

## **Communicating the Value of Industrial Energy Efficiency Programs**

Meegan Kelly and Ethan Rogers

February 2016

An ACEEE White Paper

© American Council for an Energy-Efficient Economy  
529 14<sup>th</sup> Street NW, Suite 600, Washington, DC 20045  
Phone: (202) 507-4000 • Twitter: @ACEEEDC  
Facebook.com/myACEEE • [aceee.org](http://aceee.org)

**Contents**

About the Authors..... ii

Acknowledgments..... ii

Introduction..... 1

Overview ..... 1

User Guide..... 1

    Industrial Energy Efficiency Programs..... 1

    Methodology..... 2

    Summary of Tools ..... 3

Industrial Efficiency Programs Can Achieve Large Energy Savings at Low Cost..... 5

    A Small Group of Customers Can Provide the Most Energy Savings ..... 5

    Industrial Sector Savings Can Be the Cheapest to Achieve ..... 6

    10 Tips for Designing Good Industrial Programs ..... 7

    Industrial Programs Need Support from Policymakers..... 8

The Dollars and Cents of Industrial Efficiency Program Investment ..... 9

    Investment Perspective of Industry..... 9

    Investment Perspective of Utilities ..... 9

    Combined Industry and Utility Investments Increase Energy Savings ..... 10

    Six Ways Industrial Programs Provide Financial Value to Business Customers..... 10

    The Value of Participating in Programs..... 11

Myths and Facts about Industrial Opt-Out Provisions..... 12

    Defining Opt-Out and Self-Direct..... 14

Overview of Large-Customer Self-Direct Options for Energy Efficiency Programs ..... 15

    Self-Direct as an Alternative to Opt-Out ..... 16

    Ensuring a True Energy Efficiency Resource..... 17

## About the Authors

**Meegan Kelly** conducts research, analysis, and outreach on the impacts of energy efficiency programs and policies on energy use in the industrial sector. She is also engaged in research on combined heat and power and the role of energy efficiency in reducing air pollution. She joined ACEEE in 2014. Meegan holds a master of science degree in energy policy and climate from Johns Hopkins University and a bachelor of science in communications with majors in journalism and philosophy from the University of Miami.

**Ethan Rogers** directs the Industrial program. He joined ACEEE in 2012. Prior to that, Ethan worked at the Purdue University Technical Assistance Program (TAP), where he managed an energy efficiency and sustainability training and implementation-assistance program. Ethan earned a bachelor of science in chemistry from Eastern Illinois University and a master of business administration from Butler University. He is a Certified Energy Manager (CEM) and a U.S. Department of Energy Process Heating Qualified Specialist.

## Acknowledgments

This collection of resources was made possible through the generous support of the Energy Foundation and ACEEE internal funds. The authors gratefully acknowledge internal reviewers, colleagues, sponsors, and the many people we interviewed during the research phase of this project. We are especially grateful to Brent Bailey from the 25x'25 Alliance; Ashely Fournier and Jenah Zweig from the Southeast Energy Efficiency Alliance (SEEA); and Matt Elliott, Brian Kauffman, and Maureen Mulligan from the Keystone Energy Efficiency Alliance (KEEA), for their facilitation of several interviews. Internal reviewers included R. Neal Elliott, Martin Kushler, and Steven Nadel. Last, we would like to thank Eric Schwass for his help with graphic design and publication layout, Fred Grossberg for managing the editorial process, Elise Marton, Sean O'Brien, and Roxanna Usher for copy editing, and Patrick Kiker for his help in launching this report.

## Introduction

The industrial sector offers tremendous opportunity for low-cost energy savings from utility energy efficiency programs. To help policymakers, state governments, utility operators, and other stakeholders understand the fundamental role of the industrial sector in a comprehensive efficiency program portfolio, ACEEE created this collection of resources. The purpose of the collection is to articulate the value of ratepayer-funded industrial energy efficiency programs to large energy users, utilities, and states.

## Overview

This collection contains four technical resources, or tools, each of which focuses on a particular approach to achieving greater program participation from large energy users. The list below outlines the title and topic of each tool. The next section is a guide to help readers use the tools, and it is followed by the tools themselves.

- *Industrial Efficiency Programs Can Achieve Large Energy Savings at Low Cost.* An overview of the benefits of industrial programs, including 10 tips for designing good industrial energy efficiency programs.
- *The Dollars and Cents of Industrial Efficiency Program Investment.* How the combined investment of utility and customer dollars saves more energy and provides added value to customers.
- *Myths and Facts about Industrial Opt-Out Provisions.* How to respond to arguments sometimes made in favor of allowing industrial customers to opt out of energy efficiency programs.
- *Overview of Large-Customer Self-Direct Options for Energy Efficiency Programs.* The status of self-direct programs and opt-out provisions by state, including tips for designing successful self-direct programs.

## User Guide

In the following user guide, we briefly discuss industrial energy efficiency programs, describe the method we used to develop the collection, and explain the intended use of each of the four tools it contains.

### **INDUSTRIAL ENERGY EFFICIENCY PROGRAMS**

Energy efficiency programs bring economic benefits to industrial customers and the utility system as a whole. Well-designed programs are the best way to achieve large, low-cost savings from the industrial sector. These programs are financed predominantly by a small charge paid on monthly customer energy bills. The local utility or a third party (e.g., a nonprofit or government agency) administers the programs. The funding provides incentives, services, and technical assistance to customers for energy efficiency projects in industrial facilities.

Industrial energy efficiency programs have been around for decades, operating with varying degrees of efficacy, support, and market penetration. Today, many effective programs consistently provide value to industrial customers and contribute to the success of utility portfolios. In a recent US Department of Energy (DOE) report, four industrial

companies provided detailed explanations of the value they gained from participating in their utility's energy efficiency programs.<sup>1</sup>

In spite of the opportunity to benefit from these programs, we have seen a continuing push by large electricity consumers to opt out of them. Large companies are under pressure to stay competitive in global markets, and utility programs are not always responsive to their needs. When large customers opt out of the programs, both the utilities and the customers suffer the consequences of using and paying for more energy than necessary. Utilities lose the benefit of low-cost energy savings from the industrial sector, and this loss can drive up the cost of the overall portfolio of efficiency programs. Large customers forgo the services and technical assistance that a good program can provide; they also miss opportunities for smart investments in energy efficiency that they would not otherwise consider.

Opt-out is an outcome that can and should be avoided. The best option is to ensure that industrial customers have access to good utility programs. In some cases, effective programs do exist but their value has not been adequately articulated to state policymakers, utilities, program administrators, and customers themselves. In other cases, administrators may need to improve the utility program offerings so they are responsive to the needs of industrial customers. Sometimes, an alternative to traditional offerings, such as a self-direct program or a customized partnership between the utility and the large customer, may be a good option. Whatever the case, the most important outcome is that investments in energy efficiency be maximized to help keep energy costs low for all customers.

## **METHODOLOGY**

We developed these resources by engaging a variety of stakeholder groups and qualitatively analyzing their needs. We examined the role of large customers in achieving utility energy savings goals in two states: Mississippi and Pennsylvania. These states were chosen because of their differences and their ability to provide lessons that could be extended to other states and jurisdictions with similar regulatory structures and/or political environments.

We surveyed the lay of the land in each state through dozens of informal listening meetings held in person and by phone in 2015. These conversations informed our assessment of the kinds of materials and messaging strategies that could increase the impact of industrial programs and achieve greater levels of savings in programs across the country.

In addition to engagement in targeted states, we interviewed other stakeholders including national industrial trade associations, utility program implementers, policymakers, and energy efficiency advocates. We also drew from existing research on best practices for reaching large energy users in traditional and alternative utility program design. The resources included in this collection are the result of these activities.

---

<sup>1</sup> US Department of Energy, *Sustained Energy Savings Achieved through Successful Industrial Customer Interaction with Ratepayer Programs: Case Studies* (Washington, DC: 2015).

[www4.eere.energy.gov/seeaction/publication/sustained-energy-savings-achieved-through-successful-industrial-customer-interaction](http://www4.eere.energy.gov/seeaction/publication/sustained-energy-savings-achieved-through-successful-industrial-customer-interaction).

## **SUMMARY OF TOOLS**

The following explains each tool and provides examples of its intended use. Each tool is designed to present key points concisely and can be distributed to help educate different stakeholder groups.

### **Industrial Efficiency Programs Can Achieve Large Energy Savings at Low Cost**

This tool summarizes some of the broad benefits of industrial energy efficiency programs. It provides 10 tips for how to design good utility programs that are responsive to the needs of large customers. The information may be particularly useful in identifying opportunities for improving existing programs or guiding the development of brand-new ones. In a state like Mississippi, where regulators and utilities are planning for the comprehensive phase of program development, this tool may help ensure that best practices and effective new program models are considered.

### **The Dollars and Cents of Industrial Efficiency Program Investment**

This tool explains how the combined investment of utility and individual customer funds saves more energy while providing additional value to businesses. It describes the perspectives of some industrial customers that are constrained by investment criteria that require quick returns, especially when compared with more flexible utility program dollars. The information may be particularly useful in situations where good programs exist but the value of participation has not been adequately articulated. In venues where a strong business case is needed to convince decision makers to approve an investment, this tool may help capture the quantifiable characteristics of industrial energy efficiency programs.

### **Myths and Facts about Industrial Opt-Out Provisions**

This tool challenges four common myths about industrial opt-out provisions and provides facts to address these misconceptions. In a state like Pennsylvania, where opt-out legislation was introduced in 2015, this tool may help regulators and legislators evaluate the arguments made before them. It may also help efficiency advocates develop talking points for communicating with policymakers and the business community about the important role of industrial efficiency in state energy planning. The information may be particularly useful in states where utilities offer good programs but arguments in favor of industrial opt-outs are still made. Where utility programs are *not* effective, the first priority is to improve them. In that case, a different tool is more applicable (see *Industrial Efficiency Programs Can Achieve Large Energy Savings at Low Cost*).

### **Overview of Large-Customer Self-Direct Options for Energy Efficiency Programs**

This tool reviews the status of self-direct programs and opt-out provisions by state and contains tips for designing successful self-direct programs. It includes a US map indicating the states that offer some kind of self-direct option for large customers and the states that allow some or all large customers to opt out of energy efficiency programs. The information may be particularly useful in situations where an alternative to traditional programming is recognized as a good compromise to an opt-out provision. Self-direct options may provide more customer control over energy efficiency fees while also ensuring that energy savings are measured and verified. In states where traditional programs do not meet the needs of

certain customers (usually the largest and most energy-sophisticated firms), this tool may help stakeholders envision what a successful self-direct program looks like.

## Industrial Efficiency Programs Can Achieve Large Energy Savings at Low Cost

Industrial energy efficiency programs can provide significant energy savings to society and the utility system at a lower cost than most programs targeted at other sectors. On a national level, the industrial sector saves more energy per program dollar than do other customer classes.<sup>1</sup> Capturing energy savings through industrial programs is one of the best ways to keep energy prices low for all customers. The amount of electricity saved by industrial programs directly displaces the need to invest in more expensive power plants or transmission and distribution (T&D) system upgrades. If these assets are not built, their costs do not need to be recovered in customer rates, keeping electricity bills low and saving money for all customers in the community.

To achieve these benefits, many states, utilities, and program administrators pursue programs aimed at customers who consume large amounts of energy to power their manufacturing processes and industrial plant operations. These programs can facilitate the use of a range of technologies and management practices to reduce energy consumption in the manufacturing sector, generally measured per unit of production.<sup>2</sup> Because industrial operations vary widely by product, process, facility size, budget, and technical sophistication, a one-size-fits-all approach is not effective. For this reason, a variety of approaches have been developed. These include programs involving technical assistance and knowledge sharing, prescriptive rebates, customized incentives, market transformation, strategic energy management, and self-direct.<sup>3</sup>

### **A SMALL GROUP OF CUSTOMERS CAN PROVIDE THE MOST ENERGY SAVINGS**

In many utility systems, industrial customers represent a majority of the energy demand and a significant amount of the energy savings opportunity. For example, among all the customers served by Eversource Energy, one of New England's largest energy providers, only 2% of customers account for about 80% of total energy demand.<sup>4</sup> By establishing strong relationships with a small number of the largest energy users, utilities and program administrators can access a large opportunity for achieving cost-effective energy savings.

---

<sup>1</sup> SEE Action, *Industrial Energy Efficiency: Designing Effective State Programs for the Industrial Sector* (Washington, DC: Prepared by A. Goldberg, R.P. Taylor, and B. Hedman, Institute for Industrial Productivity, 2014). [www4.eere.energy.gov/seeaction/publication/industrial-energy-efficiency-designing-effective-state-programs-industrial-sector](http://www4.eere.energy.gov/seeaction/publication/industrial-energy-efficiency-designing-effective-state-programs-industrial-sector).

<sup>2</sup> US Department of Energy, *Barriers to Industrial Energy Efficiency* (Washington, DC: DOE, 2015). [energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846\\_5%20Study\\_0.pdf](http://energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846_5%20Study_0.pdf).

<sup>3</sup> SEE Action, 2014.

<sup>4</sup> P. McLean-Connor, "2015 ACEEE Intelligent Efficiency Conference Webinar," 2015. [aceee.org/sites/default/files/pdf/conferences/ie/2015/IE15-webinar-ppt.pdf](http://aceee.org/sites/default/files/pdf/conferences/ie/2015/IE15-webinar-ppt.pdf).



On average, commercial and industrial (C&I) customers contribute 55% of total energy efficiency program savings.<sup>5</sup> As shown in figure 1, this amount varies and can be higher in some states. For example, C&I programs achieved approximately 70% of Energy Trust of Oregon’s savings in 2014.<sup>6</sup> The variation among states may be due to a number of factors, such as differences in the size of industrial energy savings potential or the existence of a specific regulatory requirement to acquire savings from the industrial class. Regardless, reaching industrial customers is always an important component of a comprehensive strategy for managing energy demand and achieving statewide energy savings targets.

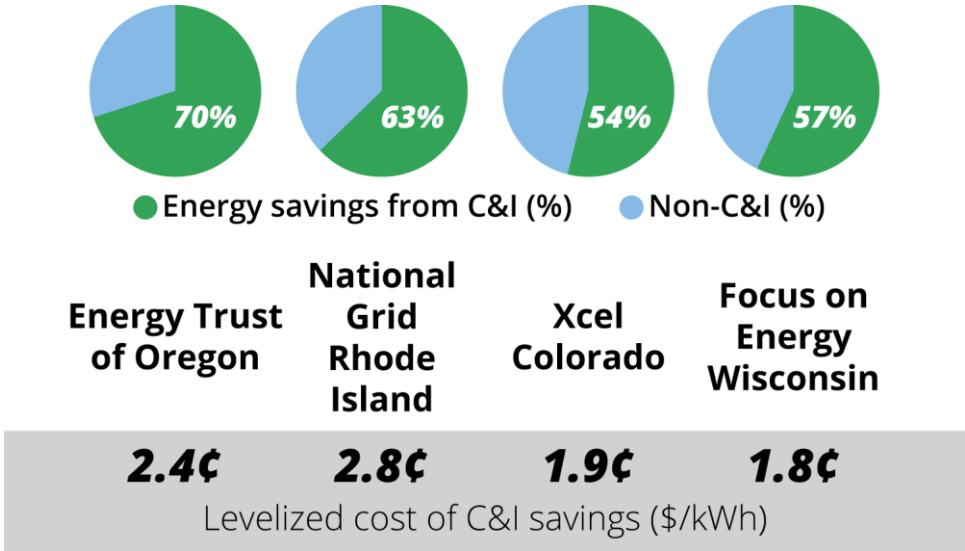


Figure 1. Energy savings from commercial and industrial programs. *Source:* ACEEE estimates, based on publicly available program administrator annual reports for 2014. We calculate the levelized cost of the program using the PMT function in an Excel spreadsheet and assume a 13-year measure life and a 5% discount rate.

**INDUSTRIAL SECTOR SAVINGS CAN BE THE CHEAPEST TO ACHIEVE**

Industrial customers often represent the most cost-effective energy savings opportunities and can significantly reduce the overall cost of a utility’s energy efficiency portfolio. C&I programs implemented across the country – including those offered by Focus on Energy Wisconsin, National Grid in Rhode Island, and Energy Trust of Oregon – demonstrate that industrial programs can be twice as cost effective as programs targeting the residential sector.<sup>7</sup> One reason C&I programs cost less on average is because these measures tend to have longer lifetimes than many residential measures.<sup>8</sup> As shown in figure 1, the levelized cost of savings from a range of C&I programs implemented in 2014 was less than three cents per kilowatt hour. That means investing in industrial efficiency programs is one-third to

<sup>5</sup> M. Molina, *The Best Value for America’s Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs* (Washington, DC: ACEEE, 2014). [aceee.org/sites/default/files/publications/researchreports/u1402.pdf](http://aceee.org/sites/default/files/publications/researchreports/u1402.pdf).

<sup>6</sup> ACEEE estimate based on *2014 Annual Report to the Oregon Public Utility Commission & Energy Trust Board of Directors*.

<sup>7</sup> See Appendix A, *SEE Action*, 2014.

<sup>8</sup> Molina, 2014.

one-half the cost of generating the same amount of electricity from traditional power sources. Despite this, most states harness only a fraction of their industrial energy efficiency potential.

### **10 TIPS FOR DESIGNING GOOD INDUSTRIAL PROGRAMS**

Administrators have sometimes struggled to create energy efficiency programs that are responsive to the unique needs of large customers and address claims that customers have already done all the efficiency upgrades possible. However, well-designed programs in numerous states do address these concerns and continue to provide more value than the program costs. According to one customer, participation in Energy Trust of Oregon's industrial program helped achieve higher levels of energy efficiency and cost savings. "We couldn't have accomplished this level of energy efficiency without the financial and technical assistance provided by Energy Trust," said Malcolm Delaney, executive site director for Maxim Integrated Products, a leading manufacturer of integrated circuits. Maxim Integrated received more than \$500,000 in incentives for several process efficiency projects that are expected to save more than 3.5 million kilowatt hours of electricity and \$250,000 in electricity costs each year.<sup>9</sup>

In a recent guide produced by DOE's State and Local Energy Efficiency Action Network (SEE Action), analysts and practitioners highlighted 10 best practices that consistently add value for industrial customers and contribute to utility program success.<sup>10</sup> The most successful industrial energy efficiency programs do the following:

1. *Clearly demonstrate the value proposition.* Programs should teach customers how to understand and quantify the full scope of operating cost savings and other benefits that result from investments in energy efficiency.
2. *Develop long-term relationships.* Programs must provide a consistent contact person and establish a level of credibility and trust with industrial customers to enable joint identification of opportunities and analysis of savings.
3. *Offer quality technical expertise.* Program staff and contractors must have a professional understanding of each plant's core production processes and operating issues to provide quality technical advice and support. This often means hiring contractors with specialized expertise in particular processes.
4. *Provide both prescriptive and custom options.* Programs should offer a combination of simple prescriptive options for common projects and customized options for more complex projects that require tailored solutions.
5. *Accommodate customer schedules.* Programs must consider the industrial company's operational schedule, capital investment cycle, and decision-making processes so that energy efficiency projects align with internal drivers.

---

<sup>9</sup> Energy Trust of Oregon, *Chip Fabricator Crystallizes Commitment to Energy Efficiency* (2010). [assets.energytrust.org/api/assets/success-stories/PE\\_MaximIntegrated\\_CS.pdf](https://assets.energytrust.org/api/assets/success-stories/PE_MaximIntegrated_CS.pdf).

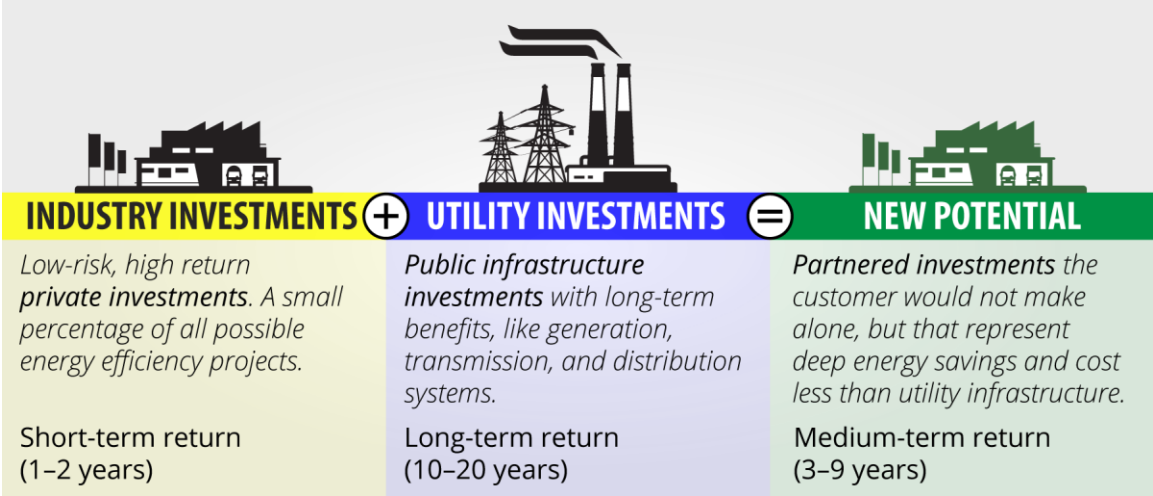
<sup>10</sup> These 10 features were originally identified by the SEE Action Industrial Energy Efficiency and Combined Heat and Power (IEE/CHP) Working Group (SEE Action, 2014).

6. *Streamline application processes.* Programs should strike a balance between meeting program administrative needs and keeping procedures easy to understand and applications simple to submit in order to facilitate participation.
7. *Conduct targeted outreach.* Program administrators should conduct continual outreach to ensure that industrial customers are aware of program offerings.
8. *Leverage partnerships.* Program administrators should seek to partner with federal, state, and regional agencies and organizations such as local trade associations to leverage their expertise, access to customers, and program implementation support capacities.
9. *Set energy savings goals.* Programs should establish and report on medium- and long-term energy savings goals, such as six-month and three-year cycles, which can serve as an investment signal for industrial customers and create certainty for program administrators.
10. *Undertake measurement and verification.* Programs should use accredited measurement and verification (M&V) protocols that are accepted by multiple state regulatory agencies to assess achievement of utility portfolio goals, demonstrate results of the investment to regulators, and help manufacturers see the impact of their investment internally.

### ***INDUSTRIAL PROGRAMS NEED SUPPORT FROM POLICYMAKERS***

As program administrators work to incorporate the attributes above, support from policymakers is needed to help encourage the development of good industrial programs that can achieve large energy savings at the lowest cost. The industrial sector is not widely understood, and education of and engagement with the regulatory community are needed to enable better oversight of utility programs. Regulators should set high targets for energy savings from utility programs and support new program models that are responsive to the industrial customer class. Implementing well-designed programs benefits the sector by boosting the productivity of manufacturers and benefits the state by helping attract and retain new business development. Local citizens can benefit too from the highly cost-effective energy efficiency resources that good industrial programs acquire. For a more detailed explanation and examples of programs that have adopted these principles and achieved significant energy savings, see the full SEE Action guide, *Industrial Energy Efficiency: Designing Effective State Programs for the Industrial Sector*.

## The Dollars and Cents of Industrial Efficiency Program Investment



When the short-term investment criteria of private companies are combined with the longer-term investment capabilities of utilities, many more potential energy efficiency projects become cost effective. The typical requirement for rapid return on investment in the private sector may not allow investing in these projects alone, but the availability of utility program dollars often makes the business case for energy and cost savings opportunities that would not otherwise occur.

### **INVESTMENT PERSPECTIVE OF INDUSTRY**

Private companies are constrained by a demand for quick and high returns on all of their capital investments. The private business model often hinges on maximizing productivity, limiting spending, and avoiding debt, which requires companies to make investments with very short-term payback periods of just one to two years. This means chief financial officers can consider only a small number of energy efficiency projects – those that meet the criteria of a low-risk, high-return private investment strategy. The few efficiency projects that clear this hurdle are also in competition for funding from the same, limited capital budget as dozens of other high-priority projects in a given year.

### **INVESTMENT PERSPECTIVE OF UTILITIES**

Utility companies have more flexible investment requirements and can tolerate longer payback schedules than their industrial customers. The utility business model is designed to tolerate large-scale investments in public infrastructure, like power plants and transmission lines, which have slower returns on investment and may not pay off until 10 to 20 years in the future. That means utilities can afford to be more patient in their investment decisions, especially when they prioritize least-cost resources like energy efficiency. Utilities that are motivated to capture energy efficiency resources can contribute program dollars to help fund more complex and customized efficiency projects at industrial facilities with medium-term payback periods in the range of three to nine years.

### **COMBINED INDUSTRY AND UTILITY INVESTMENTS INCREASE ENERGY SAVINGS**

Utility programs that effectively address the capital planning processes and financial hurdles of the private sector can achieve far greater energy savings than industrial customers can when they are left to act alone. Participation in utility programs is often the catalyst to identifying projects as well as the incentive to implement them. According to one of Xcel Energy's customers in Wisconsin, participation in the Large Energy Users program was the deciding factor in implementing several energy efficiency projects. "We wouldn't have implemented these projects without the technical and financial support of the Focus on Energy Program," said Randy Stoeckel, president of Flambeau River Papers.<sup>1</sup>

These energy savings directly translate into greater business value for industrial customers. When completed, the energy efficiency upgrades at the Flambeau mill are expected to save more than 2 million kilowatt hours and more than \$500,000 in electricity costs each year. "Without the support of the Focus on Energy program, our mill would be less competitive, less green, and less energy efficient, and we might not be in business today," said William (Butch) Johnson, CEO and owner of the mill.

### **SIX WAYS INDUSTRIAL PROGRAMS PROVIDE FINANCIAL VALUE TO BUSINESS CUSTOMERS**

In general, investments in energy efficiency lower operating costs for manufacturers, which increases their productivity and improves competitiveness. When these investments are made through utility programs, businesses get the added value of access to technical expertise, project implementation support, and financial incentives that reduce the cost of initial investments. Program implementers bring a fresh set of eyes and may find opportunities that plant staff overlooked. The existence of utility programs can also have broader, system-wide economic effects that result in financial benefits. Participation in these programs can lower costs for business customers in at least six ways.<sup>2</sup>

1. *Programs help reduce the customer's electricity consumption and thereby reduce monthly energy expenses.* Efficiency programs enable businesses to save more energy than they can on their own. Because programs can wait longer for returns, they are willing to make investments that the business would not make with its own money.
2. *Programs reduce the need for additional electric system supply resources.* As a result, the need for investments in new generation, transmission, and other infrastructure by utilities is either postponed or eliminated entirely. If these assets are not built, their costs will not need to be recovered in rates, thereby lowering electric bills for all customers, including industry.
3. *Programs reduce customer demand, which lowers wholesale energy prices.* Electricity is subject to the same rules of supply and demand as other commodities. Decreasing demand lowers prices. Increasing demand drives prices up.

---

<sup>1</sup> Focus on Energy, *Flambeau River Papers* (2014). [focusonenergy.com/About/Flambeau-River-Papers](http://focusonenergy.com/About/Flambeau-River-Papers).

<sup>2</sup> For a more detailed discussion, see Rogers 2015, *The Value Proposition of Industrial Energy Efficiency Programs*, available in the conference proceedings of the 2015 Industrial Energy Technology Conference: [ietc.tamu.edu/wp-content/uploads/2015/04/ESL-IE-15-06-26.pdf](http://ietc.tamu.edu/wp-content/uploads/2015/04/ESL-IE-15-06-26.pdf).

4. *Programs provide benefits additional to energy savings that can lead to lower costs for customers.* These ancillary benefits may include increased productivity, improved safety, reduced output of wastes and emissions, and lower maintenance costs.<sup>3</sup>

The following additional benefits apply in states where the electric-generation market has been deregulated:<sup>4</sup>

5. *Programs can increase the volume and variety of resources bid into wholesale capacity markets, lowering capacity prices.* Clearing prices in wholesale capacity auctions are lower when available energy efficiency resources are bid in.
6. *Programs can provide new revenue streams for companies that bid energy into the various energy resource auctions.* These revenues, earned from participation in energy markets such as those organized by PJM or ISO New England, can help offset efficiency program costs or directly fund private-sector investments in energy efficiency.

### **THE VALUE OF PARTICIPATING IN PROGRAMS**

There are many times when it makes sense for businesses to give priority to the long-term benefit of the communities in which they operate. Participating in utility sector efficiency programs could be an example of this, but it is more likely just another good business decision. The value a business receives from participation in efficiency programs can be much greater than what it contributes through payment of system benefit charges or fees. Businesses that want to lower their energy expenses and lower their future energy rates should support state efficiency programs by paying the fee, participating in the program, and actively engaging with program administrators. Doing so will have short-, medium-, and long-term benefits that are of much greater value than the fees they pay.

---

<sup>3</sup> C. Russell, et al., *Recognizing the Value of Energy Efficiency's Multiple Benefits* (Washington, DC: ACEEE, 2015). [aceee.org/research-report/ie1502](http://aceee.org/research-report/ie1502).

<sup>4</sup> The remaining benefits in this list apply in states where the wholesale generation and transmission of power is deregulated. Competitive markets exist in much of the Northeast, Mid-Atlantic, and Midwest, and in Texas and California.

## Myths and Facts about Industrial Opt-Out Provisions

Even though industrial energy efficiency programs offer tremendous benefits, some states allow large customers to opt out of them. When large customers stop participating, both the utility and the customer suffer the consequences of using and paying for more energy than necessary. The lost opportunity and the consequences of passing industrial opt-out provisions into law are often misunderstood by both policymakers and large energy users. The following discussion outlines four common myths and facts that address these misconceptions. The facts may be particularly useful in states where good programs exist, yet arguments are still made in favor of industrial opt-outs. Bear in mind, however, that in states where utility programs are not effective, the first priority must be to improve them.

### **Myth 1. Large energy users will invest in all cost-effective energy efficiency on their own as a matter of good business practice.**

#### **Facts**

- While industrial firms have continued to become more energy efficient per unit of product output, most have many cost-effective energy savings opportunities that they have not captured.
- Large business customers report that their capital investments, including those in energy efficiency, must realize a very short (one- to two-year) payback requirement, which means that many cost-effective projects will not be initiated.
- Through incentives and rebates, utility programs address this “payback gap.” An industrial customer would not normally invest in an energy efficiency improvement project with a four-year payback, but with a utility program rebate to cover some of the costs, the four-year payback could be reduced to two years, meeting the customer’s short payback requirement.
- Companies do not invest in all cost-effective projects. They have limited capital, and decisions about which projects to fund are influenced by many variables including budget allocations, strategic priorities, and market realities. In this environment, program incentives improve the competitiveness of an energy efficiency project as an investment option within an organization.

### **Myth 2. Utility programs are not responsive to the needs of large industrial customers.**

#### **Facts**

- Many utilities operate successful programs for industrial customers that consistently add value and contribute to utility program success. In a recent DOE report, four vastly different industrial companies gave testimonials demonstrating the business value they gained from participating in their utilities’ energy efficiency programs.<sup>1</sup>

---

<sup>1</sup> US Department of Energy, *Sustained Energy Savings Achieved through Successful Industrial Customer Interaction with Ratepayer Programs: Case Studies*. (Washington, DC: 2015).  
[www4.eere.energy.gov/seeaction/publication/sustained-energy-savings-achieved-through-successful-industrial-customer-interaction](http://www4.eere.energy.gov/seeaction/publication/sustained-energy-savings-achieved-through-successful-industrial-customer-interaction).

- In states where utility programs are not responsive, policymakers should require utilities and program administrators to fix broken program models by incorporating best practices to ensure programs effectively respond to the needs of the industrial customer class.
- In situations where traditional energy efficiency programs cannot meet the needs of particular customers (sometimes the largest and most energy-sophisticated firms), states may consider developing alternative options, such as self-direct energy efficiency programs that measure and verify energy savings.
- Some companies that exit utility programs end up unsatisfied and opt back in to regain the benefits of participation. In 2008, large customers in Michigan were given the choice to leave traditional efficiency programming and self-direct their energy efficiency funds. Over the next few years, more than one-third of the customers that originally opted out changed their minds and rejoined the utility programs in recognition of the benefits of full participation.

**Myth 3. Participation in efficiency programs creates a competitive disadvantage and may force companies to relocate to other states.**

**Facts**

- Since energy efficiency program costs typically represent only about 2% of total electricity costs for a firm, and since electricity costs typically represent about 5% of a firm's cost of doing business, the existence of a surcharge for energy efficiency programs cannot realistically be considered a strong determinant of manufacturing competitiveness on a state-by-state basis.
- There are no empirical data that companies make decisions to relocate or go out of business based on the incremental cost of an energy efficiency program surcharge.
- Large customers are more significantly impacted by the prevailing rates utilities charge – which make up a more substantial portion of their bills – than they are by efficiency charges.
- Good efficiency programs can help states retain businesses. For example, Nissin Brake, an Ohio manufacturer of automotive parts for companies such as Honda and Harley Davidson, used energy efficiency to stabilize costs in otherwise unstable times. As the auto industry fluctuated in recent years, so did Nissin Brake's production demands. With help from AEP Ohio's Business Incentive program, the company cut costs and reduced annual energy consumption by 801,921 kWh. The utility incentive covered 30% of project costs and reduced the payback period from 2.8 years to 1.9 years.<sup>2</sup>

---

<sup>2</sup> AEP Ohio, *Energy Efficiency Steadies Cash Flow for Auto Parts Maker*.  
[www.aepohio.com/global/utilities/lib/docs/save/business/programs/SuccessStories/Nissin\\_Brake\\_Case\\_Study.pdf](http://www.aepohio.com/global/utilities/lib/docs/save/business/programs/SuccessStories/Nissin_Brake_Case_Study.pdf).



**Myth 4. Costs will stay the same for small businesses and residential customers if large energy users are allowed to opt out of energy efficiency programs, so there is no harm in letting them do so.**

#### **Facts**

- For virtually any utility system, large-customer energy efficiency is the cheapest energy resource available (typically 2 cents/kWh or less). If that resource is not captured, then the utility system will have to procure more expensive resources, which will result in higher costs than necessary for all customers. There is indeed “harm” to all customers if large customers are allowed to opt out and those energy efficiency resources are not captured.<sup>3</sup>
- There is also an important equity issue. Energy efficiency is an energy resource – just like transmission and distribution lines and power plants. No customer or group of customers would be able to refuse to pay for a new power plant. All customers pay, and all benefit. Similarly, all customers should pay for the energy efficiency resource. When some customers are allowed to opt out and not pay for an energy resource, all other customers have to pay more.
- The electricity saved directly displaces the need for more power plants or more transmission and distribution upgrades, saving money for all customers. Those who opt out gain the system benefits without paying for them, creating a free-rider fairness issue.

#### ***DEFINING OPT-OUT AND SELF-DIRECT***

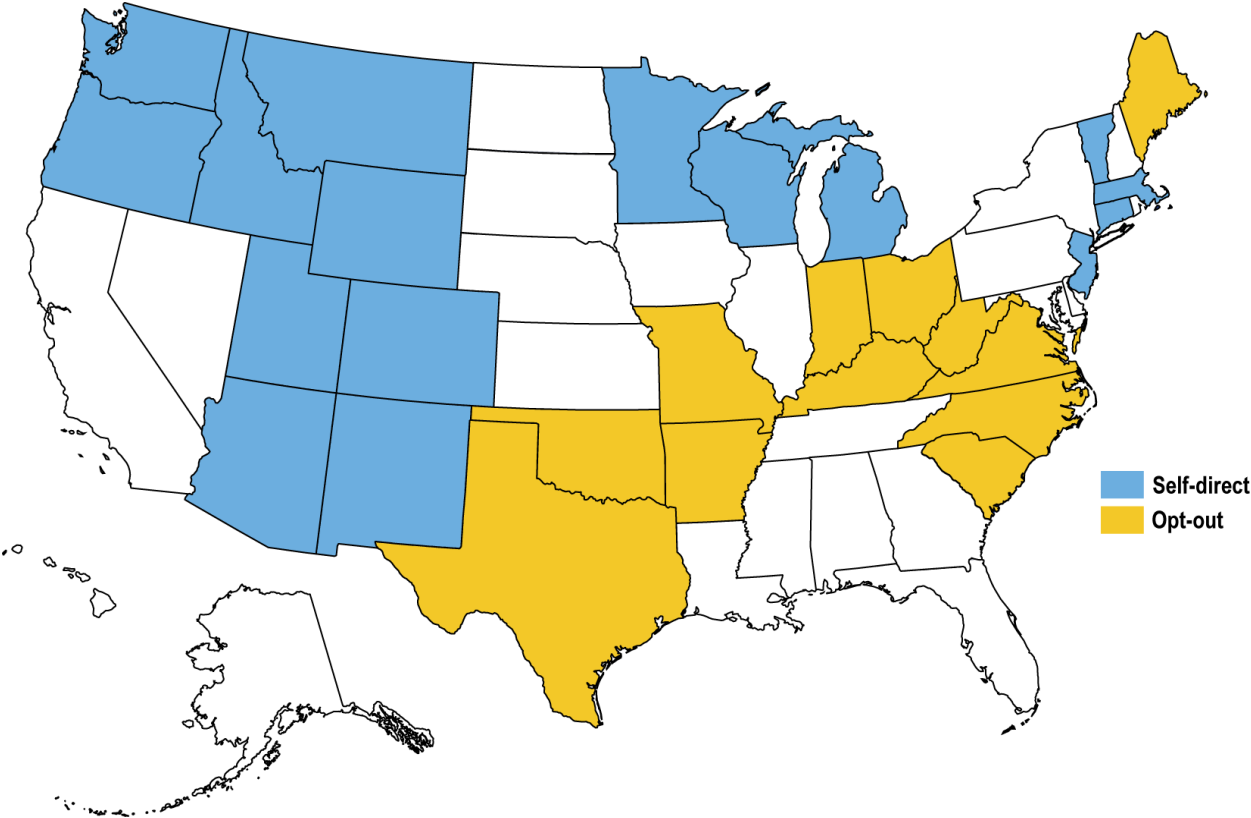
A true opt-out is different from a policy that allows large energy users to self-direct funds for energy efficiency. Opt-out provisions typically provide a full exemption from energy efficiency program surcharges and remove any requirements to achieve savings through energy efficiency. Self-direct policies typically allow customers to control some or all of how their energy efficiency fees are used and include some kind of accountability for energy efficiency savings. There are various approaches to self-direct programs, but the best examples are highly structured with substantial oversight. Well-structured self-direct programs achieve documented energy savings that are at least equivalent to what would have been saved through participation in traditional utility program offerings.

---

<sup>3</sup> M. Molina, *The Best Value for America’s Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs* (Washington, DC: ACEEE, 2014).

[aceee.org/sites/default/files/publications/researchreports/u1402.pdf](http://aceee.org/sites/default/files/publications/researchreports/u1402.pdf).

## Overview of Large-Customer Self-Direct Options for Energy Efficiency Programs



Status of large-customer self-direct and opt-out programs, by state<sup>1</sup>

Utilities and states are increasingly recognizing the value of energy efficiency programs as the cleanest and lowest-cost energy resource.<sup>2</sup> Energy savings opportunities are achievable in homes, businesses, and industrial plants, and benefit all customers by lowering energy waste, which can avoid the need for more costly investments in energy supply and distribution infrastructure. Large energy users, such as industrial facilities and institutional campuses, that invest in energy efficiency benefit doubly: waste reduction lowers their operating costs and utility bills, while also stabilizing their future rates.

<sup>1</sup> Status current as of August 1, 2015. Note that plans for self-direct programming are under way in New York. Earlier in 2015, the New York Public Service Commission directed electric utilities to offer a self-direct program for commercial and industrial customers by 2017.

<sup>2</sup> Investments in customer energy efficiency programs by the utility sector climbed from \$2 billion in 2006 to more than \$7 billion in 2014. Savings from electric efficiency programs in 2014 totaled approximately 25.7 million MWh, a 5.8% increase over 2013 savings. Gas savings totaled 374 MMTherms, a 35% increase over 2013 savings.

Some of the most cost-effective efficiency programs are those designed for large energy users.<sup>3</sup> On a national level, the industrial sector saves more energy per program dollar than other customer classes, even though many states harness only a fraction of their industrial energy efficiency potential.<sup>4</sup> Low-cost efficiency opportunities can be found across the country at sites consuming large amounts of energy, and thus comprehensive energy efficiency program portfolios should include large energy users to minimize energy efficiency resource costs for all customers.

### **SELF-DIRECT AS AN ALTERNATIVE TO OPT-OUT**

Unfortunately, some states allow large customers to opt out of energy efficiency program participation and funding. Letting large industrial, commercial, or institutional customers opt out eliminates a proven low-cost energy resource and additional power will be needed, ultimately increasing everyone's energy costs. Just as all customers pay for new generation assets, such as the construction of a new power plant, so should all customers pay for energy efficiency resources. As a means of securing the benefits of energy efficiency that accrue to everyone, while also addressing the unique needs of large energy users, alternative options such as self-direct programs are preferable to opt-out provisions. Self-direct programs typically allow customers to control some or all of their energy efficiency fees.

Self-direct programs are preferred because eligible large customers still contribute funding toward energy efficiency programming (either on their bills or through some other mechanism) but they may then direct those funds toward the design, implementation, and verification of energy-saving projects in their own facilities. When administered effectively, a self-direct option provides more customer control over energy efficiency fees, overcoming concerns of some customers that the traditional program offerings are unresponsive to their needs or disproportionately benefit other rate classes. However, if administered poorly, self-direct programs can be a false alternative to energy efficiency program participation, either reducing or altogether eliminating customer obligations to contribute to energy resource planning.

If traditional program offerings cannot meet the needs of large customers, regulators and utilities should develop self-direct programs that respond to the needs of these customers while also ensuring energy savings are measured and verified. Self-direct options offer increased flexibility and allow large customers to direct most of their energy efficiency program fees back to their own facilities. Customers may also find these programs offer additional benefits. For example, in some cases customers may aggregate fees over multiple years, effectively generating a source of capital finance for energy efficiency improvements in their facilities. Additionally, self-direct programs are well suited to align with and support a facility's internal energy management activities. This is because a self-direct

---

<sup>3</sup> A. Chittum and S. Nowak, *Money Well Spent: 2010 Industrial Energy Efficiency Program Spending* (Washington, DC: ACEEE, 2012).

<sup>4</sup> SEE Action (State and Local Energy Efficiency Action Network). 2014. *Industrial Energy Efficiency: Designing Effective State Programs for the Industrial Sector*. Prepared by A. Goldberg, R.P. Taylor, and B. Hedman, Institute for Industrial Productivity.

program often allows a customer to apply funds toward a wide variety of technologies and processes, some with multiyear time spans. These types of projects may be important to the facility's long-term energy management strategy, but may not have been well suited to more traditional energy efficiency programming.

Today, all 50 states and the District of Columbia implement ratepayer-funded energy efficiency programs. Of these, 16 states currently offer some kind of self-direct provision for large customers. Twelve other states allow some or all large customers to completely opt out of paying for the energy efficiency resource. In many of the remaining states, large customers are able to take advantage of robust and effective energy efficiency programs offered as part of established utility- or program administrator-run energy efficiency portfolios.

### ***ENSURING A TRUE ENERGY EFFICIENCY RESOURCE***

Utility planners and wholesale power markets rely on solid verification of energy efficiency resource measures to manage present and future energy markets. Therefore, savings from self-direct programs are recognized and useful for system planning only if they are adequately measured and verified. ACEEE research has identified the key elements of successful self-direct provisions.<sup>5</sup> These include

- Structuring self-direct programs as part of a larger portfolio of robust programs that are responsive to industrial and other large customers' needs
- Defining cost effectiveness at the customer level; that is, each individual project need not meet the cost-effectiveness criteria, but a customer's entire energy efficiency plan (perhaps stretched over multiple years) should yield cost-effective savings
- Engaging large customers in the development of self-direct programs to ensure they meet local needs
- Forbidding the counting of past actions toward self-direct program savings
- Allowing additional flexibility in eligible technologies and time lines in exchange for the contribution of low-cost energy efficiency savings to the grid
- Requiring routine progress reporting with robust approaches for measuring and verifying energy savings so that they can be included in resource planning
- Including both technical and financial needs in program assistance components
- Developing transparent mechanisms for customers to view their individual fee contributions and the amounts applied toward their projects. Examples include
  - Offering escrowlike accounts to structure a "use it or lose it" fund base that encourages greater participation
  - Providing customers with clear rate credits on their bills for satisfactory progress toward preestablished savings goals
  - Offering access to a special rate or tariff provided the customer proves continued progress on energy savings

---

<sup>5</sup> A. Chittum, *Follow the Leaders: Improving Large Customer Self-Direct Programs*. (Washington, DC: ACEEE, 2011).

- Providing targeted enhanced incentives for projects that are self-directed and thus use less of a utility or energy efficiency program's internal resources