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# **Cable Industry Energy Efficiency Program Funding Opportunities**

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## Introduction

State legislators and utility regulators across the nation have established utility ratepayer funded programs to help homeowners and businesses implement energy efficiency projects. Cable companies are contributing millions of dollars into these funds through surcharges added to their electricity bills, yet very few cable companies are leveraging the funds for their own energy efficiency projects. Over \$8 billion of U.S. utility ratepayer dollars went toward these programs in 2011, \$2.6 billion of which funded programs targeting industrial and commercial customer classes<sup>1</sup>. Many of the nation's largest companies, from heavy industries to retail chains, are "eating cable companies' lunch" by applying for and receiving these funds.

## Energy Efficiency Program Basics

Ratepayer energy efficiency programs exist for a variety of reasons. These are often considered "public benefit" programs, since all ratepayers benefit whether or not they directly use the program. Benefits include lower utility rates in the long term by eliminating or deferring the need to build power generation facilities, a cleaner environment, and economic development, including job growth.

While the U.S. government provides energy efficiency research and technical support, mainly through the Department of Energy and the Environmental Protection Agency, most energy efficiency programs are created and administered by state governments. The number of states with ratepayer-funded energy efficiency programs has grown rapidly in recent years to today's total of 41.<sup>2</sup> The structure and size of these programs varies greatly from state to state. Energy efficiency programs are typically created through legislative acts or administrative rule and administered under the authority of state utility or energy commissions. Some states allow utilities to run their own programs, while other states have statewide programs administered by energy efficiency services firms. In 2010, 84 percent of all U.S. industrial energy efficiency program spending was through utility or other public benefit programs with state oversight<sup>3</sup>.

There are many different types of energy efficiency programs, but basic principles apply. Their purpose is to influence energy users to implement energy-efficient measures they would not have otherwise implemented without the support of the program. These programs target the barriers that prevent utility customers from implementing energy efficiency projects, such as the lack of knowledge of energy-efficient options, the lack of confidence in projected energy savings, and the lack of capital to implement projects.

The majority of overall program spending is in the form of direct funding of energy efficiency projects, most commonly as cash incentives. The amount of funding provided for projects loosely correlates to the amount of energy saved. Energy savings are commonly calculated as the incremental energy savings of the energy-efficient option over the standard option, or

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<sup>1</sup> "State of Energy Efficiency Program Industry", Consortium for Energy Efficiency (CEE), March 14, 2012.

<sup>2</sup> "Self-Direct Programs for Large Energy Users", American Council for an Energy-Efficient Economy (ACEEE), April 2012.

<sup>3</sup> "Money Well Spent: 2010 Industrial Energy Efficiency Spending", American Council for an Energy-Efficient Economy (ACEEE), April 2012

the energy savings achieved over time by upgrading equipment sooner than would have otherwise occurred without the influence of the program. Some programs calculate savings based on the first year of savings, while others calculate savings as the energy saved over the expected life of the measure.

The utilities or other public benefits administrators, depending on the structure of the programs, are accountable for achieving annual energy savings goals via a variety of mechanisms. Utility companies are often required to include energy efficiency programs as part of their rate case filings, and meeting energy savings goals becomes a contingency for achieving their targeted revenue. The performance of contracted program administrators and implementers is judged largely by their ability to meet energy savings goals, and performance against energy savings goals impacts their revenue. Everyone involved, from the state oversight regulatory agencies to the utility companies and their contractors are highly motivated to find and fund energy efficiency projects.

Regulators typically require that energy efficiency programs be evaluated by an independent entity. These evaluators certify that the program-claimed gross energy savings are based on correct calculations, usually by reviewing a statistically significant number of projects. Most energy efficiency regulators only credit programs with energy savings that are attributed to the program. These are known as net savings.

The concept of net savings relates to the cost effectiveness of energy efficiency programs. Programs that pay incentives to participants that would have implemented an energy efficiency measure regardless of the program are less cost effective. A very basic example of this is a residential ENERGY STAR® appliance rebate program. These types of rebates motivate some consumers to select the more energy-efficient option, but a certain percentage of those who claim the rebate would have selected the same model regardless. These program participants are known as “free riders,” and evaluators subtract their energy savings from the gross savings claimed by the program. The resulting discounted savings are the program’s net savings.

It is important for cable companies that apply for energy efficiency program financial incentives to understand how program implementers evaluate potential projects on the basis of net savings. The best candidates for energy efficiency program funding are those that would have otherwise fallen off of annual capital budgets, or been deferred in favor of projects with better returns on investments.

Utility companies’ energy efficiency staffs are usually linked organizationally to utility regulatory affairs departments, not the right-of-way, engineering, or account management departments with which cable companies normally interface. Most utility companies outsource much of the design and implementation of energy efficiency programs to energy service firms. While many firms have jumped into the energy efficiency business over the last few years, most programs follow the same general design.

Energy efficiency programs targeting businesses are often referred to as commercial and industrial, or more commonly “C&I” programs. Most C&I programs fall into prescriptive or custom categories. Prescriptive programs allow a set amount of energy savings to be

claimed for each unit of a particular measure and usually offer a set financial incentive for each unit. A simple example would be a dollar rebate for a 60-watt equivalent CFL bulb, with an associated kW savings per bulb. Custom programs are typically project-based and the savings are calculated by trade allies and verified by program implementation engineers. Cash incentives are often offered to program participants based on a set dollar amount for each projected kWh and kW saved. Many electric programs offer between \$.04 to \$.08 per kWh and \$100 to \$250 for kW saved.

Most C&I energy efficiency programs place some limit on amount of incentive funding made available to any given project or the total amount of funds to a company in one year. These caps are intended to create an equitable opportunity for many companies to access energy efficiency project funding, but the limits are rarely based on the amount a company contributes to the program through the energy bill surcharge. Therefore, depending on the rules of the program and the energy efficiency project opportunities at the business, a business can often receive more money in project incentives than it paid into the program in any given year.

There is variation in all aspects of program funding, design, and implementation from state to state. In 2010, the top ten funded states for industrial energy efficiency programs in total dollars were:

Rank	State	Rank	State
1	New York	6	Oregon
2	California	7	Tennessee
3	Pennsylvania	8	New Jersey
4	Washington	9	Wisconsin
5	Massachusetts	10	Arizona

The top ten on a per capita basis were:

Rank	State	Rank	State
1	Oregon	6	Massachusetts
2	Idaho	7	Maine
3	New York	8	New Hampshire
4	Rhode Island	9	Tennessee
5	Washington	10	Pennsylvania

Thirty-eight percent of all U.S. industrial energy efficiency program spending was in New York and California<sup>4</sup>.

<sup>4</sup> "Money Well Spent: 2010 Industrial Energy Efficiency Spending", American Council for an Energy-Efficient Economy (ACEEE), April 2012.

## Cable Energy Efficiency Opportunities

### Datacenters, Telecom Centers, Headends and Hubs

Programs targeting datacenter energy efficiency are currently among the most popular with utilities. The utility industry has awakened to the growing electrical demand from the information technology industry and the strain this demand is placing on power generation and transport networks. Yet in the midst of this concern, utility energy efficiency program staff and energy services contractors are largely ignorant of the electricity demands of cable datacenters, headends, and hubs. Many current datacenter energy efficiency programs could be used to fund energy efficiency improvement projects for new and existing cable data, video, and telephone facilities.

Utility and third party-administered datacenter energy efficiency programs provide cash incentives for energy-efficient upgrades to facilities, power distribution and backup equipment, and electronics. Some programs provide incentives to pay for server virtualization. Many programs will pay for all or a portion of the cost for energy efficiency studies and funding toward projects identified by the studies. Understanding that most cable equipment is highly specialized, claiming energy savings for upgrading equipment such as RF modulators, coder/decoders, compression, combiners that use less power than older versions would require a coordinated effort between MSOs, equipment vendors, and energy efficiency services firms.

### Outside Plant Power Supplies and Active Elements

Any equipment that is a candidate for replacement with a more energy efficient model has the potential for energy efficiency program funding. Given that the increased energy efficiency of this type of equipment is often a side benefit of other functional improvements, energy efficiency program funding for plant upgrade projects may face scrutiny by energy efficiency program evaluators due to free ridership concerns. However, a case could be made that program funding enabled a project to be completed years earlier than it would have been otherwise, qualifying for funding as an early replacement. Given that energy efficiency projects compete for capital with so many revenue-producing projects within a MSO's annual budget, a carefully constructed project proposal could win approval for energy efficiency program funding.

### Set Top Boxes

The energy efficiency program industry has long been interested in targeting consumer electronics. There have been a couple set top box program pilots, mostly missing the mark. The energy efficiency industry as a whole does not understand the cable industry and vice versa. Since set top boxes are powered at the premises, not by the cable network, the cable company's motivation is not energy efficiency of the box. A more practical motivation is offsetting the cost of recovery of older cable boxes. Having the latest equipment in the home eliminates compatibility issues and increases the potential for increased revenue from enhanced services. If the newer boxes are more energy efficient, energy efficiency programs should be willing to provide an incentive for the older boxes to be taken out of the house and

turned in to the cable company for recycling. The incentive could be a rebate to the cable customer upon returning the box to the cable company or a cash incentive to the cable company to help defray the cost of a truck roll to replace the box.

### Opt-Out and Self-Directed Provisions

Twenty-four states offer an “opt-out” or “self-direct” option for C&I large energy users.<sup>5</sup> Opt-out provisions allow qualifying companies to exclude themselves from the benefits of energy efficiency programs and from paying the utility bill surcharge that funds the programs. To qualify, companies may need to indicate that they have previously implemented energy efficiency projects, but they are not required to demonstrate any additional energy savings during the opt-out period.

The rules vary by program, but the intent of the self-direct option is to allow large energy consuming customers to implement their own energy efficiency projects outside of the energy efficiency program. In return, the billing surcharge is waived. The scrutiny is often less on energy efficiency projects implemented outside of the utility or statewide program and there are times when this is a viable option. Businesses that self-direct are still expected to provide the necessary project documentation and energy savings calculations. This requires some internal energy efficiency expertise and knowledge of the energy savings evaluation criteria.

### Home Automation

Home automation is a common emerging interest of both the cable and energy industries. While MSOs are adding home automation as a new revenue stream, electric utility companies are looking at home automation as a link to the smart grid and energy efficiency. Utilities and energy efficiency services firms are piloting a wide variety of both demand and behavior programs using intelligent metering and in-home devices.

Demand programs target the reduction of electricity usage at times of peak loads. In-home devices are often used in conjunction with special utility rates. Utility customers can elect a lower rate if they agree to let the utility company cycle their air-conditioner or other appliances off during times of peak system demand.

Behavior programs use in-home devices and/or home automation to provide energy usage feedback to participants. The concept is that awareness is the first step to energy efficiency. This is a relatively new and unproven area of energy efficiency, but widely considered the next level necessary to achieve deeper residential energy savings. Utilities particularly like the approach for the public relations benefit of providing customers with tools to potentially lower their energy bills.

The opportunity for cable companies' involvement with demand and behavior based programs range from joint marketing opportunities with utility companies, to incentives to offset the cost of home automation system installation.

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<sup>5</sup> “Self-Direct Programs for Large Energy Users”, American Council for an Energy-Efficient Economy (ACEEE), April 2012

## Intelligent Efficiency

Intelligent efficiency is a systems-based, holistic approach to energy savings, enabled by information and communication technology and user access to real-time information<sup>6</sup>. Information and communications technology, such as that provided by broadband service providers, enables building and manufacturing systems to be metered and linked to automated energy optimization programs and human interfaces. These programs invite human interaction when such engagement increases energy efficiency and bypasses human interaction when automation produces a better result.

Several pilot programs that fall within the broad definition of intelligent efficiency are underway across the nation, targeting residential, commercial, and industrial energy users. Funding is provided by utilities, units of government, vendors of related products and services, and businesses looking to reducing their energy usage. This is a potentially lucrative opportunity for providers of intelligent efficiency products and services, particularly as the value of carbon is monetized and traded, and power providers look for opportunities to connect homes and business to a smart grid.

The types of projects that fall within the category of intelligent efficiency vary widely. One example of a buildings focused program is [Envision Charlotte](#). This collaborative program between Duke Energy, Cisco, and Verizon connects energy monitoring systems of office buildings in downtown Charlotte, North Carolina. Building owners and managers can see the real-time energy usage of their buildings, compare their building's energy efficiency against nearby buildings, and monitor the energy usage changes over time. Occupants of the building and the general public have access to the same information via user-friendly kiosks installed in building lobbies throughout downtown Charlotte. Envision Charlotte estimates this program will lead to a 20 percent reduction of energy usage over five years.

## Next Steps

This document is just an introduction to a very real opportunity for the cable industry. Using utility or statewide energy efficiency programs to help fund projects provides the industry with several possible benefits:

- Stretching capital dollars through energy efficiency program funds
- Early replacement of aging equipment with energy efficiency program cash incentives
- Additional revenue through strategic partnerships with energy efficiency programs targeting the replacement of old set top boxes
- Increased penetration of new lines of service, such as home automation
- The public relations lift provided by publicizing energy efficiency and sustainability efforts

The opportunity is reciprocal. State utility regulators are setting ever-increasing energy savings goals for utility and statewide programs. At the same time, it is getting more difficult

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<sup>6</sup> "A Defining Framework for Intelligent Efficiency," American Council for an Energy-Efficient Economy, June 2012.



for implementers of these programs to find qualified projects to fund. These programs have relied on high-efficiency lighting upgrades for the majority of their savings. Lighting contractors have been actively using energy efficiency programs for years to increase their sales. Between higher penetration of high-efficiency lighting and federal legislation designed to discourage the manufacture and sale of less efficient lighting products, energy efficiency programs need to find other sources for energy savings.

Exploiting this opportunity will require overcoming a notable obstacle. There is a universal unfamiliarity with energy efficiency programs within the cable industry and an equal unfamiliarity with the cable industry on the part of the energy efficiency program industry. Bridging this gap through an education and outreach effort will be necessary. Fortunately, both industries have effective professional and trade organizations to help propagate information through white papers, case studies, and trade event presentations. A few successful projects will serve as a catalyst for ongoing collaboration between both industries.

Beyond education and outreach, the cable industry needs access to specialists who understand how to successfully find energy efficiency program incentive funding for qualifying cable capital projects. Since programs vary from state to state and often from utility to utility, these specialists need both a broad understanding of the energy efficiency industry and detailed programmatic and geographic knowledge of the opportunities available to each cable system. Since there will often not be a perfect fit between existing energy efficiency program incentive offers and the needs of the cable industry, these specialists will also need the ability to identify and influence those who design and approve energy efficiency programs, and help them understand cable network architectures, CPE, and the technologies under development to deliver future cable services. Most importantly, there is a need for an advocate or advocates that can bring the leaders and decision makers of both industries together.

## Definitions

**Energy Conservation:** To use less energy.

**Energy Demand:** Electric energy load measured in kilowatts at a specific point in time.

**Energy Efficiency:** To use less energy to get the same result.

**Energy Efficiency Program:** A utility or statewide program that offers education, technical support, and financial incentives to qualified utility ratepayers to install or otherwise implement measures of higher energy efficiency.

**Energy Usage:** Electric energy usage metered over a time period.

**Program Administrator:** A function within a utility or contracted energy services firm to oversee a portfolio of energy efficiency programs.

**Program Implementer:** A function within a utility or a contracted energy services firm to deliver an energy efficiency program to qualified utility ratepayers.

**ENERGY STAR:** A trademarked energy efficiency service brand owned and administered jointly by the United States Environmental Protection Agency and Department of Energy.

**Free Ridership:** The portion of energy efficiency program participants that received a benefit from an energy efficiency program, most commonly a financial incentive, which would have implemented the energy efficiency measure regardless of whether or not the benefit was offered.

**Gross Savings:** The total energy savings claimed as a result of implementing an energy efficiency measure.

**kW:** Kilowatt. The per unit measurement of electric energy demand.

**kWh:** Kilowatt hour. The per unit measurement of electric energy usage.

**Measure (energy efficiency measure):** A product installed or action taken that result in less energy usage without compromising the core function of the product or subject of the action.

**Net Savings:** The energy savings that is attributed to the energy efficiency program calculated by multiplying claimed savings by a factor to discount for free ridership.

**Trade Ally:** A product or service provider, independent of the energy efficiency program, that provides products or services to program participants that qualify for financial incentives.