

Efficiency under Fire: Case Studies and Strategies for Successful Industrial Programs

Gita Subramony, ERS
Cameron Kinney, ERS

ABSTRACT

Energy efficiency programs are under attack in several states, including Indiana and Ohio, where programs have been eliminated or curtailed. In 2014 the Indiana state legislature introduced a bill allowing customers with 1 MW of demand or greater to opt out of paying in to the state energy efficiency fund. Proponents of the bill argued that the programs offered little value to industrial customers. This opt-out movement snowballed, and an amendment that would eliminate energy efficiency programs in the state altogether was adopted.

In Ohio, model legislation drafted by the American Legislative Exchange Council (ALEC) formed the basis of a successful effort to freeze the state's renewable energy and efficiency goals and budgets. Despite the fact that Ohio's programs achieved 3.1 MWh of savings between 2009 and 2011, special interest groups capitalized on the large industrial sector's discontent with efficiency programs.

The industrial sector is typically the first line of attack on efficiency programs, with opponents arguing that the programs hurt businesses and consumers and promoting a pure market-based alternative. Organizations such as ALEC are attacking the viability of efficiency programs, and model legislation designed to restrict or defund efficiency efforts is being introduced in a growing number of jurisdictions. The authors contend that efficiency programs that neglect industrial customers will increasingly face funding challenges. This paper will document efforts to defund programs and will provide examples of programs that successfully engage industrial customers, illustrating strategies for maintaining efficiency program momentum and providing value for all customer groups.

Introduction

Following the energy crises of the 1970s and the subsequent rising costs of energy, energy efficiency emerged as an abundant, cost-effective resource to serve the needs of utility ratepayers. Energy efficiency efforts have assisted homeowners and business owners alike by mitigating the rising cost of energy prices through delivering improved equipment technologies and implementing more attentive building management protocol. Energy efficiency programs in particular have grown in scope and budget since this time, assisting utility customers by helping them effectively plan and implement energy efficiency measures in their buildings and in turn increasing productivity while keeping the associated rising costs of energy in check. Studies have shown that American economic growth has become decoupled from energy usage; the USA is achieving greater productivity while keeping energy usage stable. Figure 1 below represents data collected and analyzed by Bloomberg New Energy Finance and clearly shows that USA's GDP has grown steadily since the early 1990s, yet energy consumption has largely remained stable. Simply put, we are achieving more using the same amount of energy.

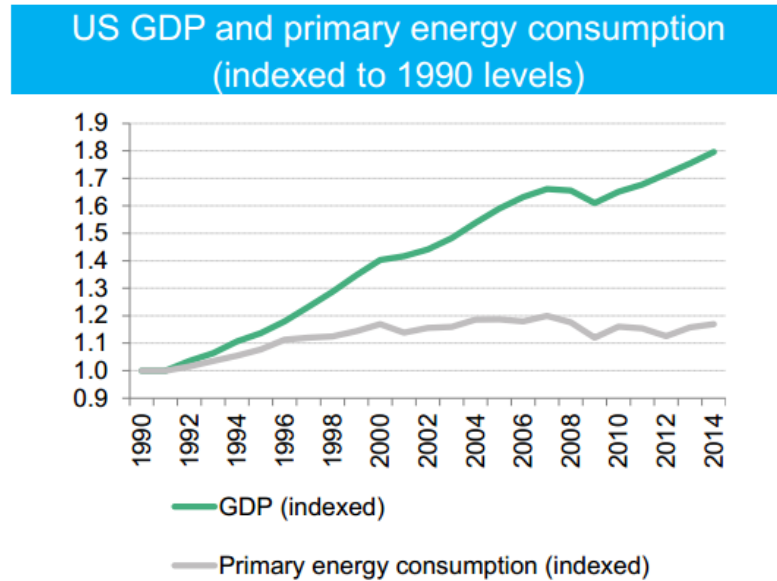


Figure 1. US GDP Compared to Energy Consumption. *Source:* Bloomberg New Energy Finance, 2015.

Energy efficiency is a large part of the trend shown in the graph above. Energy efficiency programs provide incentives and technical assistance to building owners and operators to help them make decisions to install efficient equipment and achieve market transformation goals where product manufacturers are influenced to make and market high-efficiency equipment. For these programs to be effective, policymakers must commit to providing fertile grounds for them to achieve goals.

At the time when these programs first arose back in the 1970s, the majority of the efforts were directed at conservation as a response to rising energy prices. As utility programs grew, demand-side management became widespread practice and energy efficiency became a common resource amongst utility energy portfolios. The growth in spending on programs initially peaked in the mid-1990s following state-level efforts to restructure and deregulate electric utility markets. The decline in utility customer energy efficiency programs led to a handful of states establishing new sources of funding for these programs, mainly in the form of per kilowatt-hour fees on electric distribution services known as “public benefit charges.”

The establishment of these funding pools essentially guaranteed that there would always be money in the bank for energy efficiency programs to operate effectively. As long as this source of income exists the public will be able to reap the benefits of energy efficiency, which includes lower energy prices, reduced grid congestion, reduced energy-related emissions, and increased system reliability. These benefits will prepare the public for the onslaught of challenges that will come with growing energy needs in the future, including aging plants, constraints on the existing transmission and distribution systems, stricter environmental regulations, and the economics that govern fuel acquisition and power generation.

Despite the myriad and well-documented positive outcomes that efficiency programs result in, not everyone is on board.

Recently, many state legislators have sponsored bills that seek to curtail or eliminate these programs – either through slashing of funding or by eliminating standards for energy efficiency or renewables that require utilities to support efficiency and/or clean energy. Last year 26 states had some sort of targets for energy efficiency or renewables, but by the end of 2014

two states had rolled these standards back – Indiana and Ohio. Although these states passed laws earlier to support these standards, an increasing anti-regulatory movement, the flames of which are stoked by special interest groups with ties to coal/dirty energy, has encouraged legislators to find ways to attack these standards and eliminate them.

Often the industrial sector stands as the first line of attack on efficiency programs. Opponents of efficiency programs argue that they hurt business (especially the US's vulnerable and energy-intensive industrial and manufacturing sectors) and consumers alike. Given the challenges in reaching industrial customers to spur energy efficient practices, it's not hard to imagine that programs working within this sector often face funding challenges and attract criticism from those already positioned or biased against the programs to begin with. Anti-regulation advocates claim that programs are not responsive to the needs of industrial customers, that facilities already have and will continue to invest in energy efficiency on their own accord, and that by paying these system benefit charges, large customers are essentially subsidizing the costs of energy efficiency for other rate classes. While these claims don't come without their own caveats, for the most part they remain true.

The issue here is that the optimization of industrial energy efficiency is in the interest of every public utility user due to its cost-effective nature and the long-term, positive impacts it can have on the public utility system as a whole. And more importantly, without significant evidence that large customers can achieve the same type of energy savings in the absence of utility-backed oversight, then dismantling program segments and eliminating reduction targets because they aren't the most cost-effective strategies for private businesses is unfair to the rest of the public utility customers.

The purpose of this paper is to document the efforts to defund programs along with providing examples of programs that successfully engage industrial customers illustrating strategies for maintaining efficiency program momentum and providing value for all customer groups.

Programs Under Fire

This section presents a variety of case studies in which efficiency programs come under attack through legislation aimed at dismantling or eliminating efficiency standards. Each case study will include an examination of the program being attacked, including a description of the program, the key players on both sides of the issues, and the motivation for action.

Indiana

Indiana began to ramp up its energy efficiency programs starting in 2007, when the Indiana Utility Regulatory Commission began to require utilities to provide energy efficiency programs. As a result, a statewide program called Energizing Indiana was created. Energizing Indiana introduced a surcharge on ratepayers' bills to fund a range of programs for residential, commercial, and industrial customers. Energizing Indiana, implemented by GoodCents, represented a group of core programs offered statewide; utilities were able to offer additional programs called Core Plus programs (ACEEE, 2014). The Energizing Indiana program offerings began in 2012. For commercial and industrial customers, prescriptive rebates were offered for equipment such as efficient lighting, VFDs, PTACs, chillers, and Energy Smart refrigerators and washers.

Though the core program's evaluation report showed high customer satisfaction among C&I program participants and \$2 of savings for every \$1 spent, the program came under fire from legislators claiming to be acting in the best interests of businesses in the state (TecMarket Works et al. 2012). A bill introduced in the state Senate introduced by Jim Merritt proposed an exception for large users (1 MW and up), many of whom were industrial customers. The proposed bill would allow for these large users to opt out of the program since they claimed that the surcharges were burdensome and that the programs did not provide a useful service to them. Representative Heath VanNatter (R-Kokomo) later introduced an amendment to the bill that proposed eliminating all efficiency programs in the state. The bill was passed by Indiana Senate and House and arrived on Governor Mike Pence's desk in March of 2014. Although Pence did not sign the bill into law, he also did not veto it, thus allowing it to take effect. Pence claimed he would revisit efficiency programs in 2015.

Those in support of eliminating energy efficiency programs relied on a few arguments to dismantle the programs. First, opponents claimed that industrial users were not properly accommodated by the program. Additionally, program opponents claimed that the programs were not cost-effective and that they were causing consumers' and businesses' energy bills to actually go up. Some industrial users claimed that efficiency was already part of their business model and that paying a surcharge was unfair since it helped other smaller facilities implement projects instead.

Ohio

Ohio was the second state to rollback energy efficiency and renewable standards and policies. In 2008 Ohio passed legislation, backed by both sides of the aisle, requiring utilities to source 12.5% of their energy from renewable sources and to reduce energy usage by 22% by 2025. After Indiana disbanded its energy efficiency programs, Ohio followed suit.

A combination of stakeholders worked to repeal this legislation. Among them were the Ohio Chamber of Commerce, utility First Energy, and the American Legislative Exchange Council, and key industrial users such as Alcoa and Timken. On the other hand, some major companies opposed the repeal and supported the renewable and efficiency portfolio standard.

Initially Senate Bill 58, introduced by Bill Seitz, proposed reviewing the efficiency and renewable standards and goals passed in 2008. The bill was backed by utility FirstEnergy and included a provision that would allow large consumers (mostly industrial and manufacturing businesses) to opt out of the current programs. The utility argued that efficiency and renewable standards would in fact increase consumer spending on energy. However, key business groups such as the Ohio Manufacturers' Association opposed SB 58. From this initial legislative foray into dismantling energy efficiency policies in the state arose Senate Bill 310 (Seitz also supported this bill). SB 310 proposed freezing renewable and efficiency requirements at 2014 levels, and it was heavily supported by ALEC and Americans for Prosperity (a group funded by the Koch brothers). SB 310 was signed into law in summer 2014 by Governor John Kasich. With standards in a freeze, utilities no longer have to plan comprehensive and successful efficiency programs. Additionally, the bill allowed for utilities to introduce opt-out clauses for large users. Eliminating that surcharge effectively dismantles programs that smaller facilities might have benefited from all while eliminating load targets for efficiency programs to aim to reduce.

Most recently, Ohio utilities such as American Electric Power (AEP), Duke Energy, and First Energy have petitioned the PUCO to allow them to increase utility rates, thereby increasing

consumer and business spending on outdated energy technologies, all while not having to invest in efficiency or clean energy (Pantsios 2014).

West Virginia

Earlier this year West Virginia became the first of the 29 states that currently have renewable energy targets to completely eliminate previously passed standards. In an overwhelming show of bipartisan support, a bill repealing the 2009 act that established the state's Alternative and Renewable Energy Portfolio was passed with a vote of 33-0 in the Senate and 95-4 in the House before being signed into law by Governor Earl Ray Tomblin. The legislation's initial requirements applied to utilities with more than 30,000 users and called for 25% of the state's electricity to be generated by renewable sources by the year 2025. The 2009 bill was met with almost no opposition from utilities or the coal industry, considering the fact that the law's broad definition of "renewables" included natural gas, various coal burning techniques, and even fuel from burnt tires. Governor Tomblin spoke on the matter, saying the economic drivers and factors of policymaking change over time and that the act from 2009 was no longer beneficial to the state. Critics of the repeal claim that the move is largely political, as the wording in the legislation is way too broad to actually have any significant impact on energy savings.

Heartland Institute fellow James M. Taylor commented on the vote: "West Virginia policymakers recognized, in a bipartisan and overwhelming manner, that renewable power mandates drive up electricity costs, kill jobs, punish the economy, and inflict substantial unintentional harm on the environment" (Pantsios 2014). The claims made in this statement remain for the better part unsubstantiated and offer no alternative situation from which an accurate comparison can be made.

Crafting Programs That Create Value

Many of the defunding narratives include attacks on efficiency programs as too costly, ineffective, and of little value to larger users. Some policymakers argue that it is not worth it for large customers to pay in to funding that goes to programs that do not assist them. The question to be asked here is, "What are strategies that can be used in designing programs that provide undeniable value to customers?" Although the best-designed program still won't be completely immune to nonsensical attacks from ideologues, using best practices for industrial energy efficiency program design will help strengthen and grow these programs.

Knowledge of a program's target market should be a priority for designing successful programs. Industrial and manufacturing customers often have specific types of equipment that standard commercial buildings would not regularly have. Additionally, these manufacturing facilities will have extremely energy-intensive processes that are unique to the goods for which they produce. Having a program designed to target specific users will help manufacturers buy in to the idea that the program creates value. General C&I programs largely focus on lighting and HVAC measures, two areas that any facility with staff even mildly concerned about their energy consumption will be sure to address off the bat. Once these facilities have projects completed in these areas, programs become much less relevant and useful to them. Devoting full program resources, including technical expertise and best practices from other facilities facing similar challenges, will help industrial users realize greater benefits from the program.

On a related note, due to the highly custom nature of industrial facilities and their equipment, having a simple prescriptive program leaves industrial users with very few options on the table. A custom track that includes measures specific to the facility's day-to-day operation or processes can help customers go beyond the simple low-hanging fruit of lighting and temperature setbacks. Additionally, industrial customers might want to scale up production as a result of capital improvements; programs can also address production-adjusted savings values.

Programs can also address human resource concerns for industrial facilities seeking an energy expert. Many smaller industrial facilities do not have the time or resources to have facility personnel devoted to energy management. Some programs offer subsidies or incentives for hiring an energy manager. These staff members act as energy champions and become a trusted source of information. Investments in energy efficiency will have the backing of detailed analysis from someone who is intimately familiar with the facility's nuances.

Leveraging equipment manufacturers, vendors, and other consultants is important for all sectors, and it is also vital for industrial efficiency programs. Incentives for the installation of energy efficient equipment helps vendors sell their products, but it also helps influence them to develop new or more efficiency technologies to fill that demand. When some states have acted to repeal or limit energy efficiency policies, key equipment manufacturers have worked against these defunding efforts because their businesses benefit from building owners and operators being engaged in efficiency. Programs that build and maintain those relationships often see support from these market actors.

Self-direct programs offer customers the option to opt out of paying system benefit charges and instead allocate the funds to energy efficiency improvements directly. Benefits to the customers of the self-direct programs include the ability to leverage their own internal expertise, meet a facility's specific needs, and capture hard to reach energy savings all while implementing the project over longer periods of time to allow for greater funding of projects compared to conventional programs. The issue with these programs is often the lack of oversight into how these funds are spent. The impact of these programs remains for a large part undocumented, but there are several examples of successful programs from which future ones can be designed. Running these programs as resource acquisition efforts, where facility personnel work alongside utility staff to develop savings goals can be a meaningful way to keep track of how well money is being spent. Additionally, creating a reimbursement plan that rewards customers for exceeding expectations along with disciplining them for falling short of lofty goals is a way to encourage cost-effective approaches responsibly. The most important aspect of self-direct programs, however, is ensuring that useful, meaningful data is collected throughout the project planning and implementation phases to allow for assessments down the line. Without information on investment types, project costs, and expected savings, self-direct programs become useless. Regardless of how well a facility manages its energy efficiency resources, keeping track of and documenting project activity is absolutely necessary for proponents of deregulation to be able to prove their point that the free market can do efficiency without the oversight.

Program Examples

This section summarizes programs that have had strong and successful engagement with industrial customers and attempts to characterize the ways in which future programs can be designed to be beneficial to all parties.

NYSERDA Industrial and Process Efficiency

The New York State Energy Research and Development Authority (NYSERDA)'s Industrial and Process Efficiency (IPE) Program has seen successful results for the past few years. IPE specifically targets industrial and manufacturing customers for implementing energy saving projects that not only concern base-building systems but also the industrial process itself. It is a custom, performance-based program that also has the ability to offer incentives for process efficiency – in this model incentives are granted if a significant process change is introduced that results in decreasing the energy per widget created as production increases. This program structure allows the flexibility needed in order to address a diverse set of manufacturers with different types of equipment (some of which are very unique and not found in other facilities). The program makes use of vertical outreach contractors to provide technical and administrative assistance to customers seeking incentives. These contractors are able to develop high-level energy savings values and educate customers on the value of implementing these projects. The outreach contractors are instrumental in providing key program guidance as well as bolstering customer confidence in savings estimates. Additionally, they serve as a trusted resource for not only program information but also new and emerging technologies and industrial best practices. The outreach contractors are also tasked with building and maintaining relationships with equipment vendors, project developers, trade organizations, and other stakeholders and groups. As a result the IPE Program has seen strong realization rates in past impact evaluations – 89% from the 2012 evaluation (Megdal & Associates 2012). Process evaluation results also indicate that the program's focus on individual interactions with customers has produced excellent results and customer satisfaction (Research Into Action 2011).

Energy Trust of Oregon Industrial and Agricultural Program

The Energy Trust of Oregon (ETO) also has a successful industrial and agricultural program. The program provides incentives for lighting and base building equipment but also features a custom track that includes process efficiency. ETO also makes use of Program Delivery Contractors to help connect customers with incentives – these third-party firms can provide each customer with individualized attention and can customize incentive solutions based on each customer's particular needs. Furthermore, the program incorporates energy studies as well as operations and maintenance savings incentives to provide a suite of services to industrial and agricultural customers. The ETO program has also expanded into strategic energy management. It offers employee training and long-term planning to help encourage behavioral change that results in energy savings as well as continued commitment to energy-saving strategies. Strategic energy management is a great low-cost way for programs to encourage persistent energy savings that go beyond the most obvious area: lighting. An evaluation of the initial pilot for the Industrial Energy Improvement portion of the program showed that customers were highly satisfied with the component and they continued to show year-over-year savings from implementing these changes with the assistance of the program (Navigant 2011). An early feedback report also suggested that 98% of surveyed participants were satisfied with the Production Efficiency program from ETO (Bruins Consulting & Analysis 2014). The same feedback report shows that the Production Efficiency track influenced industrial customers to accelerate efficiency programs and that 80% of participants were influenced by ETO incentives to proceed with projects (Bruins Consulting & Analysis 2014). ETO also presents a variety of

industrial-specific case studies in order to demonstrate what types of projects are incentivized by the program.

New Jersey Clean Energy Opt-In Program

New Jersey Clean Energy also has an opt-in model that is available for large users. NJ Clean Energy has a traditional C&I program with a performance-based custom track – the program requires a reduction of energy consumption by 15% or more (although there are exceptions for certain types of manufacturers). For very large users (those that exceed 400 kW in demand and have contributed at least \$300,000 into NJ Clean Energy’s Program Fund), there is an option available to engage in self-directed energy efficiency improvements. The customer must meet some basic eligibility requirement to enroll. The program requires the submission of a comprehensive energy efficiency plan that provides details as to the company’s plan for energy efficiency projects. Through this opt-in program, facilities are able to receive a maximum of 75% of project costs (with a \$4 million cap). This special program allows large users to play a more active planning role in energy-saving capital projects. By including greater incentives, these facilities have a greater motivation to engage in comprehensive efficiency planning, and by definition this model necessitates facilities to think beyond just lighting upgrades. An ACEEE blog article alluded to the fact that the program is so popular that there are more customers asking to participate than there are slots available (Chittum 2014).

Summary

There is considerable evidence to suggest that industrial energy efficiency programs can be designed and implemented in a manner that is undeniably beneficial to all customer groups. Policies that place decision making into the hands of facilities can be effective with the oversight of public utility regulators standing close by. There is little to no information available that suggests that policies supporting large customers’ decisions to opt out of these programs are a cost-effective way to implement energy efficiency practices. And until there is a sound argument demonstrating that an alternative, more cost-effective solution (for every public utility user) geared at industrial energy efficiency practices exists, then there is no reason to change how these programs operate.

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