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WISCONSIN READY TO RAISE THE BAR ON ENERGY EFFICIENCY

A Technical Memorandum Prepared by the

American Council for an Energy-Efficient Economy

for

RE-AMP

RE-AMP is an engaged and active network of nonprofits and foundations working on climate change and energy policy in an eight-state region in the upper Midwest.
For information, please visit www.reamp.org.

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FORWARD

In today's often highly polarized political climate, it is hard to find policy solutions that attract widespread support across the spectrum of political viewpoints. As policy makers seek solutions to address such difficult issues as global climate change, economic recovery and creation of a clean energy economy, there is one solution that finds widespread support. Reducing our energy use and associated energy costs through more efficient energy use is the clear proverbial "win-win" solution.

Wisconsin has long recognized the truth of this approach to address its energy resource needs. A variety of energy efficiency and conservation programs have been in place in one form or another since the 1980s and even earlier in some cases. Wisconsin's energy customers have reaped significant economic and environmental benefits as a result.

This technical memo examines Wisconsin's progress with energy efficiency programs and services as provided by utilities and related organizations---notably Wisconsin's Focus on Energy program, which is a public-private partnership. Wisconsin's investor owned utilities fund and contract for the administration of the Focus program with oversight by the Public Service Commission.

Wisconsin is in the midst of critical debates and policy decisions about its energy future, as evidenced by the recent introduction of the Wisconsin Clean Energy Jobs Act as Assembly Bill 649 and Senate Bill 450 in the Legislature. A network of Midwestern non-profit organizations, RE-AMP is working towards a low-carbon economy for the Midwest—an economy that at the same time is robust and dynamic.

ACKNOWLEDGMENTS

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The American Council for an Energy-Efficient Economy (ACEEE) is a nonprofit research organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection. For more information, see www.aceee.org.

EXECUTIVE SUMMARY

This memorandum provides an overview of utility electric and natural gas energy efficiency programs in Wisconsin. It describes major program services, funding history, performance trends, successes and opportunities. The purpose is to lay a foundation for determining future program changes to meet public policy goals and examine overall progress. The scope excludes load management, low income programs, and supply efficiency measures such as co-generation.

With Act 414 in 1993, efficiency gained higher priority under state law. In 1999, Act 9 expanded electric efficiency programs in the interest of reliability. It funded public benefits and established the Focus on Energy program, which began operations in 2001. The current structure was established in 2005 with Act 141, which stabilized public benefits funding by protecting it from reallocation to other areas of the state budget. Utility programs have spent more on energy efficiency annually than Focus on Energy did until 2009, according to the Public Service Commission of Wisconsin Strategic Energy Assessment. .

Several factors are driving states toward setting more aggressive energy efficiency goals. Some of the goals, including those of the Midwestern Governors Association, are as high as 2 percent of annual retail electricity and natural gas sales. Causes of this shift include major trends such as climate impacts resulting from greenhouse gas emissions, high and rapidly increasing plant construction costs, increased and more volatile fossil fuel prices, and technological improvements in efficient products and services.

The Public Service Commission of Wisconsin is conducting the first Quadrennial Review required by Act 141. This includes evaluating goals and quantifiable targets for energy efficiency programs. Previous program goal setting was primarily budget-driven, not based on studies of achievable potential. A study by the Energy Center of Wisconsin found that by 2012, Wisconsin could obtain net verified energy savings of 1.6 percent of total retail electric sales, 1.6 percent of peak electric demand, and 1.0 percent of natural gas and propane sales.

Wisconsin's energy efficiency programs have been among the leading programs in the country consistently, frequently in the top tiers when rated against other states' programs. The American Council for an Energy-Efficient Economy (ACEEE) has ranked Wisconsin 12th of all 50 states for utilities and public benefits programs in 2009, tied for 10th in 2008, and 12th in 2006. ACEEE has formally recognized Agriculture and Rural Business, Industrial, and New Construction programs in Wisconsin as exemplary in national reviews of utility-sector energy efficiency programs.

Programs and policies can be developed to meet these higher energy savings goals. Key factors associated with higher savings include program funding, regulatory support, the commitment of utility management and support from customers and key stakeholders in Wisconsin's energy markets. Programs can be redesigned to capture broader and deeper savings by sector, segment, end-use and technology. Regulatory changes that better align utility financial objectives with energy efficiency program objectives, such as decoupling and creating shareholder incentives can motivate utility executives to guide their companies assertively toward efficiency. Combining funding, policy and program approaches saves more energy than one change in isolation.

If the political will is sufficient, Wisconsin can reach its cost-effective energy efficiency potential. Energy efficiency remains the lowest-cost approach to reducing greenhouse gas emissions. Leading states are already providing models for achieving high savings. Wisconsin has the experience and infrastructure in place to harvest more of this low-cost, low-carbon resource, although to do so will require renewed commitment and increased investment.

BACKGROUND

History

The importance placed on utility energy efficiency in Wisconsin dates back at least to 1985 with its incorporation in the Advance Plan, the state's integrated resource planning process. Utility "demand-side management" (DSM) was established in Wisconsin as a result of the Advance Plan process. Wisconsin was an early leader in DSM, with the state's investor-owned utilities offering a wide slate of customer energy efficiency and load management programs. In 1993 the Energy Priorities Statute, part of Act 414, placed efficiency as a first priority:

> PRIORITIES. In meeting energy demands, the policy of the state is that, to the extent cost effective and technically feasible, options be considered based on the following priorities, in the order listed:
>
> (a) Energy conservation and efficiency.
> (b) Noncombustible renewable energy resources.
> (c) Combustible renewable energy resources.
> (d) Nonrenewable combustible energy resources, in the order listed:
> 1. Natural gas. 2. Oil or coal with sulphur content of less than 1%.
> 3. All other carbon based fuels. [WI Stats. 2008, p. 6]

In 1999 Wisconsin Act 9 established programs via state statute to advance energy efficiency and renewable energy and to provide low income energy assistance. Programs were administered by the Division of Energy within the State Department of Administration. This moved responsibility for program administration from the state's investor-owned utilities to state government. Program funding was also changed. Under utility DSM, funding for programs was established via individual utility rate cases. Act 9 established a "public benefits" fee, which was assessed on all customers that collectively provided funding for a state-wide, state-administered energy efficiency program. With Act 9, funding for energy efficiency programs came from two sources: 1) investor owned utilities collected funds through rates established by the PSC (based on 1998 levels of funding by utilities for conservation programs; and 2) fees added to electric bills starting in October 2000.

Act 9 led to the creation of Wisconsin's primary statewide energy efficiency program, Focus on Energy, which was established in 2001. Program size and energy savings accomplishments grew rapidly for the next few years. To pay for other expenses and balance the budget due to extreme deficits running in the billions of dollars, the state legislature repeatedly redirected public benefits funds raised from ratepayer surcharges into the general budget during the period from 2003-to 2007. This reduction in funding impeded the growth of Focus on Energy.

Structure

Wisconsin Act 141 in 2005 protected and stabilized funding for energy efficiency and established the overall program structure that remains in place today. Focus on Energy program oversight was moved from the Department of Administration to the Public Service Commission in July 2007. Act 141 also required publicly owned utilities—municipal and rural cooperatives—to either run programs somewhat analogous to Focus on Energy or "opt in" to the statewide programs, thereby providing funding to the program and being eligible to receive Focus on Energy programs and services. Municipal and cooperative programs are permitted to count load management toward their energy efficiency programs.

Act 141 also directed Wisconsin utilities to administer and fund the statewide program. In order to fulfill their obligations, the utilities formed the Statewide Energy Efficiency and Renewable Administration (SEERA). SEERA contracts with a Program Administrator(s) to implement specific programs and provide program services in four areas: (1) residential energy efficiency, (2) non-residential energy efficiency (including the commercial, government, schools, industrial and agricultural sectors), (3) renewable energy, and (4) environmental and economic research and development. Wisconsin Energy Conservation

Corporation is and has been the Program Administrator for the residential and non-residential energy efficiency programs as well as for the renewable resource program. Programs include both electric and natural gas efficiency. SEERA also contracts with a Fiscal Agent to manage program funds and a Compliance Agent to ensure that Program Administrators and contractors follow program guidelines. The PSCW engages a separate contractor for independent program evaluation.

Funding

Focus is funded through a via a surcharge on customer bills. All investor-owned natural gas and electric utilities participate. Under Wisconsin Act 141, statewide energy efficiency and renewable resource programs are funded at 1.2% of gross utility revenues. This number is calculated using a three-year rolling average to alleviate extreme increases or decreases in funding from year to year. This funding supports Focus on Energy energy efficiency, renewable resource, and environmental research programs. Focus provides financial incentives and technical assistance to customers of participating utilities.

In 2007, expenditures for the Focus on Energy Program were $51 million (administered by Department of Administration in January through June and administered under the new structure in July through December). In 2008, utility contributions totaled $85 million. In 2009, the total was $86 million. In 2010, the total will be $94 million.

A major challenge to maximizing the success of statewide energy efficiency programs in Wisconsin has been reallocation of funds by the state legislature for balancing the overall state budget. From 2003 to 2007, over $50 million was transferred. . At the height of the budget crisis prior to the passage of Act 141, Governor Doyle's proposed 2005-7 budget proposed cutting $53 million from the Public Benefits fund. This is particularly significant because Gov. Doyle appointed the Task Force on Energy Efficiency and Renewables and their recommendations formed the basis of Act 141, which added provisions to insulate public benefits funds from general budget pressures.

There are also significant Wisconsin energy efficiency programs funded outside of Focus on Energy. We Energies, Wisconsin Power and Light (Shared Savings program), and Northern States Power offer voluntary utility programs with budget levels and program plans approved by the Commission. Some of these are listed in Table 1 below.

Table 1

Utility Program	2009 Budget
We Energies (electric)	$13.0 million
We Energies (natural gas)	$5.6 million
Wisconsin Power and Light Shared Savings	$14.3 million
Northern States Power	$976,500

Natural Gas Efficiency Programs

Focus on Energy also provides natural gas efficiency programs which have saved 15.5 million therms in fiscal year 2007. Staff at the Wisconsin Public Service Commission reported natural gas program spending of $10 million in 2007 and $18 million in 2008.

Efficiency Programs Other Than Focus on Energy

Wisconsin's investor-owned utilities are regulated energy providers, as the state has not undergone restructuring. Some provide additional energy efficiency programs of varying sizes to supplement programs run by Focus. Utility program plans must be approved by the Public Service Commission and be coordinated with existing Focus on Energy program plans. (While utility administered programs are defined in Act 141, no utility has submitted a plan.)

As of 2007, four investor-owned utilities operated energy efficiency programs. Act 141 permits two primary types of programs other than Focus on Energy.

***Voluntary Programs**:* Utilities are also allowed to run voluntary energy efficiency programs in addition to those mandated by law. The voluntary programs are those run by utilities with funding from their rates, distinct from the 1.2% on customer bills. Alliant Energy subsidiary Wisconsin Power and Light (WP&L) operates its Shared Savings program. Xcel Energy's subsidiary Northern States Power offers energy efficiency programs to residential and small business customers in targeted communities. We Energies provides voluntary electric and natural gas efficiency programs targeted to underserved market niches such as small non-profit organizations.

Self-Directed Programs: Investor owned utilities' larger non-residential customers have the choice of opting out of the Focus program and running their own programs. Those with high energy use may opt to keep a portion of their 1.2% and invest it in energy efficiency. At first, a few large non-residential customers believed that they were contributing more than they received in benefits. However, because they had some of the largest energy savings opportunities, none of them opted out.

Prior to December 2008, investor owned utilities had operated efficiency programs ordered by the Commission (hence, "ordered programs") as part of their rate cases. These have now ended.

Utility-run programs are required by Act 141 to be coordinated with Focus program plans. This is accomplished via the Public Service Commission through the rate case process and also through less formal meetings among PSC and Focus program administration staff. For example, Alliant Energy's Shared Savings program representatives meet with Focus' energy advisors for their service territory. End-use energy consumers may choose among programs. Often, Alliant will offer loans, whereas Focus provides direct grants.

Municipals and Cooperatives

Under Act 141 Wisconsin's municipal electric companies and electric cooperatives must either opt into Focus on Energy or offer parallel programs called "Commitment to Community" programs. They charge a fee on customer bills with the revenue split evenly between low-income assistance and energy efficiency programs. Only a dozen co-ops and municipal utilities have their own programs; the majority opt into Focus programs. Wisconsin Public Power, Inc. (WPPI) reports that it has increased spending on energy efficiency from under $3 million in 2006 to over $9 million in 2009. The PSC of Wisconsin reports that non-Focus programs other than those of WPPI and Dairyland Power Cooperative account for less than 1% of energy efficiency program spending in the state.

Energy Efficiency Policies

While the strong track record of Wisconsin's energy efficiency programs is well-documented, there are legislative and regulatory mechanisms with relatively untapped potential that could expand the state's successes and enhance collaboration among utilities and program administrators. These mechanisms include "decoupling" and "reward structures" for utilities—mechanisms that would better align utility financial interests with energy efficiency program goals. Addressing such reforms and creating new business models for utilities is considered by many to be critical as policies are proposed that would greatly increase energy efficiency program savings goals and associated program spending.

- *Decoupling*. Only two of the large investor-owned utilities in Wisconsin have applied to the PSC for decoupling pilot programs. WPS gained approval for a four-year community based decoupling pilot capped at $14 million for electricity and at $8 million for natural gas (Docket 6690-UR-119). Alliant Energy (via WP&L) submitted a proposal for a Gas Cost Recovery Mechanism, Docket No. 6680-UR-116.

- *Reward structures*. Reward structures providing financial returns on energy efficiency investments are possible but not common in Wisconsin. WP&L was recently allowed to earn the same rate of return for their commercial and industrial efficiency Shared Savings spending as for new generation (Docket 6680-UR-114).

- *Energy Efficiency as a Resource*. Staff of the Public Service Commission of Wisconsin prepare a "Strategic Energy Assessment" (SEA) every two years. These estimate electric energy demand and supply resources for the next five years. The assessment is only for planning. It does not enforce energy efficiency resource savings goals on utilities. The 2008 SEA (Docket E-ES-104) states that funding for Focus programs determined by the state legislature was not based on a study of cost-effective achievable potential.

LARGER CONTEXT

Wisconsin does not have an overarching stated goal for energy efficiency in the form of an energy efficiency resource standard, generally known as an "EERS" and expressed as a percentage of energy use, that is currently mandated by legislation or regulation.[1] There is movement in that direction as part of recent proceedings before the PSC. In September 2009 during Phase One of the Quadrennial Planning Process set up by Act 141, the Public Service Commission determined that energy savings goals should be expressed as a percentage reduction in future energy use and demand. The Commission is in the process of determining levels of goals, funding, measurable targets and evaluation.

There are several authoritative sources that have set electricity savings goals in the range of two percent per year and natural gas savings goals between one and two percent per year. These include the Midwestern Governors Association, the Governor's Task Force on Global Warming, and the policies of several Midwestern states.

In 2007, the Midwestern Governors Association (MGA) stated in *Energy Security and Climate Stewardship Platform for the Midwest* that their number one goal was to achieve 2% savings through energy efficiency:

> MEASURABLE GOAL: Meet at least 2 percent of regional annual retail sales of natural gas and electricity through energy efficiency improvements by 2015, and continue to achieve an additional 2 percent in efficiency improvements every year thereafter. (MGA 2007)

The MGA supported this goal with their number one and number two objectives:

- Identify the technical and economically achievable energy efficiency potential for each MGA state and for the region as a whole.
- Establish a policy and regulatory environment that enables and encourages implementation of cost-effective energy efficiency investments and practices.

For policy options at the state and provincial level, the MGA identified several that are directly relevant to energy decision makers in Wisconsin. These include:

> **Establish quantifiable goals for energy efficiency.** . . If each state identified targets for megawatt-hours and therms saved, it would be possible to determine what role each jurisdiction can play in achieving the region's overall 2 percent energy efficiency objective.

[1] While there are performance targets spelled out contractually between SEERA and the administrator of the Focus on Energy program, these are geared toward measuring energy savings, not system-wide resource planning. These performance targets are set based on verified net savings attributable to Focus on Energy activities and incentives. Performance assessment according to independent evaluators starts with the tracked savings reported by the Focus administrator, verifies these gross figures, and then adjusts them down to remove any savings from participants who were not influenced by the program (free riders). (PA, 2009, p. 1-2)

Require retail energy providers to make energy efficiency a priority.

Remove financial disincentives and enable investment recovery for energy efficiency program costs.

The MGA has reinforced these long-standing agreements with the Oct. 2009 release of the *Midwestern Energy Security and Climate Stewardship Roadmap*, in which their highest priority continues to be utility energy efficiency savings:

> **A. Priority Recommendation: Require Utility Energy Efficiency Savings**
> Require retail energy providers to make energy efficiency a priority in order to meet a region-wide energy efficiency standard of 2 percent annual savings for electric utilities and 1.5 percent annual reductions for natural-gas utilities. Energy efficiency standards should be applied consistently to investor-owned, cooperative and municipal utilities. . . (MGA 2009)

The Wisconsin Governor's Task Force on Global Warming's (GTFGW) final recommendations are also compatible with, and similar to, the MGA platform and roadmap, although the natural gas target is 1% rather than 1.5% or 2%. The Task Force recommends changing the basis of efficiency goal-setting from spending to annual savings goals. These reductions in electric load and natural gas consumption through energy efficiency:

> . . . for 2009 would be to reduce electric load by 0.75% and natural gas use by 0.5% from what they would otherwise be without the energy efficiency and conservation measures. The annual reduction targets would increase gradually until they reach 2% for electric load and 1% for natural gas use in 2015 and each subsequent year.

In addition to the MGA and GTFGW, several nearby U.S. states provide bases of comparison for setting appropriate Wisconsin energy efficiency goals. States that have made percentage reduction goal policies include Illinois, which passed an electric energy efficiency portfolio standard of 2% by 2015 and a natural gas energy efficiency resource standard (EERS) of 1.5% by 2019; Minnesota, with a 1.5% EERS with all utilities operating under plans before 2010; and Ohio, which began programs in June 2009 working toward an electric EERS of 2% by 2019. These state laws and others not listed here reinforce the Governors' regional commitments by passing legislation that implements both their *Platform* and *Roadmap*.

Wisconsin's Experience in Context

The characteristics of those Midwestern states putting EERS into law support the assertion that 2% may be an achievable target for Wisconsin. Some states have higher energy efficiency spending in the past relative to Wisconsin, others lower. Some are more dependent on coal than Wisconsin, others less. Most have larger populations and greater demographic diversity. Several have a larger industrial base. Annual weather patterns and energy-relevant climate characteristics are all comparable.

For the most recent years in which statewide data are available, 2006 and 2007, electric efficiency programs for Wisconsin saved 0.6 and 0.7 percent of total retail electric sales respectively. To reach a 2 percent annual energy savings goal would therefore approximately triple gross program electricity savings. Two very significant considerations for this policy are the definition of savings, i.e., what "counts" as savings, and evaluation methodology, or how savings are to be measured and verified.

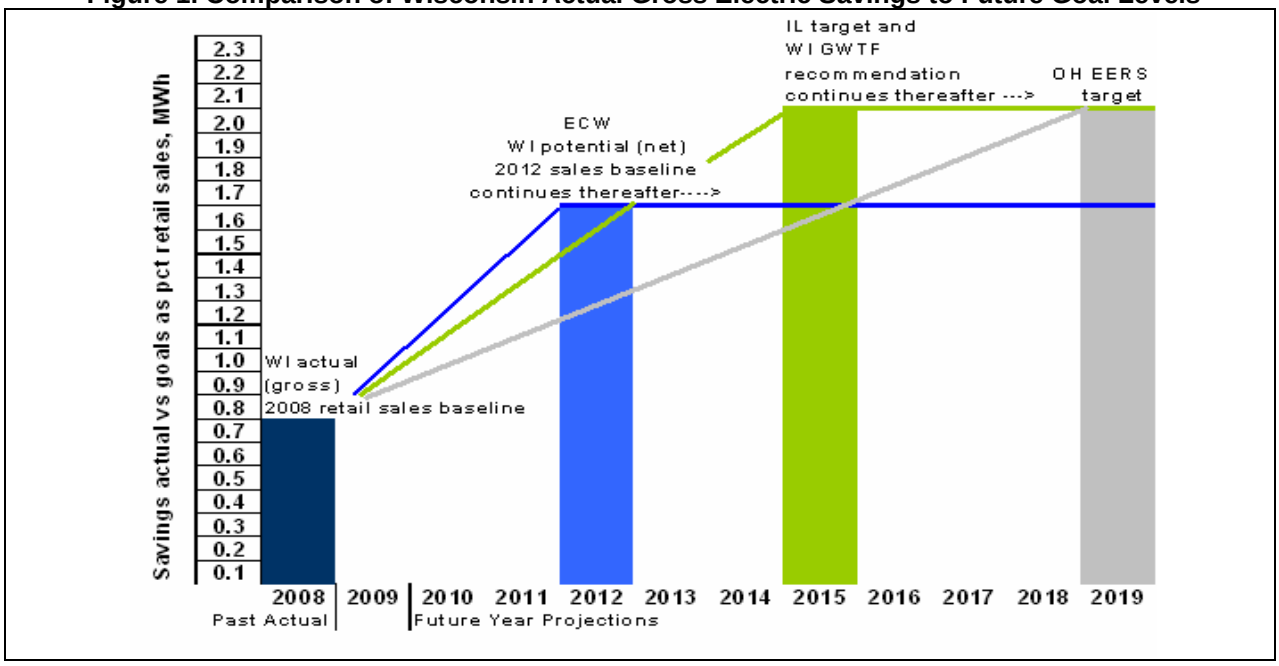
Under Act 141, a study of cost-effective achievable energy saving potential must be completed within two years of any decision by the Public Service Commission to order utilities to increase public benefits funding contributions above 1.2 percent of operating revenues. This has the effect of linking any future increase in statewide energy efficiency savings goals or resource standards with study findings.

The PSC contracted with the Energy Center of Wisconsin (ECW) to complete this study in 2008. Released in August 2009, the *Energy Efficiency and Renewable Resource Potential in Wisconsin for the Years 2012 and 2018 Final Report* determined that by 2012, Wisconsin could obtain energy savings at

the levels of 1.6 percent of total retail electric sales, 1.6 percent of peak electric demand, and 1.0 percent of natural gas and propane sales (ECW 2009).

It is important to note significant methodological considerations pertinent to the ECW study. The research, while geared specifically toward identifying the upper bounds of cost-effective achievable potential, was based on the scenario in which programs are expanded for a three year ramp-up phase from 2010 to 2012. After 2012, annual savings would then level out for the duration of the study period ending in 2018. This represents a rapid expansion of program activities and funding during the early years, with energy savings growing at an annual rate of more than 50 percent. This is substantially "front-loaded" relative to the Wisconsin Governor's Task Force on Global Warming recommendations and the Illinois and Ohio EERS targets for annual electric savings of 2 percent by 2015, 2015, and 2019, respectively. This is illustrated in **Figure 1.** below.

Figure 1. Comparison of Wisconsin Actual Gross Electric Savings to Future Goal Levels



A second major characteristic of the analysis performed by ECW study was that it considered net savings attributable directly to energy efficiency programs. This sets Wisconsin apart from most other state-level reporting of utility or public benefits programs, which use gross program savings. There is no right or wrong convention. The difference seems to be tied to program goals, regulatory precedents and evaluation protocols.

For Focus on Energy, independent evaluators have calculated the lifecycle verified ratio of net kWh savings to gross savings ("net to gross" or NTG) during the entire history of the program as 70% (PA 2009). Applying this to an expected achievable potential of 1.6 percent net savings, without adjusting the baseline annual forecast, would indicate a gross savings potential of just below 2.3 percent. The difference between the two should in theory equal the "naturally occurring" energy efficiency due to non-program induced changes.

Wisconsin is clearly among a set of leading states that have recognized the very real value of energy efficiency as a resource that yields not only cost savings to customers, but significant larger economic and environmental benefits. A recent study by ACEEE found that the average cost of saved energy for a broad set of programs from across the U.S—that is, the cost of saving energy through energy efficiency programs as provided by utilities or related organizations—was 2.5 cents/kWh This cost is easily one-fourth to one-third the cost of any supply-side alternative, whether fossil-fuel based or renewable energy

technologies. When implemented, customers reap the benefits of lower energy costs from improved energy efficiency.

PROGRAM ACCOMPLISHMENTS AND ASSESSMENT

Comparison of Stated Goals to Accomplishments

Historically, Wisconsin has set energy efficiency program performance targets on a budget-driven basis. Available public benefits funds were directed to meet qualitative policy goals in the most efficient manner the program administrator could achieve. The State of Wisconsin initially planned Focus on Energy to manage energy efficiency programs in five sectors: residential, commercial, industrial, institutional and agricultural. The Division of Energy in the Department of Administration set four goals when planning for the creation of Focus on Energy. These were to:

1. Transform the energy efficiency marketplace,
2. Increase reliability,
3. Reduce the environmental impact of energy use, and
4. Promote rural economic development.

The Division of Energy also set secondary goals which, in many cases, both support and result from the first four. These included:

1. Reducing the rate of energy consumption,
2. Reducing peak demand, and
3. Reducing dependence on energy imported to Wisconsin (WI DOA 2000).

Pursuant to Act 141, in 2008, the Public Service Commission began the Quadrennial Planning process, which reviews energy efficiency programs (primarily Focus) and ordered programs (large utilities) in order to "set or revise goals, priorities, and measurable targets" (Wis. Stat. 2008 196.374 (3)(b)). While the language has changed, and the emphasis on measureable goals is now more explicit, the contents are consistent with the goals enumerated when Focus on Energy was originally designed in 2000:

> The commission shall give priority to programs that moderate the growth in electric and natural gas demand and usage, facilitate markets and assist market providers to achieve higher levels of energy efficiency, promote energy reliability and adequacy, avoid adverse environmental impacts from the use of energy, and promote rural economic development. (PSC 2009)

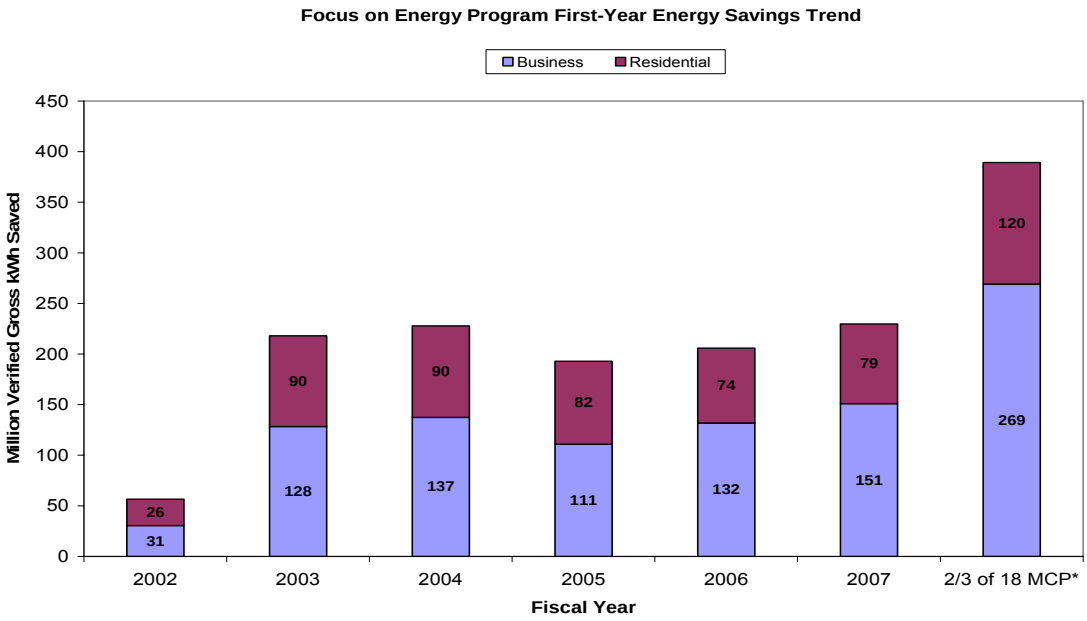
The first independent evaluation of Focus programs for a contract period after the passage of Act 141 placed emphasis on energy savings as the metric by which progress toward qualitative policy goals could be assessed. The evaluation team wrote that the purpose of the report is "to evaluate the impacts of Focus, with the most important being the energy savings realized through the implementation of energy conservation measures". (PA 2009)

Recognized Successes of Wisconsin Energy Efficiency Programs

ACEEE has developed objective criteria for identifying exemplary individual energy efficiency program initiatives for periodic reports titled *Compendium of Champions*. Focus on Energy and major Wisconsin utility-administered programs score high in several areas. The criteria are: energy savings, innovation, transferability, market transformation, evaluation and qualitative assessment.

Concentrating on energy savings, **Figure 2.0** below illustrates the increasing success of Focus on Energy program activities. Data were compiled from independent evaluation reports.

Figure 2. Focus on Energy Electric Savings Trend



* "2/3 of 18 MCP" is 66.6% of the energy savings reported for the 18-month contract period. The 18 month contract period straddles the transition from summer-to-summer fiscal years to calendar fiscal years. The 18 MCP includes all of what previously would have been Fiscal Year 2008 plus six months ending December 31, 2008. Data compiled from PA 2009.

When counting utility programs in addition to Focus, total kWh savings almost double. In 2007, Wisconsin programs saved almost 467,725 MWh of electricity or 467 million kWh.

Statewide energy efficiency achievements have been built from numerous individual programs customized to serve several end-user sub-sectors and technologies. Many Wisconsin program-level activities have won recognition for their demonstrated market accomplishments, innovation, and transferability. Several feature design elements that can be replicated for other settings. Top Wisconsin programs recognized by ACEEE in its 2nd national review of exemplary programs include:

Agriculture: The Focus on Energy Agriculture and Rural Business Program has been recognized by ACEEE as an Exemplary Program for its three-pronged approach. Focus offers direct services to end-use customers to identify projects with high energy-saving potential. Second, the program works with networks of trade allies that have the industry expertise to most effectively serve customers with specialized equipment. The program also collaborates with agribusiness industry leaders through trade associations as well as state and federal government initiatives. In place since the 2001 genesis of Focus as a whole, it has expanded beyond its initial work with dairy farms to include more subsectors and a wide array of energy-saving technologies employed in greenhouses, grain dryers, grain handling equipment, livestock operations, bio-fuel facilities and feedstock processors, crop irrigation and crop storage.

Industry: Another exemplary program in Wisconsin has been the Focus on Energy Industrial Program. The Industrial Program emphasizes training and support of trade allies and customers. Program features include 26 trainings on best practices, "Energy Best Practice Guidebooks" tailored to industrial "clusters" such as pulp and paper, and the Practice Energy Management © (PEM) training and facilitation. PEM works at the facility level.

The program employs ten highly qualified energy advisors who identify potential energy-saving projects at customer sites, assist with vendor selection, and guide customers through the application process. The program has concentrated its efforts on five major Wisconsin industry clusters. This enables energy-intensive businesses to find deeper savings while simultaneously building trust and credibility for the

program via industry leader and trade association networking. A customized grant program provides incentive dollars efficiently, with a good benefit-cost ratio and considerable energy and demand savings.

New Construction: We Energies' Commercial and Industrial New Construction Program is an outstanding energy efficiency effort run by a Wisconsin investor-owned utility. *Energy Incentives* from We Energies combines a range of program elements into a comprehensive approach to influence building design and construction practices. The program looks at high-performance buildings as integrated systems, unlocking energy savings that would not be available by analyzing efficiency measures in isolation. The program includes market-transforming activities in the implementation of new construction projects. Financial incentives for both design and measures are paired with technical assistance, education, information, and outreach to maximize energy savings.

In ACEEE's first national review of exemplary programs completed in 2003, *America's Best: Profiles of America's Leading Energy Efficiency Programs*, ACEEE recognized the following Wisconsin programs: The Daylighting Collaborative, administered by the Energy Center of Wisconsin; Wisconsin Energy Star ® Suite of Residential Programs, administered by the Wisconsin Energy Conservation Corporation (WECC), and the Wisconsin Energy Star ® Homes, also by WECC.

Evaluation

Another vital element contributing to Wisconsin's overall energy efficiency program strength is the quality of program evaluation. Focus on Energy, in particular, has been subject to technically rigorous quarterly and annual evaluation. Evaluation is required by law and is conducted by independent evaluation research consultants retained by the Public Service Commission. Evaluators verify and analyze every facet of each energy efficiency program using survey research, economic impact evaluation, and statistical, econometric and benefit-cost analysis. The Public Service Commission now mandates that utility-administered programs be subject to independent evaluation as well.

A major advantage of having technically sophisticated evaluation is that it enables consistent measurement of a wide range of program results. The program evaluation regime in Wisconsin is comprehensive and detailed. Program administrators are held accountable for metrics in areas such as breadth of program participation, stakeholder support, noteworthy implementation performance, and participant satisfaction. For example, for the contract period ending in 2008, evaluators analyzed data and reported on annual spending per capita, electric energy and demand savings, and therms of natural gas saved by program sector and Wisconsin county. The number of participants in each program has also been tracked and evaluated by section and location. In addition, the impact analysis reports annual dollars saved, electric energy and demand and natural gas therm reductions achieved. This information is reported geographically by State Assembly district.

Qualitative Assessment

In *Compendium of Champions*, Wisconsin energy efficiency programs scored well based on the criteria of customer participation, noteworthy program implementation performance, stakeholder support, and participant satisfaction.

Statewide Energy Efficiency Program Accomplishments

As a consequence of strong energy efficiency programs, Wisconsin has consistently been among the leading states in terms of electric-utility sector energy efficiency performance, and has been a leader in natural gas energy efficiency as well. Electric rankings have been measured by energy efficiency spending per capita, energy efficiency spending as a percentage of utility revenues, and MWh savings as a percentage of retail sales. In study after study completed by ACEEE, Wisconsin's total ratepayer-funded energy efficiency programs have averaged more than twice the national average in all of these measures.

ACEEE regularly publishes *Annual State Scorecards* ranking states by energy efficiency performance, with electric and natural gas utility sector performance given the most weight of all efficiency categories. ACEEE has ranked Wisconsin 12th of all 50 states for utilities and public benefits programs in 2009, tied for 10th in 2008, and 12th in 2006. The move to lower standing in the rankings in 2009 was due to faster improvement in other states and greater competition for the top slots, not poor program performance in Wisconsin. These "state scorecard" reports also include metrics for a variety of energy efficiency policies and programs outside of utility and public benefits programs, including transportation, building energy codes, appliance standards and state government policies and protocols.

In *Meeting Aggressive New State Goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*, published in March 2009, ACEEE identified the 14 top states for electric utility sector energy efficiency performance. The study used quantitative analysis, recommendations from state leaders, policy factors, and expert opinions to rank states overall within the leading group. Wisconsin scored in the top tier, tied for fifth place with New York, based on the experts' rankings.

OPPORTUNITIES TO ACHIEVE AND SUSTAIN HIGHER SAVINGS

Wisconsin's strong track record does not mean that the state is running low on energy-saving opportunities. There is a strong base of institutions and expertise to build on to capture the higher savings goals. **Table 2** below displays Wisconsin results relative to comparable target percentages:

Table 2

	Percent of Retail Sales	Actual/Target Year
Electric		
Wisconsin Actual	0.7	2007
Governors Task Force on Global Warming Recommendation (0.25% per year savings)	2.0	2015
Midwestern Governors Association, 2007 *Platform*	2.0	2015
Midwestern Governors Association, 2009 *Roadmap*	2.0	not specified
Illinois	2.0	2015
Ohio	2.0	2019
Natural Gas and Propane		
Wisconsin Actual	0.5	2007
Governors Task Force on Global Warming Recommendation	1.0	2015
Midwestern Governors Association, 2007 *Platform*	2.0	2015
Midwestern Governors Association, 2009 *Roadmap*	1.5	not specified
Illinois	1.5	2019

Energy efficiency opportunities are available within the Focus on Energy program, utility programs, and via state statute and regulation. The main factors enabling leading states with top programs to achieve deeper savings have been program funding and strong legislative/regulatory requirements and support. These have been demonstrated in prior ACEEE research (Kushler, York, Witte, 2009).

Previous studies of energy efficiency potential in the Midwest have underestimated what is achievable. Policies and programs can yield higher savings than earlier research has found. A recent white paper (Energy Center of Wisconsin and ACEEE 2009), prepared for the MGA reviewed review and analyzed 13 energy efficiency potential studies of Midwestern states or utilities. This report cites numerous reasons why most studies of energy efficiency potential tend to underestimate the resource potential. Their reasons include:

- Current and projected avoided costs are higher than those used in existing studies;
- Interaction effects and synergies among program and policy changes are largely excluded;
- Not every end-use and not all markets are analyzed;
- Methodological assumptions have conservatism built-in;
- Across the board, positive discount rates are used to value future benefits of energy efficiency, although negative discounting is appropriate for long-term valuation of climate change and other environmental impacts;
- Technological advances, improvements of existing technology, and cost reductions from economies of scaling production and distribution are not accounted for; and.finally,
- Customer behavior change, adaptation of consumer attitudes, and action taken by end-users attributable to intrinsic values and environmental beliefs are omitted.

Program Opportunities

Program structure and design have the potential to expand efforts in underserved sectors and classes of customers. Program plans could be organized to reach deeper savings in areas in which participation rates are high, but percentage energy savings remain shallow. There are also opportunities in Wisconsin to increase spillover, so that policy and programs combine to create markets for energy efficient products and services.

Analysis of program coverage and performance by sector, technology, market, and end -use will enable quantification of the size and cost-effectiveness of savings opportunities. For example, ACEEE's research on the top 14 states found that lighting measures accounted for almost two-thirds of end-use savings. In the residential sector, this was as high as 92%. One technology, the compact fluorescent lamp, accounts for the majority of these savings. However, most residential lighting in Wisconsin continues to be incandescent. In this case, residential lighting provides an example that reveals energy efficiency opportunities via segmentation by sector and technology. As federal lighting standards are implemented within the next few years, greater savings may be gained without increased program incentive spending, depending on how savings will be accounted for.

Another major area that may provide an opening for greater kWh reductions is new behavior-based efficiency programs. Programmable thermostats that make reduced use of natural gas for space heating more convenient are one example. Another is to educate, provide incentives, or otherwise inspire consumers to use real-time energy use displays. The Energy Center potential study only included these two measures in estimates of Wisconsin's savings potential. There are many others that might possibly contribute, such as community-based communication campaigns, varying uses of social marketing tools, reaching deeper for savings with building retrofits, and innovations in the use of utility bills.

Policy Opportunities

Beyond program design, expansion, and funding, the creation of a policy environment that motivates utility management toward greater energy efficiency is another fundamental ingredient for achieving more aggressive energy savings goals in Wisconsin. The business models that create the financial incentive for major utilities to concentrate their efficiency efforts are an important part of the framework. Wisconsin's decoupling and shareholder incentives to date only pertain to one utility each out of the largest six in operating in the state. The expansion of these policies that give utility management the rationale for pursuing direct energy efficiency in their own programs could also reap further savings from coordination with Focus on Energy programs, higher appliance efficiency standards, and state building codes.

CONCLUSIONS AND RECOMMENDATIONS

The amount of energy efficiency Wisconsin may achieve is ultimately a function of political and economic will. The Midwestern Governors Association and the Energy Center of Wisconsin have reached similar conclusions in their studies.

The potential is here. The Energy Center potential study concluded that 1.6 percent of electric energy and 1.0 percent of natural gas could be saved annually by 2012 with increased funding. Their report explicitly notes that 1.9 percent electric and 1.2 percent natural gas are achievable, with the caveat that for electric there are diminishing returns. According to the ECW, reaching the additional increment of savings would more than double program costs. Significantly, ECW adds that this scenario still produces positive net benefits.

Efficiency remains the lowest cost option for reducing greenhouse gas emissions. Wisconsin has four major emissions reductions strategies to consider: replacing coal generation with nuclear, expanding renewables, increased efficiency and conservation, and capturing carbon and building a pipeline to the nearest geologic sequestration site in Illinois. Among these options, expanded investment in electric energy efficiency programs—even to the more costly 1.9 percent verified net savings level—remains the lowest-cost option.

Other states have committed to raising their goals. There are a number of increasingly bold, large-scale energy efficiency initiatives by other states that could provide models for Wisconsin. California Public Utilities Commission has authorized $3.13 billion in cost-effective energy efficiency programs for 2010-2012 in alignment with The California Long Term Energy Efficiency Strategic Plan. Massachusetts' Green Communities Act mandates the pursuit of *all* available cost-effective efficiency, estimated to be 3% of load.

Wisconsin has a strong record of successful utility-sector energy efficiency programs. This experience and associated infrastructure form a solid foundation on which to build and expand the state's efforts to capture higher energy savings in order to reach new environmental and economic objectives.

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