

Saving Energy Makes Dollar\$ and Sense



By Tony Kriel
PE, LEED AP®
SCS Engineers

Businesses can realize a significant improvement to their bottom line by reducing operating costs, and one way cost reduction can be accomplished is through energy efficiency upgrades. This is particularly true in an industrial environment.

Energy cost savings directly impact the bottom line and can translate into an increase in profit margins. For example, by conducting a retro-commissioning (RCx) project to optimize your facility's mechanical systems, annual energy cost savings of 5 percent to 15 percent can be realized. The up-front costs of the RCx project are generally recuperated within two years.

To help realize these financial benefits, here are some general tips that demonstrate why saving energy makes financial sense.

Cost and Revenue

Let's start with a simple example. Say a company has a net profit of 5 percent and they would like to increase their net profit. There are generally two ways to do this: either increase revenue or decrease costs.

If your business were to look at reducing costs by implementing an energy project, that would save them \$1,000 annually. This would be equivalent to otherwise earning an additional \$20,000 in revenue

$(\$1,000/0.05 = \$20,000)$. An energy efficiency project of this type has the same impact on profits as increasing sales 20:1.

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Net-Positive Cash-Flow

If the energy project has a return that is greater than the borrowing rate, then you can finance the project and you may improve cash flow, with relatively little risk. Let's say a business finances an energy project with a \$100,000 loan for 15 years at an interest rate of 10 percent. Your business has no up-front cost, but pays ~\$13,100 each year for 15 years. The energy project you were considering was calculated to generate ~\$14,900 each year in annual energy cost savings. Since the energy cost savings are greater than the financed payments, the project exhibits a net-positive cash-flow of \$1,800 annually with no upfront costs.

Simple Payback and IRR

Simple payback is an important financial consideration under many circumstances, but should be looked at in conjunction with Internal Rate of Return (IRR). If an energy project has an IRR that is greater than your business's profit margin, energy cost savings projects are where you should invest money.

For example, if a business has determined they will consider energy projects that have a 2.0 percent return above their net profit of 4.0 percent (i.e. IRR >6.0%), an energy project with a lifespan of 20 years and an IRR of 6.5 percent fits their financial goals.

In this scenario, the project's simple payback has no real relevance as the goal to return an established minimum IRR was met. Had the company insisted on a 2- to 3-year simple payback, an opportunity which could have far exceeded their financial expectations would have been overlooked.

Penalty vs. Reward

Consider looking at energy costs differently from how they may be currently viewed. Energy savings realized from a potential energy project are conversely an existing waste stream (a penalty). By doing nothing, the continued consumption of the excess energy continues to drain your operating cash every month. Reducing energy costs and eliminating energy waste can add to the efficiencies of a business' operations.

Energy Savings Opportunities

How can you realize the benefits of energy and cost savings, without knowing where to turn next? The first step under the umbrella of energy management is to perform a formal study to identify energy savings opportunities. This is accomplished through an Energy Assessment.

The Energy Assessment looks at how energy is currently being consumed at your facility and, through the formal process, will provide you with the fundamental knowledge you need to make the case for implementing energy cost saving projects. From there, you can work with the decision makers to make energy savings a priority in your business.

Below are a few ideas that may make sense for your business:

- Consider replacing outdated lighting equipment. New lighting systems can be a fast and extremely efficient way to save energy and money.
- Conduct a compressed air audit and a compressed air leak survey to save on one of the most inefficient systems in your facility.
- Discover significant energy savings by assessing your process heating and cooling systems. Different forms of energy recovery might be suitable for your process systems and they can really help reduce your energy costs.
- Work with a Retro-Commissioning (RCx) consultant and focus on the heating, ventilation and air conditioning (HVAC) systems. Upgrading or properly controlling the components can be a very effective way to reduce energy costs.



Building system performance can decline and energy consumption can increase over time, even when routine maintenance is performed on equipment. However, you can increase productivity, improve work environments, and reduce maintenance costs all while saving money by conducting an energy assessment and investing in the discovered energy savings opportunities within your business.

Tony Kriel is a Professional Engineer at SCS Engineers with more than a decade of experience specializing in energy projects. He is a Sustaining Member Representative in SAME and has been a Member of ASHRAE for 10 years. His project experience includes energy audits and assessments, commissioning, retro-commissioning, energy modeling, renewable energy technology analysis, and geothermal design. For more information, contact Tony at tkriel@scsengineers.com or Sam Cooke at scooke@scsengineers.com.

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