproduced with permission of the Multiple Listing Service of Elkhart County, Indiana

FEATURES: Under each category given, select all options that apply.

Multiple Listing Service of Elkhart County, Inc.
RESIDENTIAL/FARM DATA FORM

*MLS#_____

A. APPLIANCES
- ☐ None
- ☐ Range
- ☐ Refrigerator
- ☐ Dishwasher
- ☐ Microwave
- ☐ Disposal
- ☐ Trash Compactor
- ☐ Freezer
- ☐ Washer
- ☐ Dryer
- ☐ Gas Grill
- ☐ Water Sftnr Rent
- ☐ Water Sftnr Own
- ☐ Oven
- ☐ Energy Star Appliance(s)

B. *BASEMENT
- ☐ Slab
- ☐ Crawl
- ☐ Partial
- ☐ Full
- ☐ Michigan
- ☐ Outdoor Entrance
- ☐ Family/Rec Room
- ☐ Den/Office
- ☐ Kitchen
- ☐ Bedrooms
- ☐ Utility Room
- ☐ Fireplace
- ☐ Unfinished
- ☐ Finished
- ☐ Partially Finished
- ☐ Walkout
- ☐ Egress Windows
- ☐ Bath

C. EXTRA ROOMS
- ☐ Main Floor Laundry
- ☐ Den/Office
- ☐ Enclosed Porch
- ☐ Finished Attic
- ☐ Second Kitchen
- ☐ Family/Rec Room
- ☐ In-Law Room
- ☐ Eat-In Kitchen
- ☐ Master Bed/Bath
- ☐ Formal Dining Room
- ☐ Sun Room
- ☐ Screened Porch
- ☐ LR/DR Combo
- ☐ Great Room

D. EXEMPTIONS
- ☐ MTG Mortgage
- ☐ HMC Homestead Credit
- ☐ 65 Over 65
- ☐ BLN Blind
- ☐ DAB Disability
- ☐ VET Veterans
- ☐ OTH Other
- ☐ NONE None

E. FEATURES
- ☐ Attic Fan
- ☐ Balcony
- ☐ Cathedral Ceilings
- ☐ Deck
- ☐ Sauna
- ☐ Fenced Yard
- ☐ Garden Shed
- ☐ Hardwood Floors
- ☐ In-Ground Pool
- ☐ Hot Tub
- ☐ Handicap Access
- ☐ Workshop
- ☐ Foyer Entry
- ☐ Natural Woodwork
- ☐ Home Warranty

E. FEATURES (cont.)
- ☐ Patio
- ☐ Security System
- ☐ Wet Bar
- ☐ Sprinkler System
- ☐ Cable TV
- ☐ Satellite Dish
- ☐ Association Fee
- ☐ Wood Burning Stove
- ☐ Gas Water Heater
- ☐ Electric Water Heater
- ☐ Special Assessments
- ☐ Above Ground Pool
- ☐ Water Purification System

F. *GARAGE
- ☐ 1 Car Attached
- ☐ 1 Car Carport
- ☐ 1 Car Detached
- ☐ 1.5 Car Attached
- ☐ 1.5 Car Carport
- ☐ 1.5 Car Detached
- ☐ 2 Car Attached
- ☐ 2 Car Carport
- ☐ 2 Car Detached
- ☐ 2.5 Car Attached
- ☐ 2.5 Car Carport
- ☐ 2.5 Car Detached
- ☐ 3 Car Attached
- ☐ 3 Car Carport
- ☐ 3 Car Detached
- ☐ 3+ Car Attached
- ☐ 3+ Car Carport
- ☐ 3+ Car Detached
- ☐ Garage Door Opener
- ☐ Heated
- ☐ Off Street Parking
- ☐ Pole Barn
- ☐ None

G. *HEATING & COOLING
- ☐ Gas Heat
- ☐ Electric Heat
- ☐ Oil Heat
- ☐ Propane Heat
- ☐ Solar Heat
- ☐ Central Heat
- ☐ Heat Pump
- ☐ Forced Air
- ☐ Gravity
- ☐ Hot Water
- ☐ Baseboard
- ☐ Radiant
- ☐ Wall Heater
- ☐ Central AC
- ☐ Wall/Window AC
- ☐ No AC
- ☐ Other See Remarks
- ☐ Geothermal Programmable Thermostat

H. *LOT/ACREAGE DESC
- ☐ Cul-de-Sac
- ☐ City/Suburban Lot
- ☐ Less than 1 Acre
- ☐ 1 – 2.99 Acres
- ☐ 3 -10.99 Acres
- ☐ 11 – 50 Acres
- ☐ More than 50 Acres
- ☐ Wooded
- ☐ Corner
- ☐ On Golf Course
- ☐ Tillable

I. OUTBUILDINGS (Farms Only)
- ☐ Large Barn
- ☐ Small Barn
- ☐ Grain Storage
- ☐ Implement Shed
- ☐ Corn Cribs
- ☐ Chicken House
- ☐ Stable/Tack Room
- ☐ Other

J. *POSSIBLE FINANCING
- ☐ Cash/Conventional
- ☐ Assumable Mortgage
- ☐ Assumable Mortgage with Approval
- ☐ Will Consider FHA
- ☐ Will Consider Land Contract
- ☐ Will consider Farm Home
- ☐ Will Consider Seller Assistance
- ☐ Creative Financing
- ☐ Trade/Exchange
- ☐ Second Mortgage
- ☐ Will Consider VA

K. POSSESSION
- ☐ CLS Day of Closing
- ☐ NPR Negotiable/with prorate Rent after Closing
- ☐ NEG Negotiable
- ☐ OTH Other

L. SHOWING INSTRUCTION
- ☐ Appointment Only
- ☐ Key at List Office
- ☐ Call List Office
- ☐ Key Box
- ☐ 24 Hours Notice
- ☐ List Agent Must Accompany
- ☐ Show Anytime
- ☐ Other See Remarks
- ☐ Call List Agent

M. *STYLE
- ☐ Ranch
- ☐ Manufactured/Mobile Home
- ☐ Bi-Level
- ☐ Tri-Level
- ☐ Quad Level
- ☐ 1.5 Story
- ☐ 2 Story
- ☐ Condo
- ☐ Townhouse
- ☐ Patio Home
- ☐ Duplex
- ☐ Bungalow
- ☐ Log Home
- ☐ Villa
- ☐ Modular
- ☐ Other

N. TYPE OF FARM (Farms Only)
- ☐ Grain
- ☐ Dairy
- ☐ Hog
- ☐ Poultry
- ☐ Cattle
- ☐ Horse
- ☐ Multi-Purpose

O. *WATERFRONT
- ☐ Channel
- ☐ Deeded
- ☐ Easement
- ☐ Riverfront
- ☐ Ski Lake
- ☐ Pier
- ☐ Pier Space
- ☐ Lake

O. *WATERFRONT (cont.)
- ☐ Creek
- ☐ Pond
- ☐ None

P. *EXTERIOR
- ☐ All Brick
- ☐ All Stone
- ☐ Hardboard
- ☐ Aluminum
- ☐ Cedar
- ☐ Wood
- ☐ Asphalt
- ☐ Asbestos
- ☐ Shingle
- ☐ Vinyl
- ☐ Partial Brick
- ☐ Partial Stone
- ☐ Stucco
- ☐ Steel
- ☐ Other

Q. ENERGY EFFICIENT
- ☐ Appliances
- ☐ Doors
- ☐ Electrical/Lighting
- ☐ *HVAC
- ☐ Insulation
- ☐ Roofing
- ☐ Thermostat/Controllers
- ☐ Water Heater
- ☐ Windows

R. HVAC
- ☐ Active Solar Heating
- ☐ Attic Fan
- ☐ Ceiling Fan
- ☐ Energy Recover Ventilator
- ☐ Energy Star Air Conditioning
- ☐ Energy Star Heating
- ☐ Geothermal Heat (Closed Loop)
- ☐ Geothermal HVAC
- ☐ High Efficiency Furnace
- ☐ HVAC (13 SEER)
- ☐ HVAC (16 SEER+)
- ☐ Radiant Floors-Air
- ☐ Radiant Floors-Electrical
- ☐ Radiant Floors-Hydronic
- ☐ Solar Heat
- ☐ Zoned Air Conditioning
- ☐ Zoned Heating

S. WINDOWS / DOORS
- ☐ Double Pane Windows
- ☐ Energy Star Doors
- ☐ Energy Star Windows
- ☐ Insulated Doors
- ☐ Insulated Glass Windows
- ☐ Low Emittance Doors /Windows
- ☐ Multi Pane Windows
- ☐ Triple Pane Windows
- ☐ Storm Doors
- ☐ Storm Windows
- ☐ Sunscreen(s)

T. GREEN CERTIFICATION
- ☐ NAHB GREEN Building Standard – ANSI
- ☐ LEED
- ☐ DOE – Builders Challenge
- ☐ ENERGY STAR
- ☐ EPA – Indoor airPLUS (IAQ)
- ☐ EPA – WaterSense
- ☐ See Documents on File
- ☐ Other – See Remarks

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