Making the Case for Inclusive Industrial Energy Efficiency Policy

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Abstract

The Midwest[1] is particularly well-positioned to benefit from industrial energy efficiency improvements due to the region's significant manufacturing sector. Thirty-four percent of the electricity used in the Midwest is consumed by the industrial sector and national studies have ranked Midwest states as having the greatest potential for industrial energy efficiency (EIA, 2015). With a high proportion of electricity consumption coming from industrial customers, Midwest utilities need strong industrial efficiency programs to meet their energy savings goals. Perhaps more importantly, energy savings improve industrial companies' bottom lines and aid their competitive agendas. Despite this, recent trends involve some industrial customers, business associations and policy makers pushing for legislative and regulatory changes that allow large energy users to opt-out of paying into ratepayer funded energy efficiency programs, with the understanding that they are pursuing energy efficiency on their own. However, evidence shows that many industrial firms do not internally pursue efficiency on a significant scale and the potential savings from the industrial sector are ultimately lost. The impact of large energy user opt-outs is compounded further by the greater cost-effectiveness of energy savings from industrial customers compared to public benefit programs. There are self-direct policies that require large energy users to design their own energy efficiency programs and provide third party evidence of investment and energy savings.

In this paper, we explore how Midwest investor-owned utilities' industrial energy efficiency portfolios have evolved over time as state opt-out and self-direct policies are implemented. We discuss how opt-out provisions have the potential to weaken industrial portfolios by comparing the size, savings and cost-effectiveness of industrial portfolios from Midwest states with varying industrial policies.

[1] For this paper, we define the "Midwest" as the footprint of the Midwest Energy Efficiency Alliance, which covers 13 states: Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin.

Introduction

Manufacturing is a fundamental part of the Midwest identity and a critical contributor to regional economic prosperity. Manufacturing represents a 16% share of the Midwest region's total GDP and the industrial sector in the Midwest consumes 38% of the nation's total industrial electricity use (Midwest Governor's Association, 2012; EIA, 2014). A recent national report by the Alliance for Industrial Efficiency (AIE) found the largest opportunities for industrial efficiency are in heavy manufacturing states. This report found five Midwest states (Illinois, Indiana, Kentucky, Michigan and Ohio) rank in the top 10 of states with the greatest potential for energy savings in the industrial sector (AIE, 2016). The potential energy savings within the region's industrial sector presents a major opportunity for utilities looking to meet state energy efficiency goals and associated public policy objectives, including energy savings and emission reductions. Moreover, tapping into their energy savings potential allows industrial companies to become more competitive by cutting their energy costs, improving productivity and meeting any environmental or sustainability objectives.

Seven Midwest states have long-term energy efficiency goals. Six of these (Illinois, Iowa, Michigan, Minnesota, Ohio and Wisconsin) have adopted some form of an energy efficiency resource standard (EERS) that requires electric utilities in their state to meet energy savings or energy efficiency program spending targets through ratepayer funded investments in energy efficiency. As these states strive to meet their energy savings targets and advocates seek to maximize the use of energy efficiency as a least-cost resource, capturing energy savings from the largest energy users is increasingly important. Furthermore, energy efficiency provides system-wide benefits that accrue to all customers, whether or not they pay into the programs.

While the potential for additional savings in the industrial sector remains great, policies that allow industrial users to opt-out of utility energy efficiency programs continue to be debated across the region. Some large energy users argue that energy efficiency mandates carry a burdensome cost, whereby utility bill surcharges subsidize energy efficiency programs for other customer classes or their competitors. An opt-out policy gives large energy users relief from paying into or participating in utility energy efficiency programs based on load size, which varies by state. Opted-out customers' energy usage is subtracted from the baseline load used to calculate utility savings goals and any energy that industrial users save is essentially "invisible" to the public, advocates and policymakers. In most cases, neither the number of companies nor the names of companies who have elected to opt-out from their utility's energy efficiency program is public information. Most troubling is that opt-out policies result in a reduction in the number of the most cost-effective programs, a decrease in the number of customers served, a decline in the amount of energy savings achieved and a lessening of the overall potential energy savings for entire utility portfolio. .

An alternative to an opt-out policy is self-direct, which generally requires large energy users to either participate in their utility's energy efficiency program or implement their own energy saving measures that are reported and accounted for. The resulting savings can then count

toward utility efficiency targets. While the criteria for what constitutes a "large energy user" varies state to state, as does the responsibility of the administration of the self-direct and the qualifying industrial firms' reporting and evaluation requirements, the overall concept and framework remains the same between Michigan, Minnesota and Wisconsin, the three Midwest states with this policy. Unlike an opt-out, a self-direct policy requires a level of reporting and accountability for meeting savings goals and all customer classes are still contributing their share towards achieving a state's efficiency objectives.

Industrial opt-out policies could have a significant impact on whether the Midwest reaches its energy efficiency potential. In order to demonstrate what is at stake and stands to be diminished by industrial opt-out policies, this paper will examine the size (as defined by the portion of total energy efficiency savings achieved by utility industrial programs) and scale of energy savings in the industrial sector. We will also explore the cost effectiveness of utility industrial efficiency programs and the impact these programs have on strengthening utilities' total energy efficiency portfolio performance.

Methodology

For this study, we utilized Energy Information Administration (EIA) data from Form EIA-861 to identify the Midwest utilities with the largest total industrial electricity savings and the utilities whose majority of savings come from the industrial sector. We identified approximately 80 program administrators that reported incremental industrial energy efficiency savings in the Midwest from 2010- 2015 and compared their total industrial electricity savings and their industrial sector portfolio's contribution to the total energy savings through the years. These utilities are located within Midwest states with varying policies regarding industrial customer participation in utility energy efficiency programs. The states we initially chose to focus on are the states in the Midwest with established EERS (Illinois, Iowa, Michigan, Iowa, Ohio and Wisconsin), recently eliminated EERS (Indiana), or established voluntary efficiency targets (Missouri). The nuances of the Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin industrial efficiency policies are discussed below.

To examine the cost effectiveness of utilities' industrial efficiency portfolios and the impact the industrial portfolio has on the cost effectiveness of the total portfolio, we used utilities' ex-post annual reports to build a database of cost-effectiveness scores at the sector and total portfolio level. Because many investor-owned utilities do not differentiate between the commercial and industrial (C&I) sector and instead use "residential" and "non-residential" or "commercial and industrial," our database reports the residential and C&I cost-effectiveness scores and does not isolate the industrial sector. Also for the purposes of this database, we limit the included utilities to only investor-owned utilities and statewide administrators. The reasoning for this is twofold: (1) these utilities and administrators cover the largest number of customers and (2) they are subject to EERS in more states than are municipal and cooperative utilities. In order to cover a broad sample across states and utilities with differing policies regarding industrial customer participation in utility energy efficiency programs, the data scope for this study was set for 2010-2015. This period was not only a time of growth in energy efficiency in the Midwest, but also, in more recent years, of changing policies allowing industrial users to opt-out of utility energy efficiency programs, specifically in Indiana and Ohio.

Current State Policies on Industrial Participation

Maintaining Industrial Customer Participation in Iowa

Iowa is the only state in the Midwest with both an EERS and no opt-out or self-direct policy applying to industrial ratepayers. All large energy users in the state, therefore, are required to pay into utilities' energy efficiency programs. The Iowa Utilities Board (IUB) has enacted rules for utility energy efficiency programs that require rate-regulated utilities to submit an assessment of energy usage and potential savings to the IUB (Iowa Administrative Code §476.6). Unlike with a traditional EERS, there are no hard statewide targets mandated for what level of savings is required, though each utility must achieve their own savings target. In 2008, the IUB implemented a regulatory order that set an annual energy savings target for each rate-regulated electric and gas utility. These goals are developed for each utility every five years, following an assessment of energy usage and potential savings.

In recent years, the IUB has come out strongly against industrial opt-out policies in favor of industrial customer participation in utility energy efficiency programs. In their order approving Interstate Power & Light's energy efficiency plan for 2014-2018, IUB wrote:

> *"…the Board is not persuaded that allowing an opt-out is good public policy… All utility customers, even those who do not directly participate in energy efficiency programs, benefit from the avoided cost savings that are the primary goal of energy efficiency programs… Iowa has a strong public policy of supporting and developing energy efficiency and the Board will not undermine Iowa's policy by allowing certain customers to opt-out of the energy efficiency paradigm"* (IUB, 2013).

Self-Direct in Michigan, Minnesota and Wisconsin

In Michigan, the Clean, Renewable, and Efficient Energy Act (PA 295 of 2008) created a mandatory energy efficiency portfolio standard (known as the Energy Optimization Standard) for the state's electric and natural gas investor owned, municipal and cooperative utilities. The energy efficiency portion of that act sets minimum savings targets for utilities. Utilities began their programs in 2009 and ramped up annual incremental electricity savings in 2012, 2013, 2014, 2015 and each year thereafter equivalent to 1.0% of total annual retail electricity sales in megawatt hours in the preceding year.

Large energy customers in Michigan are exempt from the per-meter charges they would otherwise incur from their utility for implementing its approved energy waste reduction plans if they file with their utility and implement a self-directed plan. In order to qualify for self-direct, the customer must have had an annual peak demand in the preceding year of at least 1 megawatt in the aggregate at all sites. A self-direct plan must be (1) a multi-year plan for an ongoing energy optimization program, (2) be calculated based on annual electricity usage (not including changes in electricity usage because of changes in business activity levels or due to pollution control equipment), (3) specify whether electricity usage will be weather-normalized or based on the average number of MWh of electricity sold by the electric provider annually

during the previous three years to retail customers in this state and (4) outline how the customer intends to achieve the incremental energy saving specified in the self-directed plan.

In Minnesota, The Next Generation Energy Act of 2007 amended existing energy conservation law to create an EERS. The state has an annual savings goal of 1.5% of average annual retail sales for all utilities and associations (both electric and gas). The commission can modify this goal (based on a potential study or other factor), but cannot approve a goal below 1.0% for investor-owned utilities. The act requires utilities to file triennial Conservation Improvement Programs (CIP) with a minimum spending level equal to 1.5% of annual gross operating revenues for electric utilities and 0.5% of annual gross operating revenues for gas utilities. Currently, investor-owned utilities file triennial CIP plans and annual status reports on their CIP performance and compliance from the past year. Cooperatives and municipal utilities submit annual plan updates and status reports.

Minnesota offers a self-direct option with a full exemption from assigned cost recovery mechanism fees to customers with 20 MW average electric demand or 500,000 thousand cubic feet of gas consumption. Customers must also show that they are making "reasonable" efforts to identify or implement energy efficiency and that they are subject to competitive pressures that makes it convenient for them to not pay into their utilities' energy efficiency program (Next Generation Energy Act, 2007). Self-directing customers must submit new reports every five years to maintain exempt status. The state Department of Commerce administers the program and functions as the manager of self-direct accounts, and staff evaluate self-directed customers' savings claims.

An early trend in energy efficiency funding policy was to require utilities to fund energy efficiency programming at an amount equal to a percentage of utility revenue. In Wisconsin, these funds are collected from ratepayers of regulated investor-owned utilities and pooled together to create the Focus on Energy program, which has been administered by the Public Service Commission (PSC) since 2007. Wisconsin Statute 196.374(2) requires utilities to fund energy efficiency programs at a level of 1.2% of annual retail revenue, a spending-based energy efficiency standard known as a Public Benefit Fund (PBF). In Wisconsin's PBF, the utilities collectively contribute to Focus on Energy, the statewide program administrator who contracts with various entities to implement energy efficiency programs. Utilities are also allowed to conduct their own energy efficiency programs in addition to those funded through the statewide administrator, subject to approval by the PSC, though the PSC cannot order utilities to conduct additional programs.

Wisconsin Statute 196.374(2)(c) allows for self-directed energy efficiency programs for large customers who have a demand over 1 MWh or 10,000 dekatherms of natural gas a month and a monthly bill of at least $60,000. The customer may deduct the amount of program funding from the amount they must contribute to paying into Focus on Energy through their utility following PSC approval of that program (Wisconsin Statute 196.374). Customers' self-direct proposals must include a measurement and verification plan, must pass a cost-effectiveness screening and set and measure performance goals. As of July 2016, no Wisconsin firms self-direct and all participate in Focus on Energy (ACEEE, 2016).

Industrial Opt-outs in Indiana, Ohio and Missouri

By statute, utilities in Indiana are required to file energy efficiency plans consistent with the utility's latest integrated resource plan. The state previously had an EERS which was overturned in 2014 by the Indiana General Assembly. In addition to eliminating Indiana's EERS, this legislation included an opt-out that applies to the state's five investor-owned utilities and allows industrial customers, previously required to participate, to begin opting-out of paying into the utilities' energy efficiency program. Under Indiana Code 8-1-8.5-9, customers over 1MW capacity at a single site for any billing period within the previous 12 months may opt-out of utility energy efficiency programs any time before July 1, 2019 (Indiana Code, 2014). The opt-out applies to the five investor-owned electric utilities. Documentation is not required and no evaluation is conducted. As of July 2016, approximately 70%-80% of eligible load has opted out (ACEEE, 2016). There are no requirements for opt-out customers to report or verify energy savings. In 2015 the Indiana Utility Regulatory Commission began updating the energy efficiency planning rules to be consistent with statutory requirements through a public process that concluded in early 2017.

The Missouri Energy Efficiency Investment Act (MEEIA) authorizes the Missouri Public Service Commission (PSC) to approve Demand Side Investment Mechanisms (DSIMs) for the state's utilities and to allow cost-recovery, lost revenue recovery and incentive mechanisms to make the utility whole for the operation of those programs. MEEIA does not set forth any targets for energy efficiency, and program filings under MEEIA are entirely voluntary for utilities. PSC rules for MEEIA implementation lay out a guideline for reviewing progress toward achieving "all cost-effective demand-side savings" that ramps up to a level of 1.9% of electricity by 2020, but this is a non-binding guideline.

MEEIA allows customers to opt-out of paying into their utilities' energy efficiency programs 1) if they have a demand of at least 5,000 kW in the previous twelve months, 2) if they are an interstate pumping station or 3) if they show they a "comprehensive" demand or energy efficiency program in place that is saving an amount equal to the utility programs and have a demand of at least 2,500 kW (MEEIA, 2009). Customers opting out under the 2,500 kW category must submit their plan to the PSC for review. Customers wishing to opt-out under either of the other categories simply notify their utility. PSC staff performs a desk audit of all claimed savings and may perform a field audit.

Ohio's 2014 Senate Bill 310 created Ohio Revised Code 4928.6610–6616, which amended the state's EERS by rolling back the savings targets, starting in 2017, to 1% annual energy savings through 2020 and 2% thereafter and instituted a mercantile opt-out policy (Ohio Rev. Code, 2015). Customers with an annual usage more than 45 million kWh are able to opt out of participation in utility energy efficiency programs beginning January 1, 2017. They will be required to provide a report to the commission on what they "may consider implementing, based on the customer's cost-effectiveness criteria" (ORC 4928.6616) and report confidentially to the commission biennially on their achieved efficiency savings, if any, subject to self-verification. An opt-out customer's failure to achieve planned energy reductions would give the commission the option of suspending the opt-out, but only for as long as it would take to achieve the cumulative reduction level that the customer had specified (ORC 4928.6616).

Industrial Exemptions in Illinois

On December 6, 2016, Illinois Governor Bruce Rauner signed into law the Future Energy Jobs Bill after more than two years of legislative proposals and negotiations. The compromise bill package contains support for renewable energy, nuclear energy and energy efficiency, but exempts the largest energy users from paying into or participating in utility energy efficiency programs. Customers with a peak demand of over 10 MW for 30 minutes in ComEd's territory and 15 minutes in Ameren's territory are exempt from participating in utility demand-side management programs beginning January 1, 2018 (Illinois Public Act 099-0906, 2016). Prior to the passage of the Future Energy Jobs bill, industrial customers participated in electric energy efficiency programs and an optional gas self-direct pilot program.

Size and Savings of Industrial Portfolios

In this section, we review the top 10 administrators of electric industrial energy efficiency portfolios from investor-owned utilities in the Midwest from 2010 to 2015. For the majority of those six years, many of the utilities were operating under a statewide EERS that applied to all customer classes. However, in recent years, several Midwest states have allowed large energy users to opt-out from efficiency mandates and the customer charges imposed to support the implementation of ratepayer-funded efficiency programs.

2010

Figure 1 shows the largest administrators of industrial-sector electric energy efficiency programs in the Midwest from 2010. Because this was a time of major growth for energy efficiency in the region, with several states aggressively ramping up energy savings to meet recently adopted energy savings targets, a number of these administrators figure prominently in both total industrial electricity savings and in the proportion of the industrial sector in utility portfolios, which, as discussed in more detail later, offer the greatest energy savings per dollar invested.

2015

Figure 2 shows the largest administrators of industrial-sector electric energy efficiency programs in the Midwest from 2015. While many of the biggest players from Iowa, Minnesota and Wisconsin remain the same, their combined industrial savings decreased by 20% from 2010. This is likely due to 2010 being a major "ramp up" year for energy efficiency in the Midwest as several states put policy and regulatory frameworks in place. Additionally, given that Indiana and Ohio have some of the largest industrial energy efficiency portfolios, opt-outs in those states are going to have a large negative impact on regional energy efficiency achievement.

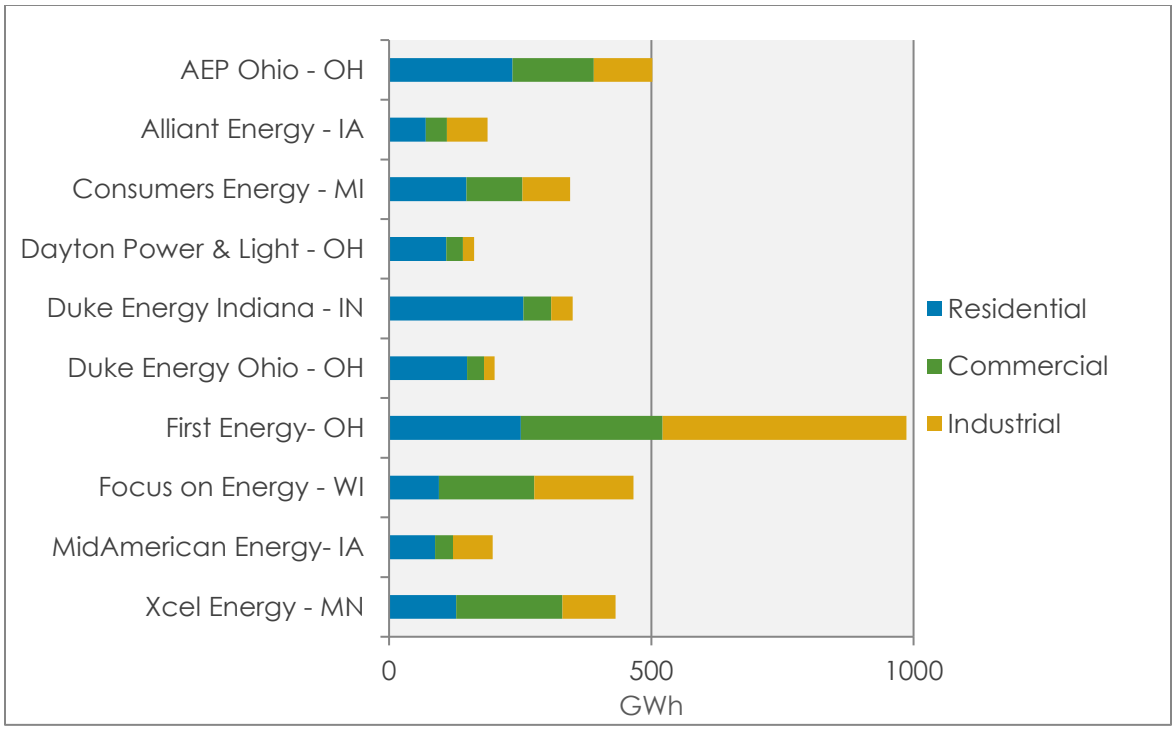

Figure 1. Top 10 administrators of electric industrial energy efficiency programs in the Midwest, 2010 (annual incremental electricity savings, GWh). Source: EIA 2010.

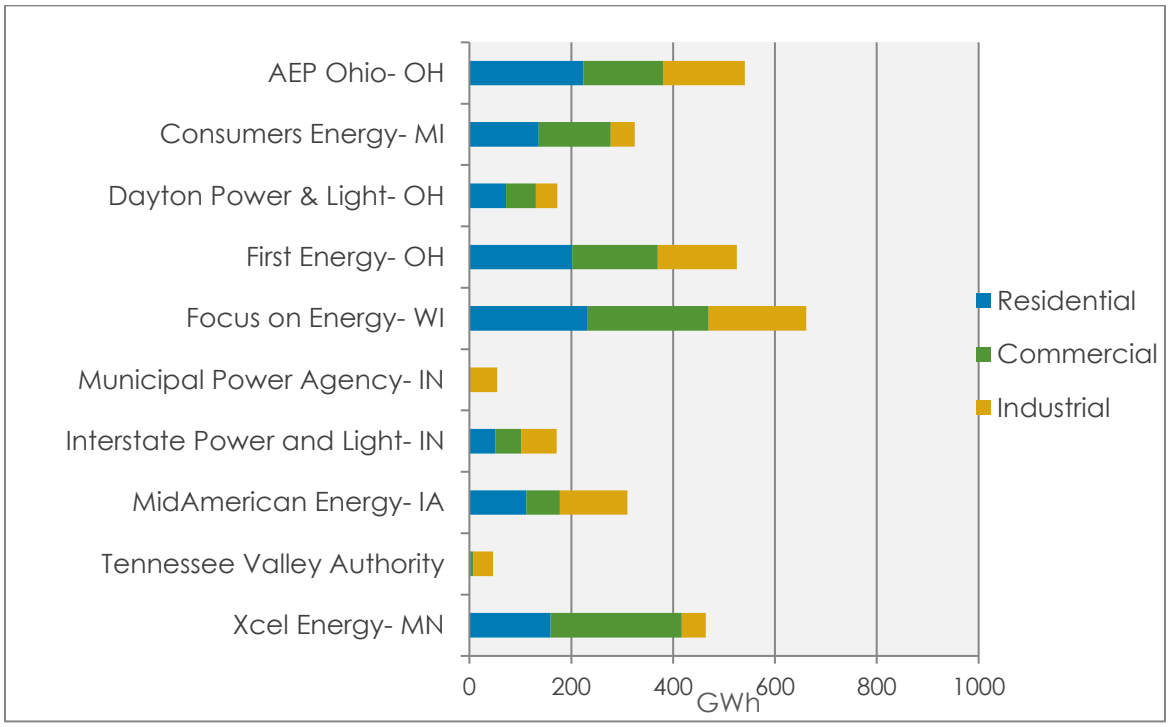

Figure 2. Top 10 administrators of electric industrial energy efficiency programs in the Midwest, 2015 (annual incremental electricity savings, GWh). Source: EIA 2015.

Commercial and Industrial Cost-Effectiveness

Importance of C&I Programs for Portfolio Cost-Effectiveness

In order for utilities to recoup energy efficiency program costs and to receive any possible incentives for meeting or exceeding their efficiency targets, they must demonstrate to their regulator that their portfolios meet the standards of cost-effectiveness. Beyond meeting the minimum requirements for regulatory screening (a benefit-cost score greater than 1.0 for the primary test), high cost-effectiveness can also demonstrate to regulators, stakeholders and shareholders that the utility is putting forth a strong effort to maximize the benefits of energy efficiency and minimize costs. Most Midwest states (IL, IN, KS, KY, MO, NE, OH, SD and WI) require the Total Resource Cost (TRC) test as the primary demonstration of the cost-effectiveness. Iowa and Minnesota both use the Societal Cost Test (SCT) and Michigan uses the Program Administrator Cost Test (PACT).

Energy efficiency programs bring economic benefits to industrial customers as well as the overall utility system. On a national level, industrial energy efficiency is one of the most cost-effective energy resources available, saving more energy per program dollar compared to most programs targeting other customer classes (Chittum and Nowak, 2012). This is unsurprising since commercial and industrial firms have longer hours of use and employ more energy intensive operations. Savings from energy efficiency investments therefore accrue faster, resulting in a shorter payback period and a higher return on investment compared to similar residential programs. To determine the role industrial efficiency programs play in overall portfolio cost-effectiveness, we examined data from energy efficiency portfolios funded by the ratepayers of investor-owned utilities in the Midwest for which cost-effectiveness data was available at the sector level.

As illustrated in Figure 3, C&I programs tend to be more cost-effective than the residential sector. The higher cost-effectiveness of the C&I portfolios can help offset the very low or even negative cost-effectiveness scores attributable to low-income portfolios (Ehrendreich, 2015). Utility program offerings in the C&I sector are, therefore, a major determinant of the overall cost effectiveness of utilities' energy efficiency portfolios and can help offset lower cost-effectiveness scores attributable to low income residential programs. Losing a portion of the C&I portfolio through large customer opt-outs means the overall portfolio will be significantly less cost-effective due to the less cost-effective programs having greater influence on the whole portfolio.

The high cost-effectiveness of C&I programs means that even with the less cost-effective low-income programs included, the total portfolio score remains high. Total portfolio scores tend to mirror the trend line of the residential portfolios in Figure 3 (data not shown). Opt-out policies leave industrial energy savings on the table and/or necessitate policymakers and utilities to develop new methodologies in order to capture additional savings for meeting their reduction goals. Energy efficiency from just the residential and small business sectors will still play a valuable role, but some of the most cost-effective means of meeting energy savings requirements will be lost.

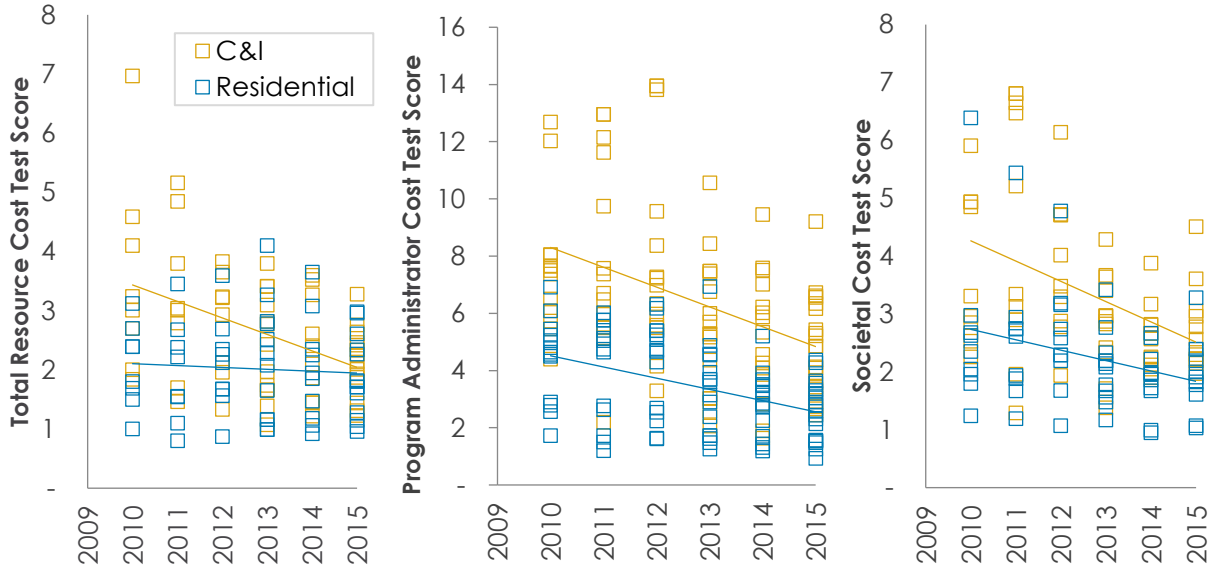

Figure 3. Cost-effectiveness of Midwest electric and natural gas commercial and industrial (blue) and residential sector (orange) energy efficiency portfolios for the three standard cost-effectiveness tests used as primary measures of portfolio cost-effectiveness in the Midwest, 2010-2015. Markers indicate individual utility portfolios, while the line shows the linear trend line for each sector. Source: MEEA database.

C&I Portfolios Remain Cost-Effective Over Time

A common critique of energy efficiency is that cost-effectiveness decreases over time. The assumption is that utilities and program administrators initially pursue low-cost, easy-to-implement programs and that over time programs become more expensive and less cost-effective. If this is the case then the enhancement of the overall portfolio's cost-effectiveness by the C&I offerings would show diminishing returns over time, but this does not appear to be the case.

The data illustrated in Figure 4 (below) does not show a drop-off in cost-effectiveness over time for C&I portfolios in the Midwest. The electric benefit-cost score trend is essentially flat within the confidence limits. There is a pronounced downward trend for the gas scores over time in aggregate, but for any individual utility the trend can be up, down or flat. The higher variability in gas means that the confidence limits on the gas side are broader than for electric. Even as gas prices fluctuate, natural gas energy efficiency programs remain cost-effective, though the magnitude of that effectiveness can change significantly from one year to the next as avoided cost of supply varies. This data comes from a mixture of utilities from 'mature' efficiency states (IA, MN and WI utilities have been running statewide efficiency programs for more than a decade) and from states that were in the midst of rapid portfolio ramp-up from 2010-2013 (MI, OH). If there was a strong "low hanging fruit" effect, the data would reveal a pattern of decreasing cost-effectiveness over time, which is not observed here.

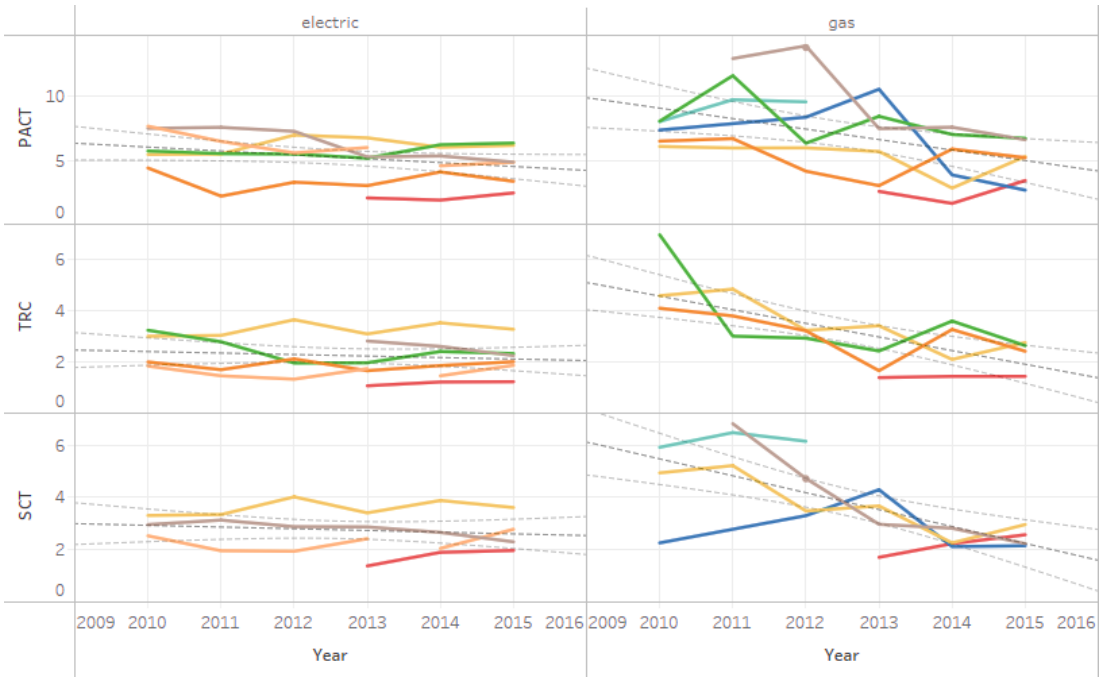

Figure 4. Cost-effectiveness scores over time for C&I portfolios of Midwest utilities, 2010-2015. Colors represent individual utilities for which there were at least 3 consecutive years of benefit cost scores (individual utilities not identified). Source: MEEA database.

Data Challenges and Other Limitations

EIA Form 861 is one of the only public, national level sources of electricity sales, consumption and energy efficiency data, but the self-reported form does have data availability issues and makes the study of industrial energy efficiency programs difficult. While there is aggregate data covering industrial sector natural gas savings, further breakdown of those savings by state or utility is not possible the way it is on the electric side due to the lack of a granular national dataset of natural gas efficiency similar to EIA-861. Perhaps more significantly, EIA-861's reliance on self-reporting leads to significant gaps and discrepancies. As previously mentioned, several major investor-owned utilities, including ComEd, Ameren Illinois and Michigan's DTE either do not report any industrial savings or aggregate industrial and commercial sector savings, calling all non-residential savings "commercial" for the purposes of EIA reporting. In most cases, however, looking at the individual utility plans shows that those utilities that aggregate the industrial and commercial sector are doing industrial-specific energy efficiency programs.

Data consistency is another issue, particularly when comparing the cost-effectiveness of industrial energy efficiency utility programs between states since regulatory requirements for cost-effectiveness testing varies from state to state as do common practices for reporting cost-effectiveness scores differ among utilities. As previously mentioned, the majority of Midwest states utilize the TRC, Michigan uses the PACT and Iowa and Minnesota use the SCT. Only a small handful of utilities report scores on all of the cost-effectiveness tests, in every report, every year, at the program, sector and total portfolio levels. In many cases, only the portfolio-level scores are reported, sometimes for just the primary test required by their state, sometimes for all the

tests. Other utilities report the full suite of test scores for programs only, or do not report ex-post cost-effectiveness at all. Some utilities report itemized costs and benefits, others aggregate all costs and benefits and some utilities only report the cost-effectiveness scores. This lack of consistency makes comparing industrial energy efficiency programs across the Midwest region difficult.

Conclusions

The Midwest has significant industrial energy savings potential. Unfortunately, industrial opt-out policies are gaining ground in the region, and the potential negative impacts on utilities' industrial sector portfolios are already being observed. When the largest energy users fully participate in utilities' energy efficiency programs, those programs are highly cost-effective, contribute significantly to the overall energy efficiency portfolio performance and are integral for meeting statewide energy efficiency goals. While self-direct policies such as those in Michigan and Minnesota are a viable alternative to full participation, when states allow large energy users to opt-out from utility-run efficiency programs, they invite negative consequences for the cost-effectiveness of utilities' overall compliance. Ensuring the continuation of policies that support industrial participation in utility efficiency programs will improve industrial corporations' bottom line and achieve states' emission reduction or energy savings goals. Finally, in order for energy efficiency advocates to make the case for inclusive industrial energy efficiency policy, more expansive and consistent data is needed to form deeper insights into the strength of energy efficiency efforts, trends in cost-effectiveness as programs scale up and which energy efficiency measures and programs provide the most benefit at the lowest cost to the ratepayers.

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