

Maximizing Your Energy Dollars

A Strategic Approach to Energy Management

Statoil Energy, Inc.

Editor's Note: This article, which originated as a "White Paper" by Statoil Energy, is aimed at energy managers. For newer entries into the energy field, it gives the basics of how energy management can be planned. For those with experience, it summarizes the ways to keep up with, or help direct, corporate leadership's expanding awareness of the need for better energy management. And consultants or ESCOs can gain insight into customer/prospect awareness of the changing energy marketplace.

ENERGY MANAGEMENT DEFINED

Energy management is a comprehensive approach to the overall energy requirements of an organization. An energy management program is designed to minimize energy costs, obtain reliable energy supply, reduce internal resource requirements, identify opportunities for efficiency and apply energy expertise to business challenges—all under one umbrella strategy.

INTRODUCTION

Energy management pays. And it pays considerably. Companies with comprehensive energy plans report 20% savings. Historically, most company executives left the energy decisions in the hands of the plant managers or procurement departments. But as the financial

stakes rise and the energy issues become more complex, corporate executives are beginning to engage in the decision-making process. Two years ago, research indicated that only 32% of the energy decisions were made at the corporate level. Recent research reveals that the number has increased to 48%. In addition, another 8% expected the decision to move to corporate within the next three years.

Since energy is a new area of focus, many executives are just starting to familiarize themselves with the critical components of an energy management program. Time is of the essence. If your company is failing to address energy from a strategic perspective, it risks ending up with a cost disadvantage against its competition. Organizations have long embraced strategic planning in other areas of the company—now is the time to address energy strategically as well.

Embarking down the path of strategic energy management, however, can be overwhelming. Many people have significant questions about this burgeoning trend. In this article, we answer some critical questions concerning energy management. Are the choices too endless and complex to have real benefit? Are large companies the only ones with the time and resources to devote to energy management? Do small companies really gain from adopting a total energy management plan?

This report is designed to walk you through the initial steps of an energy management program. It can serve as a guide for your company as you develop your strategic direction in a changing energy marketplace. Before you set your objectives, however, you need to determine your company's current energy management IQ. The following quiz will help you assess how well your company is positioned relative to other large energy users. Once you know your starting point, the rest of the report can help you reach your ultimate destination: unprecedented savings.

ENERGY MANAGEMENT IQ QUIZ™

Check all that apply

- My company purchases its natural gas and electricity for 12 months or more at a time.

- My company understands and utilizes risk management products to take advantage of market movements.
- My company knows what percentage of its operating budget is spent on energy.
- My company has a strategic energy plan.
- If electric choice is available, my company is participating.
- My plant has undergone a thorough energy review within the past two years.
- My boilers and chillers are compliant with the Clean Air Act.
- My company has had a lighting study performed within the past two years.
- My company has reviewed the economics of cogeneration based on current market conditions.
- My company understands the advantages of having alternate fuel capabilities.
- My company has been taking proactive steps to prepare for electric deregulation.
- My company uses advanced metering technology and control devices to monitor usage.
- My company has considered consolidating its energy purchasing across all of its facilities.
- My company is monitoring and influencing the electric deregulation process.
- My company has investigated outsourcing some or all of its energy management to reduce its energy expense.

SCORE: 1 point for each checked item.

- 14-15 Your company is very advanced from an energy perspective and well positioned for the future. There may still be a few latent opportunities for savings.
- 11-13 Your company is ahead of most companies, with room for improvement to ensure a competitive advantage in your industry.
- 6-10 Your company falls in the same range as most other companies. Scores in this range typically reflect the lack of a comprehensive strategic energy plan. Lack of attention in this area could result in higher operating expenses than your competitors.
- 0-5 If your company falls in this range, it may be very tactical and

short-term focused in its approach to energy. It is time to take a step back and identify your goals for energy management within your company. You are most likely missing out on significant savings opportunities.

METHODOLOGY

It is often advantageous to divide a challenge into easy-to-manage components rather than tackling all elements at once. Because energy management is complex, developing a customized energy solution can seem daunting. A systematic approach makes the challenge far less intimidating.

Rather than offer a uniform narrative of energy management, this report will identify each vital component of the process separately. As the discussion progresses, you will begin to see synergies develop among the parts.

The following list contains the key items to consider and a recommended order of approach that considers both the short- and long-term payoffs. These issues will form the basis of the discussion in the pages to follow.

- Establish a strategic plan
- Review your purchasing strategy
- Analyze current utility tariffs
- Perform an energy review for efficiency opportunities
- Review consumption patterns
- Evaluate on-site generation
- Consider alternate fuels
- Investigate advanced technologies
- Analyze consolidated billing data
- Monitor electric deregulation
- Explore partnering for energy management

STEP-BY-STEP GUIDE

Establish a Strategic Plan

Most companies are just beginning to think about energy in strategic terms. To ensure success, you should approach your energy de-

cisions with the same strategic thought that you devote to other key business decisions such as information systems and raw materials acquisition. As a first step, you must identify goals for energy. Since, like most companies, you may not have thought of energy in strategic terms before, a few questions may help to bring some clarity to this point.

- How does your energy bill impact your bottom line?
- Do you have a fixed dollar amount allocated to energy?
- Do you want to achieve a certain percentage of cost of goods sold?
- How does your energy bill reflect your operations?
- Does your capital plan include money for energy conservation projects?

While these are very basic questions, many companies—large and small—have yet to consider them. These questions should not be answered in a vacuum. Information and participation is needed from all levels of your organization from the executive suite to the manufacturing plant. For example, a plant manager may be focused on beating last year's annual energy expense, while the chief financial officer may be more concerned with achieving a consistent monthly outflow of cash. An energy strategy developed for only one of these stakeholders would differ from that developed for the other. By understanding all parties' objectives, a plan can be developed to achieve everyone's goals.

Review your Purchasing Strategy

Natural Gas

Your company can often achieve a quick victory by reviewing how it purchases natural gas. Although it has been shown time and time again that a long-term purchasing strategy outperforms month-to-month purchasing, some companies continue to purchase monthly or purchase annually with month-to-month pricing. Why would your company purchase monthly? The answer may lie in the appeal of playing the market. Yet, even for the experienced, this can be a risky proposition requiring both expertise and constant attention—resources that would be better spent on more productive endeavors in the

company's core business efforts.

Purchasing a commodity for the long term requires setting financial objectives (e.g., my company never wants to pay more than \$3.50 per decatherm for natural gas). It also requires understanding your company's tolerance for risk. Once these are identified, customized products, services and pricing can be developed accordingly.

The most common pricing arrangements are fixed and index. Fixed pricing provides one price for an agreed upon length of time. Index pricing ties the purchase price to a published index such as the New York Mercantile Exchange (NYMEX) or an industry publication pricing report (e.g., *Inside FERC*).

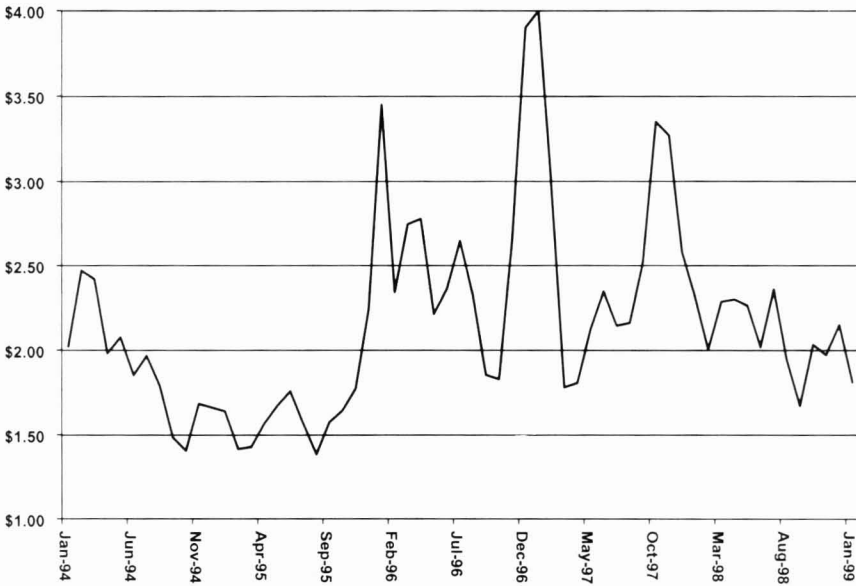
A new pricing strategy gaining in popularity is "triggering." Under this pricing arrangement a company agrees to purchase its energy commodity for an extended period (e.g., two years) in order to capture low prices in the market. The company selects pricing targets during the term of the contract. If the market price hits the targets during the specified time frame, the triggered prices become the contracted prices; if not, the price defaults to an agreed upon published index. One thing is certain about the natural gas market—it will go up and it will go down. This pricing method takes advantage of market volatility by allowing customers to purchase when the market dips.

Electricity

Today, there are only a handful of states where companies can choose their electricity supplier. In those states, companies are reporting being approached by an average of 15 different electric suppliers. A frustration cited by many early market participants is the inability to compare offers on an apples-to-apples basis. Identifying an energy company whom you can trust to sort out the issues and help navigate this turbulent environment will be essential.

If your company is not fortunate enough to have customer choice, there are some steps that can be taken to prepare for the new, deregulated world. Keeping up to speed on the deregulation process for your area will help you prepare. Another primary form of preparation is gathering detailed energy usage information. Understanding usage patterns will be critical to maximizing savings. It is not too early to begin preparing to gain a competitive edge.

**Natural Gas NYMEX
Expiration Price Per Month
January 1994—January 1999**



Analyze Current Utility Tariffs

Each utility has its own pricing schedules (tariffs) that are assigned based on a variety of factors including type of customer (e.g., residential, commercial, industrial) and amount of usage. The tariffs are often very difficult to understand for individuals who do not deal with them as part of their day-to-day job. As businesses evolve, little attention typically is paid to reviewing the tariffs to ensure they are still appropriate. Your company could be on a tariff that is no longer the most advantageous for you. This is an often-overlooked savings opportunity.

Perform an Energy Review for Efficiency Opportunities

Like all other products, your energy costs are a function of your consumption and your price. Lowering prices is only half of the equation. To identify opportunities for reducing energy consumption, plants should undergo an energy review and a site visit by a quali-

fied energy engineer. The review will examine energy-use patterns and energy-related equipment such as boilers, chillers and lighting fixtures in order to recommend areas for cost improvements. A review of the equipment manufacturer, age and physical condition can highlight some quick opportunities for savings.

Review Consumption Patterns

A review of the electric bills will determine a customer's usage profile. A flat profile indicates that a customer uses approximately the same amount of electricity all of the time. A peak profile indicates the customer has usage spikes that can result in a premium charge applied to its account. If usage spikes are identified, your company should investigate the processes that led to the spike. By making some minor changes, you can keep from experiencing premium charges. At the most basic level, your company may be able to stagger the time that some of its equipment comes on line, thereby minimizing the chance of hitting a peak demand level. In addition, the actual processes can be reviewed for alterations that would minimize energy consumption—and save money.

Evaluate On-site Generation

An alternative to purchasing your power from a utility or energy supplier is to generate it yourself. On-site power generation for all, or part, of your company's energy requirements can result in per unit energy costs that are below even the best offers from a supplier. Many companies investigated this option during the energy crises of the 1970s. The economics of energy have changed dramatically since that time.

There are three main drivers in the economic equation that will determine if on-site generation makes sense for a company: usage profile, overall consumption and types of energy used. Your company might consider working with an energy supplier to identify requirements and perform a feasibility study. (Most utilities do not view on-site generation favorably, as it results in a large loss of income.)

While some companies are embarking on the construction of on-site generation facilities, others are now choosing to divest themselves of their existing facilities. These companies are typically satisfied with their significantly reduced energy rates, but are no longer interested

in the day-to-day management of the facility. The divestiture of these assets is consistent with the business trend of focusing on core competencies. Energy companies view the ability to acquire or manage these facilities as an opportunity to leverage their intimate knowledge of the energy market. They can provide all of the required supply to the divesting company at a guaranteed low rate and sell the excess capacity in the marketplace. The two most common arrangements are: 1) the outright purchase of the facility and; 2) a long-term agreement to manage the generation asset. The first is particularly attractive to many companies as they can remove a depreciating asset from their balance sheet and reinvest the capital into their core business.

Consider Alternate Fuels

Alternate fuel capabilities are very important for many companies. For some facilities they can provide the energy for normal operations while for others they serve as a back-up energy source. If your company has the ability to use multiple fuels to run its operations, you may be able to choose which fuel you want to consume based on comparative market pricing.

Alternate fuel as a back-up system is particularly prevalent in the northeast U.S., where natural gas curtailments are part of a typical winter. Without an alternate fuel supply, company operations could be in jeopardy. Another major benefit of installing an alternate fuel source lies in your company's ability to purchase its commodity on an interruptible (vs. guaranteed) delivery basis, which yields notable savings to the company. Additionally, an alternate fuel supply could allow your company to participate in an energy recall program offered by many energy suppliers. In times of escalating natural gas prices, you could choose to sell your contracted supply of natural gas into the market for a substantial profit, while using alternate fuel as a back-up power supply.

Investigate Advanced Technologies

Energy professionals agree that one of the most critical elements to a successful energy program is a thorough understanding of energy usage patterns. If you are able to provide energy suppliers with detailed usage data, they will be able to develop tailored products and services to maximize your savings opportunity. Most companies today

rely on standard meters to provide their usage data. As in all industries, technology has been rapidly developing in the energy world.

Advanced technologies can review real-time usage patterns and identify when your company is getting close to passing a pre-determined usage threshold. Instead of allowing your company to exceed the threshold, the device will automatically instruct certain, previously identified pieces of equipment to shut down temporarily for a few minutes. This “smart meter,” or advanced control device, will also instruct the equipment to turn on again in a few minutes. It continues this monitoring constantly. It is an intelligent device and can predict when your company is approaching a threshold based on historical usage patterns, weather conditions, day of the week, time of day and other metrics that you provide. The application of this data can result in substantial savings.

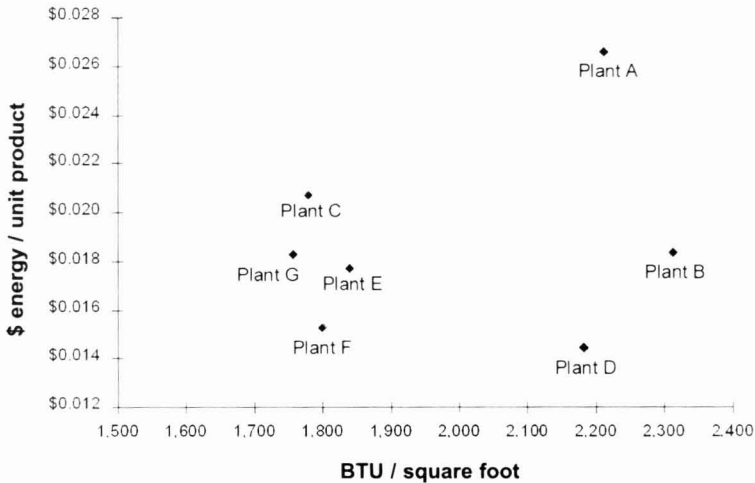
Analyze Consolidated Billing Data

One challenge facing many companies with multiple facilities is how to understand, in aggregate, how energy is being used throughout the organization. In response to this need, invoice management has emerged as a new product offering. You direct your company’s utility to send all invoices to your energy company. The energy company, in turn, puts all of the information onto one bill and performs individual and combined usage analysis for your company.

In addition to eliminating some of the nuisance associated with reviewing bills from multiple utilities for multiple facilities, your company also could reduce some of the accounts payable expenses associated with processing many invoices. The energy company pays all of the suppliers, while your company writes one check to the energy supplier.

Another major benefit of consolidating billing and usage information in one location is the ability to analyze energy consumption in any way your company deems appropriate. For example, your company can compare the energy efficiency of its plants against one another. By examining the amount of energy used by each plant to generate the same level of output, you could identify possible inefficiencies in operations at a specific plant. The example on the next page highlights such a situation. (Note the inconsistency demonstrated by Plant A.)

Physical and Financial Production Efficiency



Monitor Electric Deregulation

It is vitally important that your company be aware of the status of electric deregulation in the states where it operates. Your company must understand how the proposed legislation will impact its business. If your company is not participating as the new rules for competition are being written, it could be left out and left behind in savings opportunities.

The business implications of deregulation are large. For instance, two competitive companies can be just across the state line from one another. Both companies may be earning the same return on their investment. If one of the states adopts an aggressive strategy for the implementation of electric deregulation while the other takes a more conservative approach, the company in the deregulated state suddenly has a cost advantage over its competitor. This scenario is not hypothetical—it is happening today.

If your company is making decisions about new plants, it should also be sure to consider the state's progress toward open market competition before choosing a site. Most energy companies are actively involved in state deregulation activity and can advise you on the current deregulation landscape for states in which you are considering operating a new facility. Many companies are also consolidating facili-

ties. Clearly, energy deregulation should be considered here, too.

If your company has a government or regulatory affairs department, it should already be spending resources on this issue. If your company does not, it should rely on its energy supplier to help get up to speed. Energy companies also can provide advice on the best way to get your voice heard, whether it is through submitting comments to the regulatory body or writing a letter to state legislators.

Explore Partnering for Energy Management

A review of the many facets of energy presented in this document highlights the myriad issues and considerations facing the person responsible for managing energy in today's complex environment. This complicated circumstance has led some companies to investigate the outsourcing of some or all of these functions. They are finding that their resources are better spent on functions core to the success of their business and not learning new terminology and rules of a constantly evolving industry. This is particularly true for organizations examining their energy across multiple facilities—as the issues are only compounded. Companies involved in the energy business have the expertise, efficiencies, and economies of scale that allow them to perform the energy management functions better than companies that attempt to perform this function in-house.

Summary

Comprehensive energy management is a smart new way of looking at a very old budget line item. Companies with an eye on opportunity and an edge on the competition are changing the way they view energy purchasing. You have the opportunity to do the same.

Some of the items in this report may be on your list of priorities right now, but some may not. Those issues that you have not yet addressed could be having an unnecessary and undesirable impact on your bottom line. The good news is that investing the managerial time in smart energy management today can result in immediate savings.

This article is part of a special Statoil Energy Education Series, designed to help the marketplace stay abreast of current issues and trends that can help companies be more successful.

ABOUT STATOIL ENERGY, INC.

Statoil Energy, Inc., with annual revenues over \$3 billion, is one of the fastest-growing energy companies in North America. It is the largest owner of proven natural gas reserves in the Northeast; owns and operates power plants throughout the Northeast and Mid-Atlantic; and is one of the nation's leading traders of wholesale electricity. The company delivers natural gas, electricity and alternate fuels to more than 1,000 large industrial, institutional and commercial customers, adding value through a host of financial and consulting products and services, from energy use analysis to price risk management. Statoil Energy is part of the Statoil Group, one of the world's largest energy companies.

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