

Surviving a Down Economy Using ENERGY STAR® Tools and Resources

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ABSTRACT

Many businesses and large national lenders are conserving capital due to market uncertainties. While organizations cannot control the economy, they can control their energy expenditures, which is a good defensive position in a recessionary environment. Most efficiency projects require capital; unfortunately many capital budgets are frozen. Financing these projects using third parties may present viable alternatives. In spite of tightening commercial underwriting criteria and borrowing rates to customers not reflecting the low cost of borrowing made available by ARRA funding, installing energy efficiency projects is a good business decision. Part of the improved cash flow can pay for financing the project, while creating jobs and reducing greenhouse gases.

Traditional financial metrics like Return on Investment and Internal Rate of Return undervalue one of the biggest advantages of efficiency projects improved cash flow. The U.S. Environmental Protection Agency's (EPA) ENERGY STAR program has developed numerous public domain tools that promote energy efficiency. ENERGY STAR's Cash Flow Opportunity Calculator monetizes the cost of delaying installations; calculates the amount of new equipment and services that can be paid for with operating budget savings; and compares different interest rate options. It helps non-financial managers make informed decisions, yet is sophisticated enough to satisfy financial decision makers. Some organizations find that equating the bottom line benefits of energy efficiency projects to equivalent sales helps obtain management approval. The value of energy efficiency improvements increases in line with energy cost increases, making them good short, medium and long term strategies.

Defending Your Business in a Recession

Signs indicate that the recession and financial crises are feeding off of each other. According to the Equipment Leasing and Finance Association, "new business volume for January [2009] declined by 23.7 percent when compared to the same period in 2008. Month-to-month new business volume decreased 50.6 percent from December to January, from \$9.1 billion to \$4.5 billion" and the expectation is that 2009 will be even worse ("*Equipment Leasing and Finance Association's Survey of Economic Activity: Monthly Leasing and Finance Index*," Yahoo Finance.com, February 25, 2009). The *Wall Street Journal* stated at the time of this writing² that U.S. consumer confidence fell in February to its lowest level in at least 41 years. Combined with accelerating home price declines, an economic recovery by 2010 is looking increasingly difficult. We all know what the problem is – however the question is: what can American industry do today to survive this bumpy economic ride?

Choosing to do nothing when faced with business uncertainties is a decision to remain at the mercy of market forces. Clearly, taking action in the areas where you can influence outcomes

¹ U.S. ENERGY STAR Service and Product Provider Program, funded by the U. S. EPA ENERGY STAR Building Program

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is the responsible thing to do, and reducing energy expenditures by implementing energy efficiency projects is an example of a good defensive strategy in today's market. We also know that reducing utility costs improve the bottom line but there is also a concern that tight capital markets are forcing energy related capital projects to be delayed.

The current financial crisis is beyond our control. Access to credit today is a huge problem and hurting business. Lenders are holding on to their cash while they wait for clarity in the markets about government direction and future opportunities. Take, for example, the commercial paper (CP) market, which are unsecured obligations issued by large companies to cover short term financing needs (mostly for accounts receivable and inventory). Commercial paper is an alternative to bank borrowing and the life blood of business. CP is often purchased by money-market funds and insurance companies (sometimes referred to as the "shadow-banking system"); however, it was simply unavailable for a while in the 4th quarter of 2008 until the Federal Reserve Bank began buying it again in limited quantities. The market remains tight, forcing issuers to look toward the banks, which continue to reel from the economic meltdown. Capital conservation has become the primary objective, and lending has tightened to the point where the market has begun to look a bit schizophrenic. In fact, the annualized yield on three-month Treasury-bills dipped slightly below zero at one point on December 9, 2008, to negative 0.01%, something not seen since the 1930s and early 1940s according to the *Los Angeles Times* ("Less than zero: T-bill interest rate goes negative," December 9, 2008). Investors were more concerned about capital conservation than they were about earning a profit.

But everything is not all doom and gloom. The markets are recovering some of their stability, and today three month T-bills are paying about 0.3% compared to about 0.1% one month ago. Not all lenders have been hurt by the subprime crisis and many community banks and credit unions are attempting to fill the void left by some of their larger peers, albeit often at higher interest rates and for shorter terms. The Economic Stimulus Act of 2008 was passed by the Congress, and signed into law by President Obama in February, 2009, although at the time of this writing, the financial details have not been finalized. Energy efficiency and renewable energy projects will receive over \$20 billion³ in new grants, loan guarantees, and extended tax credits and "bonus" depreciation for businesses. Milton Friedman's permanent income theory predicts, however, that temporary (versus permanent) increases in income will not lead to significant increases in consumption. Unlike the temporary benefits to individuals expected to be found in the American Recovery and Reinvestment Act of 2009 (ARRA), energy efficiency projects generate permanent benefits by reducing energy consumption and all subsequent utility bills, while improving the environment.

Green Is Good

In a down economy, managing your business is critical and businesses that "do nothing" usually do not survive. Common survival business strategies recommended by most experts include reviewing expenditures, watching cash flow, and continuing marketing efforts. Sustainable business practices have become more common place over the past 15 years, and energy efficiency is "sustainably green." However, "being green" is not simply a marketing effort, a charitable contribution, or part of a community relations program. It is a commitment to

³ The details of the energy related expenditures in the American Recovery and Reinvestment Act of 2009 can be found at <http://ase.org/content/article/detail/5347>

use resources wisely, and in doing so may result in improved cash flow. If saving money is an effective recession strategy, then now is the time to be green. And, implementing energy efficiency projects is as green as you can get!

Electricity Is Not Getting Cheaper

According to the US Department of Energy Information Administration’s December, 2008 “Annual Energy Outlook Early Release Overview,” approximately one-third of delivered energy in the US is consumed in the industrial sector, primarily in the bulk chemicals, petroleum refining, and paper product industries. “Collectively, the energy-intensive manufacturing industries – bulk chemicals, refineries, paper products, primary metals, food, glass, and cement – produce about one-fifth of the dollar value of industrial shipments while accounting for more than two-thirds of delivered energy consumption” (Energy Information Administration, *Annual Energy Outlook Early Release Overview*, December 2008). These industries in particular are strong potential candidates for some serious savings.

Nominal energy prices for natural gas in the industrial sector are expected to be 32% cheaper in 2010 than in 2008 while electricity shows a steady increase going back to 1999 and leveling off in 2008.

Table 1. Nominal Energy Prices – Industrial Sector

Fuel	2005	2006	2007	2008	2009	2010
Natural Gas (\$/thousand cubic ft)	8.56	7.87	7.65	9.61	5.67	6.42
Electricity (Cents/KwH) – US Average	5.7	6.2	6.4	7.0	7.0	7.1

Source: Energy Information Administration, March, 2009

These projections are based on a series of assumptions that can easily change based on world events, legislated requirements, and economic developments. For example, there is uncertainty about the impact on energy prices of greenhouse gas (GHG) legislation, assumed carbon dioxide (CO₂) allowance fees, and the impact of Renewable Portfolio Standards as more green energy is required. In general, these influences tend to push the pricing up. However, one thing is very clear: electricity in the industrial sector is not getting any cheaper!

Is Cash King?

One of the challenges we hear from industrial energy managers is the inability to get management to recognize that energy efficiency projects are not the same as other capital budget projects. Choosing the right financial metric to use when management is evaluating whether or not to install energy efficiency projects can make the difference between installing now and postponing the project. Competition for capital dollars is always strong, especially during a recession. If traditional financial metrics are used to evaluate an energy efficiency project against other capital projects, the utility budget savings (avoided costs) may not be given its due consideration. Perhaps the most frustrating reason for delaying energy efficiency projects is hearing that "it's not in this year's budget."

The reality usually is, however, just the opposite! Management may be focused on only looking at the capital budget, not realizing that its bloated and inefficient utility budget may be trimmed; and, that such “trimmings” (savings) can be used to pay for energy efficiency equipment improvements.

The questions you need to consider are: how can you access these operating dollars without conflicting with the company freeze on capital spending? (Answer: finance the energy efficiency project.) And, how do you deal with the financial folks who are using a traditional financial evaluation metric like “Return on Investment” or “Internal Rate of Return” and conclude that other projects are “a better deal”?

The answer to the metric question is: focus on the project's positive cash flow and not on its Return on Investment! There is no question that Return on Investment (ROI) and Internal Rate of Return (IRR) are excellent evaluation tools to use when prioritizing how limited capital budget dollars should be spent. Clearly, the dollars should be invested in the projects that provide the “biggest bang for the buck.” However, ROI and IRR do NOT properly reflect the *avoided costs* that occur when installing energy efficiency projects. In other words, unless the operating dollars saved by the installation of the new systems are being picked up in the calculation, the energy efficiency project may be inadvertently penalized by its greatest benefit – improving the organization’s cash flow!

ROI and IRR both imply taking cash on hand (the capital budget) and investing it in a project. One advantage of energy efficiency projects is that they can be financed, and the financing can be structured so that the *monthly payment is less than the energy savings realized*. So, if you are investing the lender’s money and paying it back by writing checks to the lender instead of the utility, could you make an argument that the ROI or IRR is *infinite*?! In reality, energy efficiency projects do not have to compete with other capital budget projects, so why not do both? We have all heard the saying “have your cake and eat it too” – installing energy efficiency projects gives you the chance to do this!

Let’s do some simple math: if installing energy efficiency improvements in the facility will reduce the utility bill by \$20,000 a month, and the cost of a 60 month financing is \$15,000 a month, then by installing the equipment you will have generated \$60,000 a year of positive cash flow (\$5,000 for 12 months)! If you really wish to underscore the cash impact of this installation, you could say that, based on current load and cost per kWh, our hypothetical project will generate \$300,000 of available cash savings within the first five years, after which it will generate \$60,000 per year, and all without your company “investing” a dime! If the equipment is a proven technology and has a ten year useful life, this will generate over \$600,000 positive cash flow during its life. And, as utility rates go up, your savings will increase accordingly. Bonus depreciation, investment tax credits, and deductions make the numbers even better.

According to US EPA ENERGY STAR statistics, most organization utility budgets contain up to 30% wasted or underutilized energy. Why not use part of these wasted expenditures on financing the improvements? In spite of the tight credit markets, funds are still available for energy efficiency projects from state programs, local lenders, and leasing companies. Many organizations choose to work with energy service companies (ESCOs) using energy performance contracting (guaranteed savings agreements in particular), while others prefer to manage and finance the efficiency project on their own. Whether you use an energy performance contract or self manage the project, leases or loans are popular ways to finance the project. Equipment leasing, long referred to as “creative financing,” can be structured to

accommodate cash flow and tax strategies. As long as the energy savings are greater than the financing costs, you have a successful strategy.

A recent article in *The Wall Street Journal* asked “Is Cash King Again?” We think it is, and projects that can demonstrate “positive cash flow” are very likely to receive careful management consideration.

ENERGY STAR[®] Tools and Resources

EPA’s ENERGY STAR program offers a proven strategy for superior energy management with tools and resources to help each step of the way. Based on the successful practices of ENERGY STAR partners, EPA’s “Guidelines for Energy Management” (available at www.energystar.gov/guidelines⁴) illustrates how organizations can improve operations and maintenance strategies to reduce energy use, and maintain the cost savings that can be realized by financing energy efficiency projects. EPA has sponsored hundreds of presentations (in person and on the Internet) on ENERGY STAR tools, resources, and best practices for organizations struggling with the challenge of making their buildings more energy efficient. Some of the most common statements from participants are, “We don’t have the money needed to do the facility upgrades in our budget this year” or “These projects do not meet our minimum payback threshold.” These sentiments are simply not correct because, as previously mentioned; the needed funds are sitting in the utility operating budgets and being doled out every month to the local utilities. Organizations merely require a way to capture and redirect these “wasted energy” funds to pay for the energy efficiency projects which will, in turn, create real savings.

Fortunately, EPA has created a number of tools and resources that, when properly used, will allow you to find a path toward the timely implementation of energy efficiency projects. In particular, the Cash Flow Opportunity Calculator, which is in the public domain and available at no cost at www.energystar.gov, is helpful when evaluating and planning projects.

The Cash Flow Opportunity Calculator (“CFO Calculator”) has proven to be a very effective tool, in both public and private sectors. This set of spreadsheets, built on a Microsoft Excel[®] platform, helps create a sense of urgency about implementing energy efficiency projects by quantifying the costs of delaying the project implementation. It was developed to help decision-makers address three critical questions about energy efficiency investments:

1. How much of the new energy efficiency project can be paid for using the anticipated savings?
2. Should this project be financed now, or is it better to wait and use cash from a future budget?
3. Is money being lost by waiting for a lower interest rate?

Using graphs and tables, the CFO Calculator is written so that managers who are not financial specialists can use it to make informed decisions, yet it is sophisticated enough to satisfy financial decision-makers.

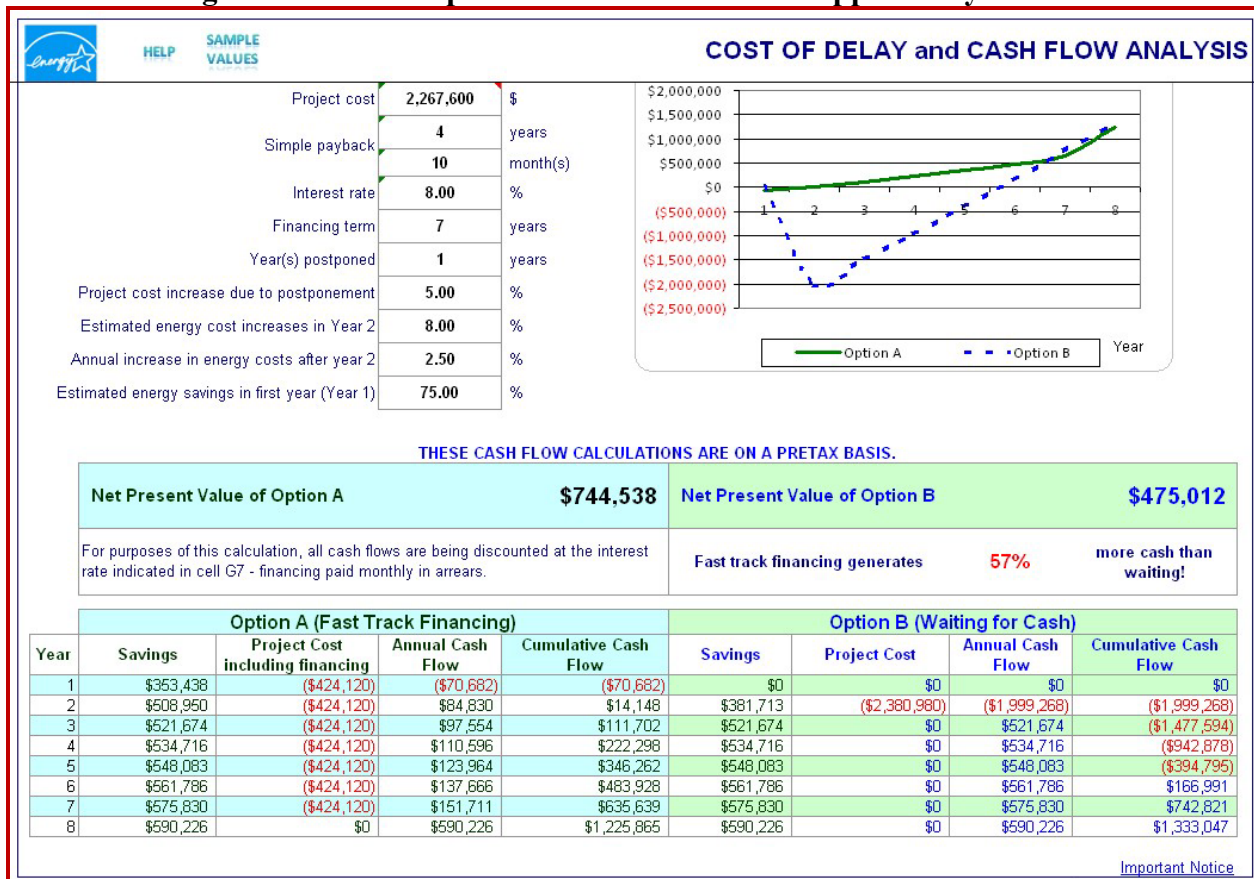
To determine how much of the new project can be paid for using your anticipated savings, the CFO Calculator takes a practical look at your energy efficiency situation and financing opportunities, providing answers to some critical financial questions in just minutes. The first step in the process is to estimate the amount of the savings that can be captured from

⁴ Information about ENERGY STAR’s tools and resources has been provided by US EPA ENERGY STAR. For more information please refer to their web site

the existing utility budget. The working assumption is that these savings will be used to cover the financing costs and that the savings will recur. The savings amount is entered into a “reverse financial calculator,” which asks for an estimated borrowing interest rate, financing term, and the percentage of the savings to use. It then calculates the amount of project improvements that could be purchased by redirecting these energy net savings to pay for the upgrades. Most organizations are surprised to learn how much new equipment and related services are “buried” in their utility bills, all of which could be installed within their existing operating budget, and without spending their limited capital budget. The related services often include the initial energy audits that many feel they cannot afford, but are necessary to quantify the savings opportunity. When future energy savings are the main source of the project’s repayment, the CFO Calculator becomes an effective sensitivity analysis tool that takes into account the impact of lower interest rates, longer financing terms, and utilization of savings when structuring the project’s financing.

A while back, the “see how much money you are leaving on the table” argument was made to the CFO of a large client in the Northeast on behalf of the local electric utility. The CFO responded that the project was not in the current budget. Being fiscally conservative, he believed that waiting until funds were available in a future operating budget (thereby avoiding borrowing and paying interest), was in his organization’s best interests. The CFO Calculator was used to map the cash flow consequences of these two decision points (financing now or waiting until a future budget) to demonstrate to the CFO that *financing now* was a better financial decision than waiting for cash (see Figure 1 below).

Figure 1: Screen Capture from the Cash Flow Opportunity Calculator



Source: ENERGY STAR's Cash Flow Opportunity Calculator

In most instances, the lost energy savings incurred by waiting for one year are greater than the net present value of all the interest payments of most financings, making “do it now” the better financial decision. This is counterintuitive and surprises most decision-makers. Today, this organization supports the expeditious implementation of energy efficiency projects.

Another common argument for delay is waiting for a lower interest rate offering rather than financing at a higher rate that is available immediately. This situation may occur when waiting for funds from a future bond issue or for a low-cost specialty fund to replenish itself, versus accepting an immediately available third-party financing offering. The CFO Calculator compares two different interest rate offerings, and it will compute how long you can wait for the lower interest rate before the lower rate begins to cost more. It does this by including the forfeited energy savings into the decision making process – truly, another “cost of delay.” This calculation was used by a Fortune 50⁵ company when deciding whether to wait to install an energy efficiency project until lower cost internal financing became available, or to use immediately available third party financing at a higher interest rate. Once the facility's improved cash flow was demonstrated, the company proceeded at the higher rate.

The American Recovery and Reinvestment Act and Energy

The American Recovery and Reinvestment Act of 2009 (“ARRA”) will make your energy efficiency and renewable energy projects more attractive as it is anticipated that over \$20 billion in tax credits and direct spending will be made on energy projects over a ten year period. Renewable energy projects will be able to capture Investment Tax Credits or Production Tax Credits, which when combined with any local incentives, greatly improves the economics of these projects.

A depreciation bonus equal to 50% of the value of qualifying equipment⁶ being installed during 2009 is available, in addition to accelerated depreciation schedules on renewable and energy efficiency projects. With depreciation benefits as well as tax credits going the owner of the equipment, financing energy efficiency projects using a loan or capital lease allows the user to capture of these benefits, in addition to having the operating savings cover the financing costs.

Sales Drive the Organization

Improving your company's profitability is always important, no matter the state of the economy, and increasing sales and cutting costs are the traditional ways to achieve this goal. With energy efficiency projects, a dollar saved from the operating budget drops directly into the Net Profit line on your Income Statement.

Increasing sales is important, albeit more difficult to do in a down economy, while implementing energy efficiency projects may be easier to do. Interestingly, energy efficiency benefits can be translated into sales equivalents, which differ by industry. For example, let us assume that last year the Surgical and Medical Instruments and Supplies Industry (North American Industry Classification number 339112) generated an average net profit before tax of

⁵ This financing was provided by Catalyst Financial Group, Inc. however customer has not given us permission to publish the details of this transaction.

⁶ Bonus Depreciation gets reduced after \$800,000. See your tax advisor for more information.

approximately 7.0%, meaning they would have to sell \$143,000 worth of equipment every month to generate \$10,000 of profit. Installing energy efficiency equipment that saves \$10,000 per month would have the same bottom line impact as taking an order for \$1.7 million of new equipment to be delivered over one year. Table 2, Sales Equivalents of \$10,000 per Month of Energy Savings will give you an idea about some indicative numbers by industry:

Table 2. Sales Equivalents of \$10,000 per Month of Energy Savings

Industry	NAICS #	Net Profit Before Tax	Annual Sales Equivalent
Petroleum Refining	324110	6.0%	\$2,000,000
Plastics Material and Resin Manufacturing	325211	5.0%	\$2,400,000
Paper Mills	322121	2.25%	\$5,333,000
Restaurants – Fast Foods	722211	2.0%	\$6,000,000
Automobile Dealership	441110	1.0%	\$12,000,000

Source: Interpreted from The Risk Management Association, Annual Statement Studies, 2008-2009

It is unlikely that management would turn down new sales orders in any economy. In today's difficult economy, translating the economic benefits of installing energy efficiency projects into product sales will underscore energy projects bottom line impact.

Energy Efficiency Is a Good Business Decision

ENERGY STAR has hundreds of success stories about how implementing energy efficiency projects have contributed to an organization's profitability. In fact, nearly 30 percent of Fortune 500 companies are ENERGY STAR Partners. Some examples include Ford Motor Company, who made ventilation and other energy and water savings improvements in their World Headquarters, reducing energy costs by about 9%. Ford also revised their manufacturing processes to incorporate energy savings measures, resulting in an additional 13% savings. Best of all, they used the energy savings to finance the improvements. Frito-Lay, owned by Pepsico, Inc., implemented lighting upgrades in their 96 distribution centers and 16 snack food production plants across North America savings saving \$2.2 million. To read more about these and other individual manufacturing and industrial companies' successes, please see go to http://www.energystar.gov/index.cfm?c=industry.bus_industry_spps.

In conclusion, using the improved cash flow resulting from the installation of energy efficiency projects is a good defensive recessionary strategy. When capital budgets are tight, seeking financing from third party lenders should be considered. While many traditional lenders are holding onto their cash, effectively increasing borrowing rates, higher interest rates usually has a surprisingly small impact on efficiency projects because they may only push the simple payback out by a couple of months. In addition, state energy offices, community banks and leasing companies may be viable sources of capital. Financing can be structured to allow a percentage of the savings to pay for the projects. In effect, not installing efficiency projects is a decision to continue to pay the utility for underutilized and wasted energy rather than investing potential savings in the facilities.

Many organizations use ROI and IRR thresholds to prioritize capital projects. Unfortunately these tools do not sufficiently value the cash flow benefits that energy efficiency projects provide. The ENERGY STAR program has developed numerous tools to help

organizations improve their efficiency efforts. The Cash Flow Opportunity Calculator, downloadable from www.energystar.gov, monetizes the cost of delaying these projects and is an effective sensitivity analysis tool to use when evaluating energy efficiency projects funding alternatives. Relating the bottom line impact of energy efficiency savings to sales equivalents (in other words, equating dollar sales needed to derive the same net profit as an efficiency project) can be an effective tool when evaluating energy efficiency projects. In addition, today's federal tax and other local incentives greatly improve the economics of the project. The value of energy efficiency improvements increases in line with energy cost increases, making them good short, medium and long term strategies. And, reducing your energy consumption is the first step in greening your organization and the environment.

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