# The Changing Role of the Energy Manager

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ABSTRACT

The traditional energy manager has been primarily focused on the demand side management or energy conservation aspects of energy management. As a result, the energy manager's responsibilities were limited to finding energy conservation opportunities (ECOs), performing economic justifications, and submitting proposals to management for funding. In many cases, the ECOs had to compete with operational projects for capital funding or the energy manager had to be able to sell and manage a performance contract, a formidable task in itself.

In addition to the above requirements, today's energy manager must take on a much broader scope of responsibilities and authority to accomplish the objectives of an energy program. The past few years have made CEOs and CFOs aware of the importance of corporate energy management and its effect on the company's financial bottom line and stock valuation.

Today's energy manager must understand financial and physical energy risk management and be able to value corporate energy risk with regard to reliability and energy costs. Once the energy manager defines corporate risk, a plan must be developed to mitigate that risk through alternate energy sources, financial derivatives, and/or load management plans. These plans must take into account lost production costs and the possibility of future energy risks in the cost-benefit analysis.

From an implementation standpoint, today's energy manager must have the authority to make the end users of energy responsible for their energy consumption. The energy manager must also have direct input into the day-to-day decision making if the corporate energy program objectives are to be achieved.

## ENERGY SAVINGS vs. STOCK VALUE

A comprehensive energy management program will almost always result in a return on investment and improve cost competitiveness. This holds especially true for the energy intensive industries where a significant portion of overhead costs are attributable to energy costs. Energy cost savings go directly to the bottom line of the corporation and can equate to several multiples of sales revenue. For example, if a health care company's net profit is 7.8 percent and it was to implement an energy conservation measure that saves $50,000, that same company would have to generate over $640,000 in sales to achieve the same "bottom line" results. In fact, the stock price of a corporation has been shown to go up with just the announcement of corporate energy conservation projects.[1]

These facts and correlation would seem to make the decision to implement an energy management program or project an easy sell. Unfortunately, energy conservation projects tend to compete directly with other capital improvement projects from the maintenance and operations groups. The challenge for the new energy manager is to present energy conservation investment opportunities in CFO language, demonstrating the return on investment using whatever financial criteria is dictated by finance. This will require the energy manager to develop the trust and confidence of the corporate financial team. This is also very much to the benefit of the company in demonstrating wise investment of corporate funds and socially responsible leadership.

## A NEW ERA OF ENERGY ENGINEERING

For most, energy issues in the past have involved the basics of energy management actions that have included lighting modifications, ventilation control, facility management system controls, motor controls, etc. Now, especially with the growing interest/disdain regarding deregulation and its impact on utility costs, energy is again taking a center stage in many offices and boardrooms.

### Physical and Financial Risk Management

The new energy manager must now be able to assess and identify the source of risks inherent in the business and be able to measure the

impact of those risks on the financial statements of the company. This objective will now require the energy manager to be intimately aware of maintenance and operational concerns, production schedules, etc. to effectively understand the costs associated with loss of power (physical risk) and/or increasing power costs (financial risks).

Based on identified, measured, and valued risks, the new energy manager must develop risk management strategies that will meet the company's goals and objectives. Once the value of the risk has been identified, the energy manager can use this information to execute the appropriate strategy. It is easy to say, but much more difficult to value these risks.

Physical risk evaluation will value the cost of not having power or downtime. This value can then be used to justify physical risk management through back-up generation, cogeneration, fuel switching, natural gas storage, burying the electrical distribution lines, etc.

Financial risk evaluation will value the cost/benefit of using derivatives to hedge energy costs for firm delivery at fixed prices. In the past this was not a concern of the energy manager because there was no option for purchasing power. Even today's energy manager can transfer risk to the energy marketer, but it will come at a cost. The more risk the energy manager can take from the provider and manage, the better the price for power the energy manager will be able to negotiate. In addition to using derivatives, today's energy manager will also coordinate the demand side management activities to minimize consumption during periods of supply shortage and high prices. This will be discussed in more detail later in this article.

**Management's Aversion to Derivatives**

For that portion of the power that must be firm at a fixed price, derivatives can be a useful tool. But again the energy manager must be able to sell this concept to a potentially reluctant upper-level management team, especially since the financial debacles of Enron. Another potential impediment is the accounting rules applying to derivatives such as FAS 133 (Statement of Financial Accounting Standards No. 133). FAS 133 requires companies to recognize all derivative instruments as either assets or liabilities on their balance sheet, and to measure those instruments at fair market value. This rule has forced virtually every public company to revisit its derivatives accounting.

The new energy manager will be challenged to demonstrate the

value of energy derivatives to the financial managers of the company. "A successful hedging program coupled with the right derivatives accounting strategy transforms an uncontrollable risk into a strategic advantage. It allows companies to leverage those advantages over their competition, to handle compliance issues more efficiently, and spend more time running core operations and increasing profitability"[2].

## REAL TIME (SPOT MARKET) PRICING

In most cases, the best price for electrical power will be on the real time market, with the exception of short duration, highly volatile prices due to shortages or constraints. Therefore, it stands to reason that the more load that can be purchased on the real time (spot) market, the lower the overall price will be. But for those short duration, highly volatile price spikes, the energy manager will have to shed previously identified and isolated noncritical loads. The energy manager will now be required to coordinate the demand side program with the supply side program to minimize costs and maximize efficiency.

The strategies for managing cost are limited only by the energy manager's imagination. A few of the many strategies include load shedding, load scheduling, load shifting, fuel switching, and cogeneration. The challenge for the energy manager is to maintain close coordination with operations and maintenance to ensure there are no adverse ramifications for production or productivity. It will require a close working relationship with the management of maintenance and production and a strong buy in from top-level management including the CEO and CFO.

## TOTAL ENERGY ASSET MANAGEMENT (TEAM)SM

The URS Corporation has utilized the term TEAMsm (Figure 1) to represent the new era of energy management. The TEAMsm approach captures the variety of approaches that should be considered in the development of a comprehensive energy management program. The primary purpose of using this approach is to insure that great opportunities are not missed, or worse yet, compromised by actions taken in another area. The following are the key links in the value chain that represents the TEAMsm concept.

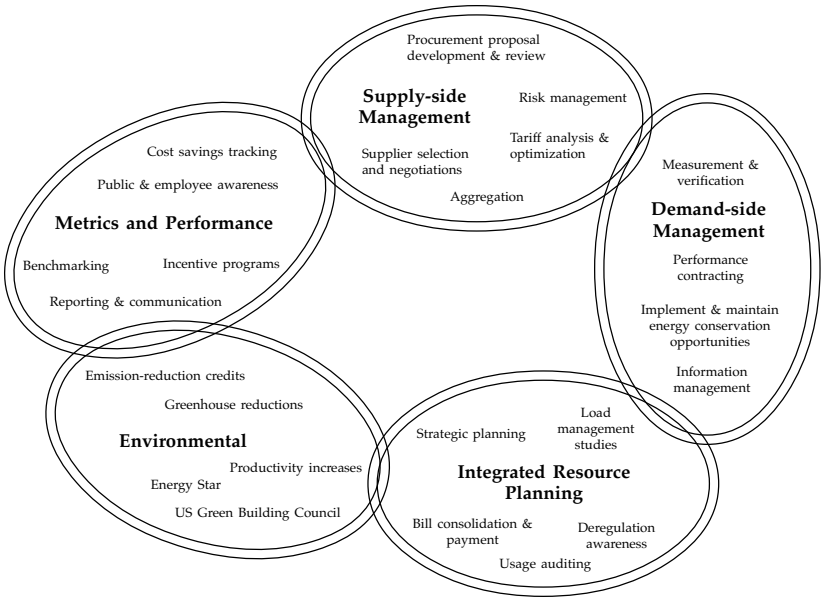


**Figure 1. Total Energy Asset Management Value Chain.**

- Strategic energy management
- Integrated resource planning
- Demand side management
- Environmental
- Metrics and performance

**Strategic Energy Management (Supply-side management)**

This is probably one of the newest areas (certainly the most expanded area) to be added as a standard part of a comprehensive energy management program. The roots of this section go back to the rate and tariff analyses that were performed prior to deregulation. However, now even rate and tariff analysis has taken on an increased responsibility to insure the best end result for energy management programs.

In a deregulated environment, this area concentrates on finding ways to reduce the cost of energy. Potential savings can range from a nominal amount to twenty percent or more. This all depends on the specifics of the location including load factor, usage, vendor, risk management features, etc. This area includes the following processes, projects, and services:

- Supplier selection and negotiation
- Financial and physical risk management
- Tariff analysis and optimization
- Aggregation analysis
- Real time pricing

**Integrated Resource Planning (Often the link between supply-side and demand-side management programs and other asset management functions)**

Integrated resource planning (IRP) is one of the foremost management practice leadership concepts for bringing together various cost saving opportunities in one program. With the increased ability to consider supply-side management options, the link to demand–side management practices has become more important. This has also many times required the financial divisions of an organization to coordinate projects with the facility's services divisions. The projects and services in this area include:

- Bill consolidation
- Load management studies
- Strategic planning
- Deregulation awareness
- Usage auditing

**Demand Side Management (Traditional energy management practices)**

This practice area includes many of the traditional services performed for energy management programs. The scope of work typically involves controlling equipment and/or replacing equipment and/or systems with more energy efficient options. Projects may include:

- Chilled water equipment, systems, and distribution
- Boiler equipment, systems, and hot water and/or steam distribution
- Building envelope
- Control/facility management systems
- Electrical distribution
- Lighting
- Ventilation/air handling systems
- Production equipment

**Environmental (The extended impact of energy on the environment)**

This topic includes the impact on energy programs as a result of environmental programs or vice versa. Many environmental projects can be enhanced through the development of energy management programs. Of great interest is where facility equipment and systems improvement options can have a significant impact on reducing pollution and energy costs. The projects to be considered include:

- Emission reduction programs
- Greenhouse gas reductions
- Productivity increases
- US EPA programs including Green Lights and Energy Star
- US Green Building Council

**Metrics and Performance**

This topic represents many of the management functions that deal with the measurements, public relations, planning, reporting, and goal setting activities related to the development of energy management programs. Without this section, the ability to adequately measure results and plan for future projects is minimized. Most importantly, the ability to develop a long-term program is compromised or at worst, doomed to failure. These projects include:

- Cost saving measurements
- Public and employee awareness programs
- Benchmarking
- Incentive programs
- Reporting systems

## FINANCIAL ALTERNATIVES

There are generally three ways to finance energy conservation measures. These are internal capital funds, lease/purchase, and shared savings or performance contracting. In general, a capital investment in the energy conservation measure will result in the highest return on investment, but the funds may not be available. If corporate funding is not an option, then the second best return on investment would be

through lease/purchase financing through third party financing. If neither the capital purchase or lease/purchase options are available to the energy manager, then performance contracting would still be better than foregoing the upgrades. If performance contracting is the financing of choice, the energy manager must understand and work through numerous administrative issues to make the program work.

The new energy manager will have to understand the corporate investment criteria and financial alternatives if he or she is to effectively implement energy cost saving measures.

## CONCLUSION

The new corporate energy manager will have a new level of corporate responsibility that will have a significant effect on the company's bottom line and indirectly on the company's stock value. He or she will have to understand the financial alternatives available to him and be able to communicate the value of life-cycle costing to corporate financial personnel.

Due to the expanded scope of the new energy manager's responsibilities, he or she will have to be able to leverage their resources through team development internally and externally. The energy manager will constantly need to sell the energy program throughout the company and communicate the latest news to the team participants. In short, the corporate energy manager will be required to wear several hats such as project finance, risk management, communications, and program selling. To accomplish this job, the energy manager must have support from the highest levels within the organization.

**References**

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2. Emanuelsson, J. (2002) "Derivatives Accounting Compliance," Demystifying Derivatives Accounting, KIODEX Report, July 2002.

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## ABOUT THE AUTHOR

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