



# Innovative Funding Options for Energy Efficiency Initiatives

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# Innovative Funding Options For Energy Efficiency Initiatives

—Greg Fox, Director of Business Development for Efficiency Made Easy

An increasing number of businesses across North America are looking to energy efficiency programs to reduce energy costs and attain sustainability goals. However, implementing efficiency measures can prove challenging when upfront capital, expertise, and resources are limited or unavailable.

Today, many businesses can avail themselves of a variety of options to overcome these limitations including performance contracting, design/build programs, and in electric-rate funding programs.

This white paper provides an overview of these options and focuses on a new and popular option when capital and timeframes are tight, and companies need shorter term results and quicker ROI: In-Electric Rate Funding.

In-Electric Rate Funding incorporates the cost of energy efficiency upgrades into the electricity rate over the length of the commodity contract. This allows companies to more easily realize total energy cost savings and meet sustainability goals by reducing energy consumption over time using their current energy budget.



## Introduction

According to the 2012 Deloitte reSources study, 90 percent of US companies have specific electricity and energy management goals in place. Of those companies, nine-in-ten are specifically targeting electricity consumption and cost reduction as means to achieve these goals. As sustainability becomes more essential to corporate brand and environmental stewardship efforts, many companies are creating sustainability plans that reduce greenhouse gas emissions and also deliver energy cost savings. Improving energy efficiency is a common component of a larger sustainability plan that also may include load response, on-site solar installations, renewable energy supply or carbon offsets.

However, in today's competitive economy many companies are challenged to find capital or financing to implement desired energy efficiency initiatives, even when cost effective solutions could be implemented. According to the Deloitte ReSources study, capital funding is the number one barrier to progress, followed by length of payback period.

At the same time, many companies lack in-house resources and technical expertise to efficiently design and implement an energy efficiency program. So, given the constraints on financial and technical resources, how can an organization gain control of their energy usage and lower their energy cost? The first step is to identify which energy efficiency option is best suited for your situation.

## Three Ways to Reduce Energy Costs

Businesses seeking to improve energy efficiency have three primary options:

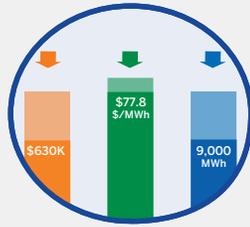
- Energy Performance Contracting
- Design/Build Programs
- In-Electric-Rate Funding

### Energy Performance Contracting (EPCs)

#### Option 1: Energy Performance Contracting (EPCs)

Energy Performance Contracts, also known as EPCs, require no upfront capital for energy efficiency projects. Instead, energy efficient building improvements are funded through guaranteed cost savings over a relatively long-term contract (typically greater than 10 years and up to 20) with an energy service company (ESCO). The ESCO handles project design and development, procurement, construction, commissioning, and reporting, and also may assist with arranging the financing. EPCs are typically utilized to leverage short-term savings projects with long-term ones while enabling major energy related infrastructure improvements. Large capital improvement projects, such as chiller and boiler replacement, are usually mixed in with quick payback energy conservation measures (ECMs) like lighting and variable frequency drives. The primary markets for this option are in the public sector.

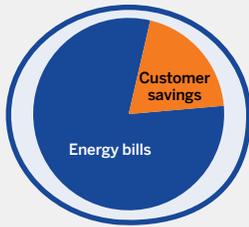
## Three Options for Companies Seeking to Improve Energy Efficiency



### In-Electric Rate Funding

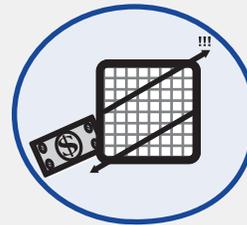
- No upfront capital
- Funding via energy cost savings over 3 to 5 years

## Energy Efficiency Program



### Energy Performance Contracting

- No upfront capital
- Funded via guaranteed energy savings over 10+ years



### Design/Build Programs

- Upfront capital required
- Organization funds the project

### Option 2: Design/Build Programs

In the design/build approach, the organization that seeks to improve energy efficiency has access to upfront capital for the energy efficiency projects. Capital requirements are often in excess of \$1 million. The organization funds the project, and the ESCO provides an extension to the organization's staff for technical expertise to accelerate the effort, maximize efficiency, help the customer understand the energy markets' impact on the project and navigate the available rebates, incentives and tax credits. Primary markets for this option are healthcare and higher education; secondary markets include commercial and industrial enterprises.

### Option 3: In-Electric Rate Funding

With in-electric rate funding, no upfront capital is required. Relatively low-capital cost energy efficiency improvements are funded via energy cost savings over a relatively short-term contract (typically 3-5 years). The ESCO handles project design, procurement, construction, commissioning and may assist with arranging financing. Primary markets for this option are commercial and industrial enterprises, healthcare, and private higher education. The remainder of this white paper focuses on this option.

### Why Companies Choose In-Electric Rate Funding

The primary driver for many companies to utilize in-electric rate funding is to avoid upfront capital expenditures or traditional loans needed to implement energy efficiency initiatives.

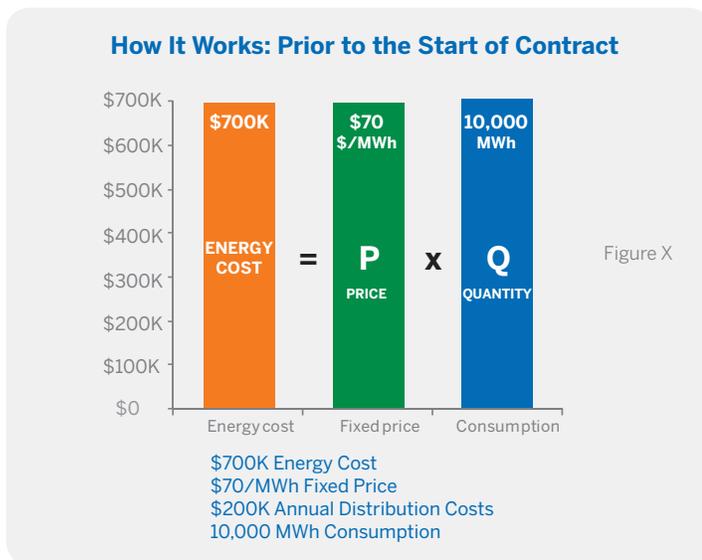
Many companies find in-electric rate funding as a means to achieve corporate compliance with regulatory requirements, meet established sustainability goals, improve electricity load profile, realize energy cost savings and asset appreciation, and reduce operation and maintenance (O&M) costs. Through in-electric-rate funding, companies can also replace aging equipment with Energy Star-rated equipment or improve their Energy Star rating which, in many markets, can help establish a competitive market advantage or meet the requirements of their stakeholders. For example, in many cases, the U.S. General Services Administration (GSA) requires landlords to have an Energy Star Rating of at least 70% as a requirement to lease space to them.

## How In-Electric Rate Funding Works

In order to understand how this option works, let's look at the example situation below and examine the energy costs during three points in time; before the start of the commodity supply contract period (Figure X), during the commodity contract period (Figure Y), and after the commodity contract period (Figure Z). In each case, energy cost is calculated as the product of the energy price (e.g., in \$/MWh) multiplied by the quantity of energy used (e.g., MWh). In the illustration in Figure X, a three-year commodity contract period is assumed.

Prior to the start of the commodity contract and any energy efficiency projects, the organization's annual energy costs are \$700,000. This is based on their annual consumption of 10,000 MWh of electricity at a fixed rate of \$70/MWh. In addition, the annual electricity distribution cost is assumed to be \$200,000 in this example.

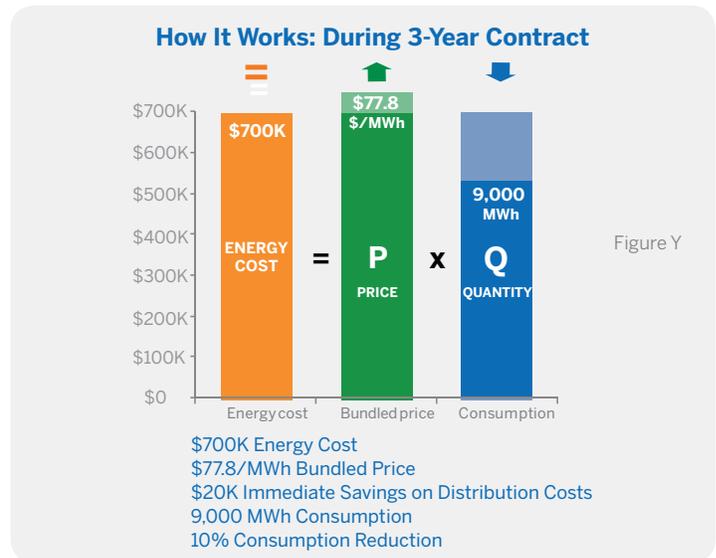
The in-electric rate funding approach enables funding of energy efficiency improvements as part of the electricity price.



After the program starts, the ESCO implements agreed upon energy efficiency improvements at the organization's sites (Figure Y). These improvements enhance the organization's load profile and reduce energy consumption by 10 percent in the example. This reduces the annual energy consumption by 1,000 MWh to 9,000 MWh.

In order to fund these energy efficiency improvements, the ESCO charges the organization a higher fixed energy rate of \$77.8/MWh. This higher rate and lower consumption effectively cancels out, so that the organization's annual energy cost remains unchanged at \$700,000. However, the 10 percent reduction in energy consumption also reduces the annual distribution cost by \$20,000—a savings the organization realizes immediately.

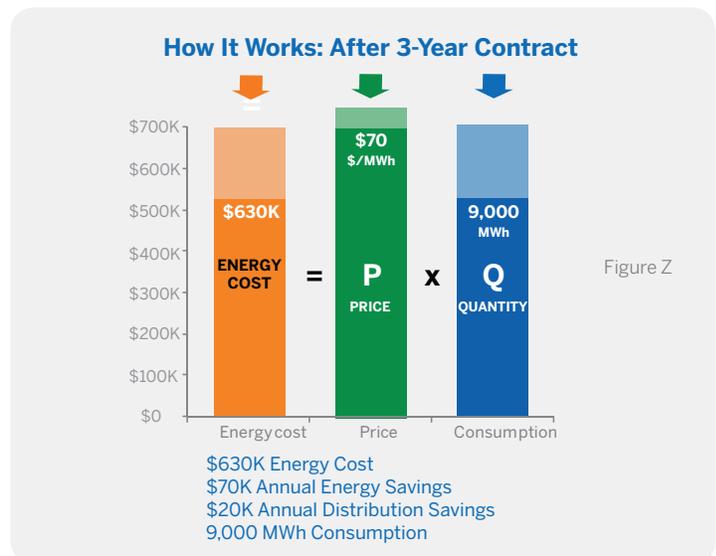
So, during the three-year contract period, the organization not only incurs no additional costs; in fact, they save \$60,000 (\$20,000 per year) through reduced distribution cost.



After only three years (Figure Z), the higher energy rate has effectively paid off the capital cost of the energy efficiency improvements and the ESCO can then reduce the energy price to its original rate of \$70/MWh.

Because the energy efficiency improvements remain in place over the life of these assets, the organization continues to consume the reduced amount of energy—9,000 MWh per year. At the original rate of \$70/MWh, this means that the organization's annual energy cost for each year after the contract period is now \$630,000 compared to the benchmark \$700,000.

The organization saves \$70,000 per year on energy, as well as the \$20,000 annual reduced distribution cost, for the remainder of the life of the assets.



## The Benefits of In-Electric Rate Funding

1. No up-front capital or financing is needed; this preserves the organization's capital budget.
2. Documented reductions in carbon footprint in the form of reduced greenhouse gas emissions emitted from power generation resources.
3. The cost of the energy efficiency upgrades is embedded in the organization's electricity commodity rate and billed as one charge. No separate line item on the bill.
4. The ESCO offers one-year warranty coverage on the entire installation—and even longer warranties may be available on some equipment. This warranty, combined with the longer life of the new assets, is expected to yield additional maintenance savings for many years.
5. The organization owns the energy efficiency equipment from the start of the contract and retains the full benefit of the energy efficiency measures at the end of the contract.

## Scope of Energy Efficiency Technologies

The energy efficiency measures that are typically employed in this approach include projects that provide rapid payback periods with relatively low capital investments. This includes upgrades to lighting systems, replacement electric motors and drives, water conservation systems, and building automation systems upgrades. Some typical efficiency measures for in-electric rate funding include:

**Lighting improvements:** Interior and exterior lighting retrofits, intelligent lighting controls, and occupancy sensors.

**Electric motors and drives:** Motor replacement with high efficiency motors and utilization of variable frequency drives.

**Water and sewer conservation systems:** Installation of low-flow faucets and showerheads.

**Building automation systems and energy management control systems:** Heating, ventilating, and air conditioning (HVAC)-related upgrades and control systems upgrades. These may include in-room controls for hotels and dormitories.

## Strategic Integration of Energy Initiatives

To optimize the benefits of energy efficiency initiatives, a holistic energy approach is recommended that accounts for a broad range of considerations. An integrated, strategic energy plan that incorporates demand-side and supply-side solutions including commodity procurement, energy efficiency and load response can yield significant results. Working with an integrated energy supplier will allow companies to understand the options available and how the pieces of the 'energy puzzle' fit together. Here are some important questions an integrated energy supplier can help answer to help you make sure your supply-side and demand-side initiatives are working in concert.

### Will energy reduction impact your existing commodity or load response contracts?

An existing electricity contract with your energy service provider may pose energy bandwidth constraints. Bandwidth is the allowable deviance from a historical baseline in electricity usage.

In some cases, an electric supply contract will impose a fee if a company's actual electricity demand or usage exceeds or drops below the allowable bandwidth. As an example, if the electricity supply contract imposes a 10 percent bandwidth, then a 20 percent reduction in energy use may not be advantageous, depending on the terms and penalties of the electricity contract.

Similarly, reducing energy usage may adversely impact existing or planned load response contracts or opportunities. If the penalties and terms of these contracts or opportunities are excessive, alternative opportunities for cost savings may be warranted. In any case, the energy efficiency company should consider the financial implications (and net costs and benefits) of deviating from these constraints.

### How will energy reductions impact your new commodity contracts?

In most cases, if you are going to be entering a new electric contract and are planning to implement energy efficiency measures, you are likely not able to capture all of the benefits of those decreases in energy uses.

Typically, most retail energy providers will not deviate from your historical usage and demands when providing new pricing.

However, since the energy improvements and the retail energy are being delivered by the same provider, there is the necessary understanding of their interaction to fully maximize the situation. Therefore, improvements to load profiles and reductions in demand can be recognized throughout the term of the contract.

## Rebates, Incentives and Capacity Credits

To maximize savings, companies considering energy efficiency initiatives also need to be aware of federal, state, local, and utility rebate and incentive programs, as well as efficiency capacity credits from the regional independent system operator (ISO) or regional transmission organization (RTO). Also, utility rebate programs, deadlines, and levels of funding are changing constantly. Some utility rebate agreements prohibit the capture of efficiency capacity credits, while others allow companies to capture both capacity credits and realize energy savings.

Understanding these various components and the constantly changing offerings is imperative to maximizing the return on your project as well as prioritizing when there are multiple opportunities in different marketplaces.

## An Energy Efficient Supply Chain

Many companies are seeing increasing pressure from customers and occupants to be more energy efficient. Companies renting office space to government entities, are often required to administer energy audits and achieve minimum Energy Star ratings.

For example, the U.S. General Service Administration requires buildings to have an Energy Star rating of 70 or higher in order to be considered for leasing.

Similarly, if the organization is renting or supplying to particular commercial/industrial companies with efficiency requirements, consideration of these is needed to optimize benefits.

Many Fortune 500 companies require property managers or suppliers to demonstrate certain levels of energy efficiency in order to conduct business with them. Hence, attaining this level of efficiency may enable establishment of beneficial business relationships.

## Working with an Integrated Supplier

An integrated supplier (ESCO) provides expertise, knowledge, and resources for all portions of the energy value chain. Integrated suppliers offer power and gas supply, renewable energy solutions, and demand side offerings such as load response programs and energy efficiency projects.

Such a supplier can help companies take advantage of market prices, reduce energy bill line item charges (e.g., capacity, transmission, and demand tags), and avoid potential penalties due to commodity contract terms and conditions. Harnessing energy data for strategic energy planning and management is another key aspect to achievement of energy related goals.

Customers that work with integrated suppliers can have better access to historical energy usage data, compare usage to industry benchmarks, and build a plan that incorporates forecasted market prices. Integrated suppliers may also be able to tailor a program to a company's specific needs, help them meet sustainability goals, and better navigate complicated energy markets.

### About Efficiency Made Easy

While facing rising costs and budget constraints, many businesses are looking for ways to fund energy conservation measures. Efficiency Made Easy (EME) is a unique solution that combines a commodity price with high-impact energy efficiency measures without utilizing limited capital. This allows businesses to realize cost savings through a reduction in energy consumption over time.

### For More Information

Learn more about Constellation's energy efficiency solutions. Call 1.866.237.7693 or visit [constellation.com/getinfo](http://constellation.com/getinfo).



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