EnergyWindow
Strategic energy sourcing and management

PowerStrategy® Strategic Sourcing of Energy: Integrating Energy Procurement into Your Supply Chain Strategy

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The dramatic rise in energy prices demands that companies no longer ignore this operating expense line item, which often ranks among the top half-dozen. ISM surveys[1] show that this fact is not lost on purchasing and supply management executive; energy currently ranks first among their concerns in both non-manufacturing and manufacturing companies. Energy deregulation has created an opportunity for businesses to add electricity and natural gas procurement to their overall strategic sourcing program. Securing contracts through competitive energy markets can result in significant cost avoidance, the benefit of which flows straight to the bottom line.

Like many other service and material procurement activities, effective strategic energy sourcing involves chartering a team, analyzing spending, setting a strategy and priorities, identifying qualified suppliers (who are then asked to bid on requests for quotation (RFQs) for a company's energy supply needs) and managing a contract, the relationship with and performance of the supplier. But unlike traditional maintenance, repair and operational (MRO) purchasing, strategic energy procurement is a complicated process, involving not only the buyer and the suppliers (which differ from territory to territory), but also the local distribution company and state and/or regional governing entities. Energy offerings differ by state and territory within the state, prices fluctuate daily, and favorable purchasing conditions can come and go in the blink of an eye. Hundreds of data elements must be collected for each facility before suppliers can bid on its supply needs. Even an experienced energy buyer can easily devote more than several weeks to obtaining data, preparing RFQs, and reviewing bids for service to a group of facilities in one area — with no guarantee that the resulting contract will secure lower rates. All of these differences require adaptation of the strategic sourcing approach.

Despite the daunting complexities, strategic energy procurement is well worth pursuing. Companies that don't embrace it expose themselves unnecessarily to price spikes and financial risk. Putting a strategic energy sourcing plan in place as part of a broader strategic sourcing policy has many advantages, including reduced risk through diversification, greater predictability, and savings on one of businesses' top operational expenses — energy.

To assist procurement and supply management professionals in developing an effective energy sourcing strategy, the following discussion illustrates how energy procurement fits seamlessly into an overall strategic sourcing approach and which changes are necessary to make it effective for energy sourcing. For facility or energy managers, it will provide some insight into strategic sourcing — accepted by most procurement professionals as the model for supply chain management — and how to apply it effectively and consistently to energy.

Topics covered include:

- Energy supply basics
- Strategic sourcing framework

[1] Institute for Supply Management 70th Semiannual Economic Forecast, December 13, 2005; see http://www.ism.ws/ISMReport/SemiannualROB122005.cfm.

- Chartering and forming teams
- Energy spend analysis
- Strategy development
- Program development
- Setting priorities and mapping opportunities
- Identifying and managing risk
- Establishing energy program elements
- Traditional and electronic procurement methods
- Contracts and contract management
- Program Implementation
- Performance and Contract Management

Why Pursue Strategic Energy Sourcing?

The most compelling reason to adopt a strategic energy procurement process is simple: cost savings that can be as high as 25% on an expense that can run into the millions for a large company with many facilities. Even a 5% savings on such a large expenditure can be a real advantage for businesses at time when competitive and cost challenges are greater than ever. It makes sense that energy procurement and supply management practices should be consistent with corporate business strategy and overall supply management philosophy. Where facilities operate in states with deregulated energy markets, this means shopping around, rather than settling for the default tariff price offered by the local utility.

Competitive energy markets can present significant savings opportunities, but these markets are dynamic, and their volatility creates risk. A systematic, professional procurement strategy can address and mitigate these risks, making the benefits of strategic sourcing far greater than the costs.

The Benefits of Strategic Energy Sourcing

Energy markets are highly dynamic by nature. There is a continuous need for assessing both the business and energy environments, adjusting strategy and specific supply contracts in response to market and operational changes. An energy sourcing strategy gives companies a flexible platform from which they can react rapidly and thoughtfully. The benefits of developing a strategy are:

- The ability to answer, for various constituents, what management is doing to address energy supply management
- An objective and systematic view of energy management status, opportunities, and risks
- A clear strategy and objective priorities for energy supply management, so that resources and management's attention are applied effectively
- A simple framework and process for quickly evaluating the potential impact of changes in the energy environment and determining any necessary corrective action
- Identified potential opportunities for reducing, avoiding, or containing energy supply costs
- A detailed and cost-effective action plan, ready for rapid implementation when energy windows of opportunity open

(continued on p.4)

Energy Supply Basics

North American Energy markets

Total energy (electricity and natural gas) end use costs in North America total approximately $400 billion annually; businesses expenditures represent approximately $230 billion. Energy costs rank as high as third among business expenses, and, because energy costs are very volatile, the relative impact on business performance can be even greater.

Deregulation: Unbundling

There are three steps in providing energy to end users, with slightly different terminology for gas and electricity:

Electricity	Gas
Generation	Production
Transmission	Transportation
Distribution	Distribution

Historically, in regulated markets, energy buyers have been recipients of bundled service, where all three elements, along with other ancillary services such as metering, are provided as a package to the consumer by a single, regulated utility. In areas where deregulation is in place, buyers may opt for unbundled service. Unbundled service is typically expressed in terms of supply and delivery.

Deregulation: Transition and Default Service

During the transition of energy markets to deregulation, the local utility company may be required to provide default service to customers who do not choose to or cannot receive supply from a competitive supplier. The cost of this service is referred to variously as the comparison cost, price to beat, cost to compare, or shopping credit. In selecting a supplier when default service is available, consumers should determine this comparison cost before evaluating and accepting offers from competitive suppliers.

Deregulation: Restructuring

During restructuring as a part of energy deregulation, local utilities may be required to separate supply, transmission and delivery functions into different organizational entities. In most states, these utilities companies have been required to separate the functions into separate subsidiaries under the same holding company that must operate independently. This is necessary in order to preserve the fairness of the competitive markets and to prevent the local utility competitive affiliate from exercising some advantage over other competitors. In some cases, utilities have been required to divest the competitive entities (supply) entirely.

Deregulated Gas Markets

Gas markets in most states have been deregulated, particularly for business customers, for the last decade. Consequently, they are relatively mature and sustainable. A map showing the status of gas deregulation in the US, although more focused on residential consumers, is available on the Department of Energy (DOE) Energy Information Administration (EIA) web site at http://www.eia.doe.gov/oil_gas/natural_gas/restructure/restructure.html. Approximately 72% of business gas expenditures are for facilities in deregulated states. But deregulation of a market does not necessarily imply that it is an active competitive market. Compare the EnergyWindow PowerScape® energy market knowledgebase map at http://www.energywindow.com/Focus!/ to see which states currently support active or potentially active competitive markets.

Deregulated Electricity Markets

Deregulation of electricity markets began eight years ago. Currently, 16 states and the District of Columbia have deregulated their electricity markets. A map showing the status of electricity deregulation is available at http://www.eia.doe.gov/cneaf/electricity/chg_str/regmap.html. However, competitive activity levels vary within states that are deregulated. The PowerScape® knowledgebase at http://www.energywindow.com/Focus!/ shows current state competitive electric market activity levels. Active sustainable competitive electric markets exist in approximately 12 states – most being highly populated and industrialized – that account for approximately 49% of the business energy usage in the U.S.

Terms

Electrical energy consumption

Kilowatt-hour (kWh): A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. 1 kWh = 3,412 Btu.

Megawatthour (MWh): 1,000 kilowatt-hours or 1,000,000 watt-hours.

Electrical demand is power, which is energy consumption per unit of time, measured in kilowatts.

Energy content of gas:

British thermal unit (Btu): The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Therm: 100,000 Btu. 1 Dekatherm = 10 Therms. 1 Million Btu = 1 mm Btu. 1 Dekatherm = 1 mm Btu

Volume of gas

Cubic feet (cf)
Hundred cubic feet (ccf)
Thousand cubic feet (mcf)

Relationship of volume and energy

1 mcf provides approximately 1 mm Btu of energy

Energy content can vary. Billing and contracts may use any of the above units

Strategic Sourcing Overview and Framework

Strategic sourcing[2] is a systematic and collaborative approach to bring the appropriate resources from across the enterprise to bear on targeted spends in order to create value. It is the standard against which most procurement professionals measure supply organizations.

Figure 1 below depicts the principal steps of the strategic sourcing process applied to the energy spend.

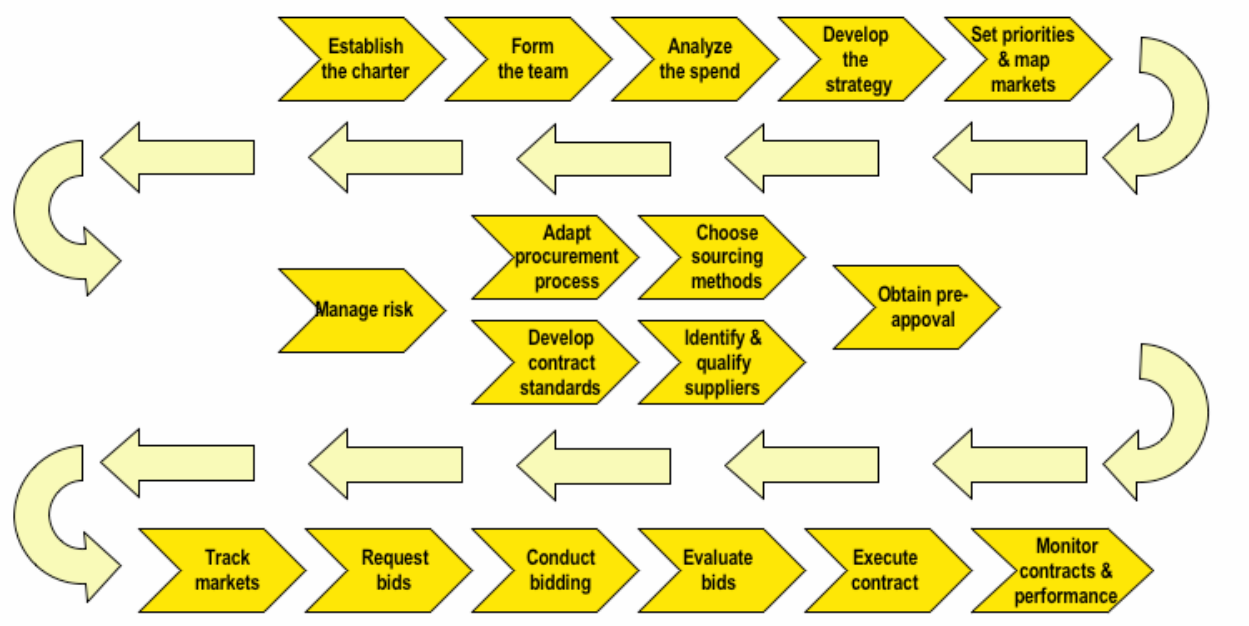

Figure 1

Many of the considerations and principles of strategic sourcing apply equally well to energy sourcing:

- Consideration of the total cost of energy procurement — transaction, procurement, and administrative costs — as well as the actual commodity costs
- Systematic approaches
- Prioritizing and focusing attention and resources
- Collaboration and involvement of a multiple-functional team
- Engagement of key stakeholders
- Supplier qualification and selection
- Process similarities

[2] See, for example, Robert J. Engel, "Strategic Sourcing: A Step-by-Step Practical Model," Institute for Supply Management 89th Annual International Supply Management Conference, April 2004, Philadelphia, PA, http://www.ism.ws/ConfPastandOnlineDaily/Files/Apr04/FB-Engel.pdf

Some characteristics, however, of energy markets require quite different approaches:

- Energy markets are very heterogeneous: prices, rules, suppliers, and their offerings vary from state to state and even utility territory to territory, so a monolithic global or even national procurement approach is not possible.
- Buyers must understand and calculate the default energy costs (what they pay if they continue to obtain commodity supply from the local utility) for dozens of markets, track them independently to determine when competitive bids may be lower, and request bids when the requests are likely to produce prices that will yield savings.
- The volatility of energy markets means that opportunities can appear and disappear in a matter of one or two weeks, and prices can vary dramatically from hour to hour; so, it is essential to be poised to act very quickly (sometimes in a matter of hours) when they appear.
- Greater detail is required in the spend analysis in order to separate and address separately electricity and natural gas, supply versus delivery costs, facility locations by market — regulated or deregulated — and facility location by state and local utility territory.

Chartering and Forming the Team

Management should consider a number of factors when putting together an energy strategy development team. The level of management attention and resources appropriate for the task may be based on relative costs, energy supply's impact on the bottom line, volatility or risk associated with energy costs, and other commitments which demand attention. Three levels of participation should be considered: 1) executive sponsorship in order to provide the appropriate corporate sponsorship and to charter the team; 2) input and oversight from a steering group of key stakeholders — operations, facility, energy, procurement, legal, financial, risk, and property management should be considered; and 3) the core team — likely to include procurement and facility or energy management — that does the bulk of the ongoing work.

Energy Spend Analysis

A disciplined and detailed review of spending by facility and by state helps the energy supply management work group identify and prioritize opportunities and threats presented by various markets. As the work group drills down to the LDC and supplier level, they can segment and target markets by strategic value and maximum cost savings potential. A sampling of possible analysis metrics is shown on the following page in *Figure 5*. In addition, the review must include time-dependent analysis: historical trends, projections, and volatility and risk (using statistical analysis).

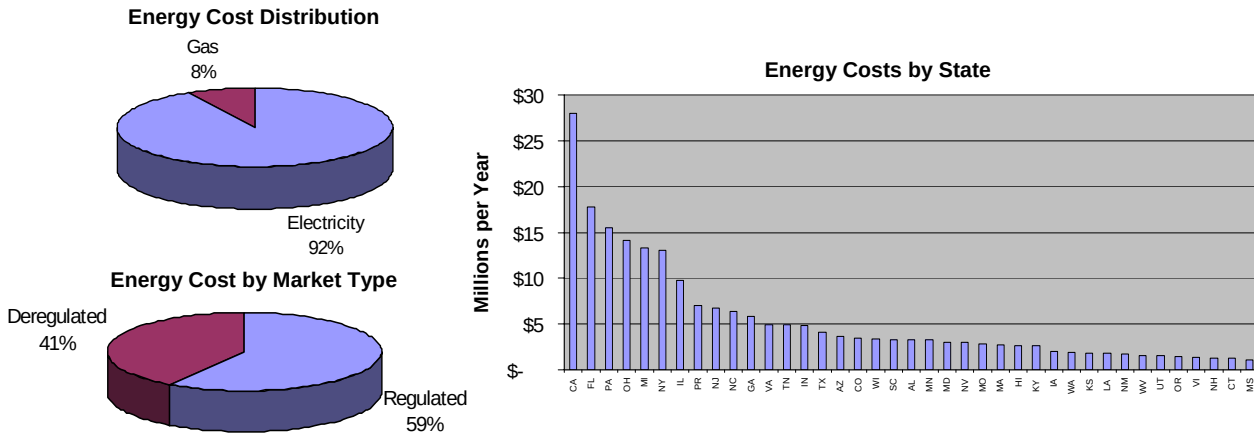

Figure 2

Strategy Development

Developing an energy sourcing strategy parallels that for developing a business strategy:

- Establish the overall program goal, within the context of the overall business strategy and management approach
- Scan the opportunities and threats to corporate performance that energy costs and markets can represent
- Assess the capabilities, strengths and weaknesses of the organization to achieve the program goals

This is simply a rendition of the classic SWOT (strengths, weaknesses, opportunities, and threats) analysis.

Figure 3

Some potential program goals are obvious. Cost reduction or, given the inexorable and dramatic increases in energy costs over the last 5 years, cost avoidance or containment are among those. The focus of sourcing activities should obviously be unit costs (cents per kilowatt-hour or dollars per million British Thermal Units [Btu]) rather than total costs, since consumption can affect the latter. Other goals might include greater predictability or continuity (no larger abrupt cost changes), or less financial risk or volatility. They could also include a commitment to "green" (renewable) energy for some fraction of the spend. Once goals are established, the energy team needs to choose appropriate performance measures with which to track the results and the effectiveness of the program. Finally, after establishing the strategy and associated initiatives and action plans, the team and stakeholders must agree upon the goal levels for those measures.

The energy spend analysis forms the principal basis of the opportunity and threat analysis. It also provides priorities for the focus of the team. The team should consider other opportunities and issues, such as process, contracting, and risk management improvements that might reduce risk, increase the predictability of energy costs, or decrease transaction costs and time. Often, the development of the sourcing strategy should be coordinated with an overall energy strategy, including strategies to reduce energy consumption. In such cases, the opportunities and threats should include those relevant to that

objective. Reviewing, grouping, and then mapping the opportunities yields an energy strategy map like, for example, that in *Figure 4*.[3]

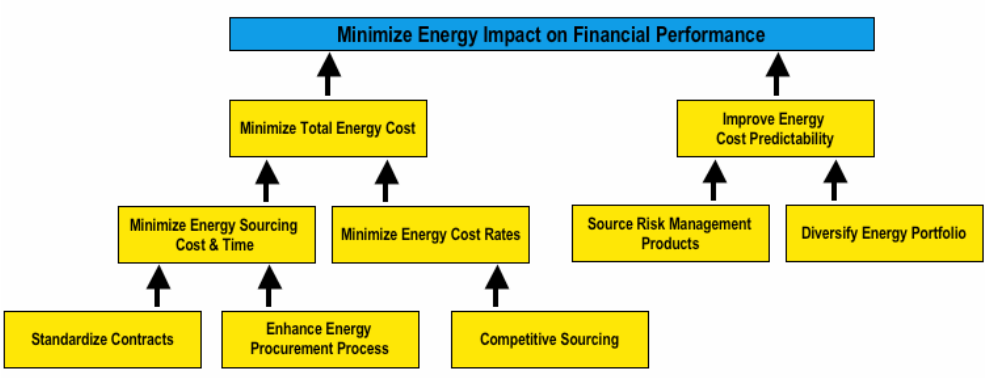

Figure 4

The most effective approach to strategy development is by means of a strategic planning workshop in which key stakeholders participate. Preparation for the workshop should include, in addition to the spend analysis, reviewing overall corporate goals and strategy, interviewing key stakeholders to identify opportunities and issues, and any assessments of processes or previous results. The workshop agenda can include review of the overall business goals and strategy (relevant to energy management), review of energy markets and business environment (this can be helpful in educating those stakeholders with limited knowledge of energy markets), review of the energy spend analysis, setting energy supply program goals and measures, reviewing the SWOT, and then grouping ideas and mapping them into strategies. Ideally, following the workshop, cross-functional teams should develop action plans to implement each element of the overall energy sourcing strategy.

Setting Priorities and a Market Map

The team should establish sourcing priorities and a devise a market map for planning purposes. The sourcing priorities should be based first on the energy cost by state or utility territory, such as illustrated in *Figure 2,* then combined with competitive market information. An example of the resulting set of priorities is shown in *Figure 5*.

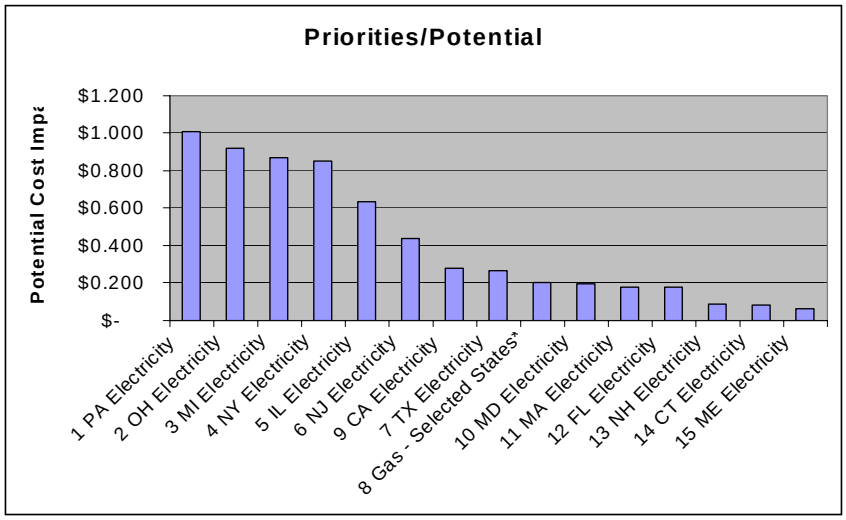

Figure 5

[3] See Kaplan and Norton, *The Strategy-Focused Organization* and *The Balanced Scorecard,* Harvard Business School Press, 2001.

The priorities should then be folded in with contract expiration dates, market rules, and the overall energy strategy and processes to develop the market map, as illustrated on the following page by *Figure 6*, which shows timing of energy sourcing initiatives. The map must be reviewed and updated frequently in order to adapt to market conditions and the results of sourcing initiatives.

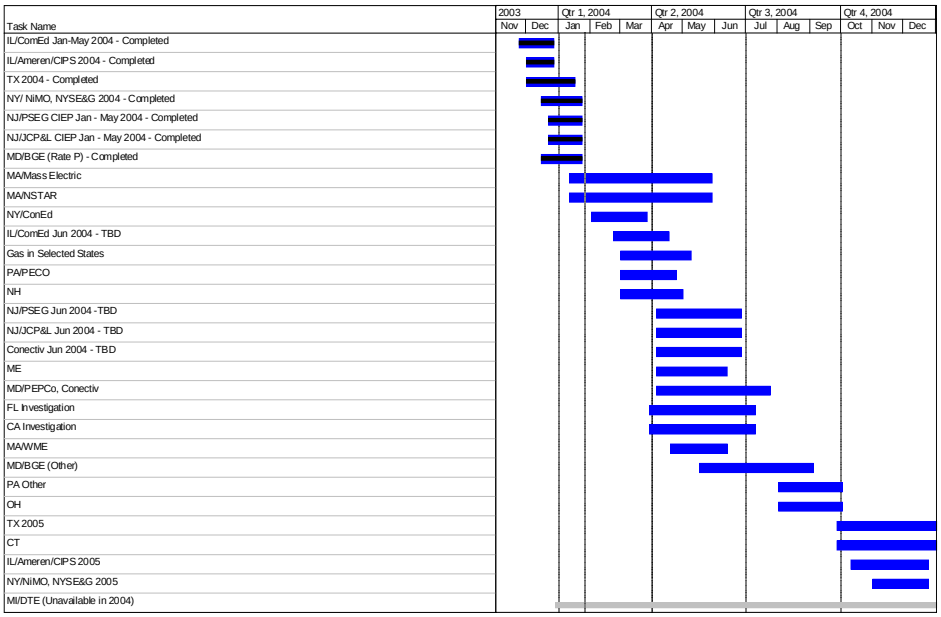

Figure 6

Energy Supply Risk Management

Risk management is particularly important to energy sourcing and supply management due the relative magnitude, volatility, and special contract considerations associated with effective energy cost management strategies.

The types of risk include:

- Operational risk (although the risk of the lack of power affecting operations is low and not significantly different between utility default supply and competitive services)
- Market prices trends and volatility
- Contract timing
- Regulatory changes
- Supplier reliability

Possible strategies to manage risk include:

- Accept
- Use to competitive advantage
- Diversify in terms of
    - Sources
    - Suppliers
    - Timing
    - Geography
    - Market type
- Spread or share with suppliers or partners
- Price average

- Hedge using fixed rates
- Hedge using financial derivative products
- Influence public policy

Figure 7 illustrates examples of analyses in support of risk management and diversification.

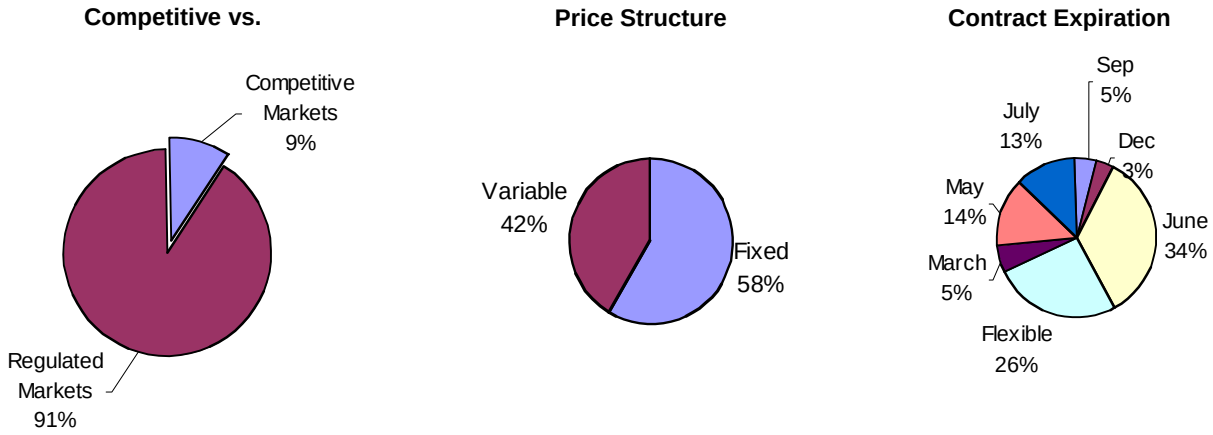

Figure 7

Table 1 shows the advantages and risks of some products and price alternatives.

Product	Features	Advantages	Risks
Fixed Price	Fixed price for contract term	Budgetary confidence	Price may be set high
Variable (Indexed) Price	Monthly price = index + basis	Risk of paying too much minimized	Low price predictability
"Trigger" Option	Option to fix all or portion of contract term based on futures	Flexibility of variable price contract with certainty of fixed price	May be charged a premium for conversion
LDC Default Supply Service	Price set based on historical or future prices and approved by the PUC	May delay effect of market price changes	Additional risk associated with regulatory changes; market price changes will eventually impact
EDC Tariff Rates	Pricing applies for longer period	May include overall rate cap	May incur transition charges
Guaranteed Savings	Discounted relative to LDC/EDC default price	Can reduce costs relative to default rate; better than "doing nothing"	Carries risks of variable pricing and default service
Financial Hedge	Hedges gas prices across multiple jurisdictions	Enables smaller facilities to limit impact of rising gas prices	Buyers pay a premium for ability to limit risk

Table 1

Energy Program Elements

Figure 8 shows a simple but effective model[4] for turning strategy into organizational elements that can be used to "operationalize" a company's energy strategy.

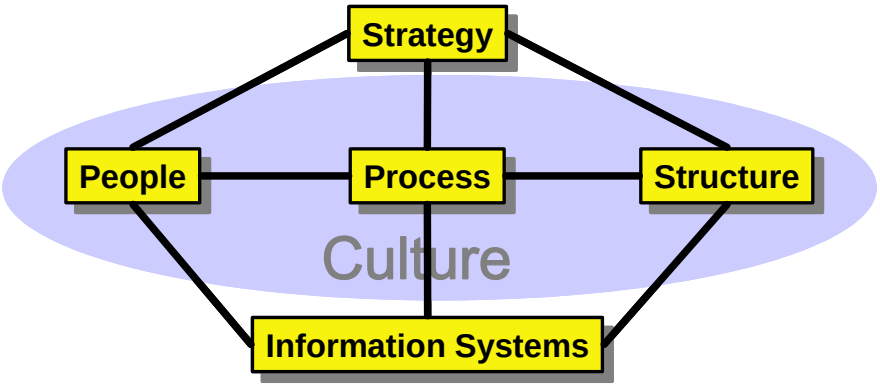

Figure 8

People – A key question many companies face is how to staff the energy sourcing function: with a dedicated staff, with portions of distributed staff in various functional areas, or with external resources through outsourcing. It is important to note that few companies employ either a fully integrated sourcing strategy or a fully outsourced strategy; most use what are referred to as intermediate strategies — something in between. Important considerations in making the decision are:

- The strategic value of the energy sourcing function
- Contribution to the value chain
- Relative magnitude of the energy spend (often ranks 3rd to 6th among indirect or MRO expenses)
- Impact on financial performance (higher than indicated by magnitude of spend due to volatility)
- Risks associated with energy costs contracting, and sourcing
- Core competencies (buying, risk management, contract and supplier management) applied to energy sourcing
- Developed, retained, and maintained organizational learning from energy sourcing activities
- Efficiencies associated with sourcing functions
- Control needed and available

Structure – Key energy sourcing program structural questions are:

- Should we appoint a corporate executive sponsor?
- Should we establish an oversight committee?
- Who will be on the core energy sourcing team?
- What are the internal and external linkages between functions?

[4] See *The Corporation of the 1990s,* Michael Scott Morton, editor, Oxford University Press, 1991.

Information Systems – A number of systems may need to be brought into the energy sourcing process. First and foremost is any enterprise level electronic procurement or supply chain management system that is to be utilized. The system will need to be used in a way that accommodates the substantial requirements for the volume, unique nature, dynamics, and complexity of energy sourcing data. Other systems include utility bill payment databases, contract management, budget, accountability and reporting, and possibly, energy management.

Process – A number of processes support energy sourcing. The most important is the procurement process. *Figure 9* depicts a typical sourcing process, with consideration of some of the special requirements of energy sourcing and showing those steps typically handled by the procurement functional group (on the left) and those steps (on the right) handled by other functions. The most important process differences for energy sourcing are driven by the need to be prepared and then to act quickly when market opportunities appear:

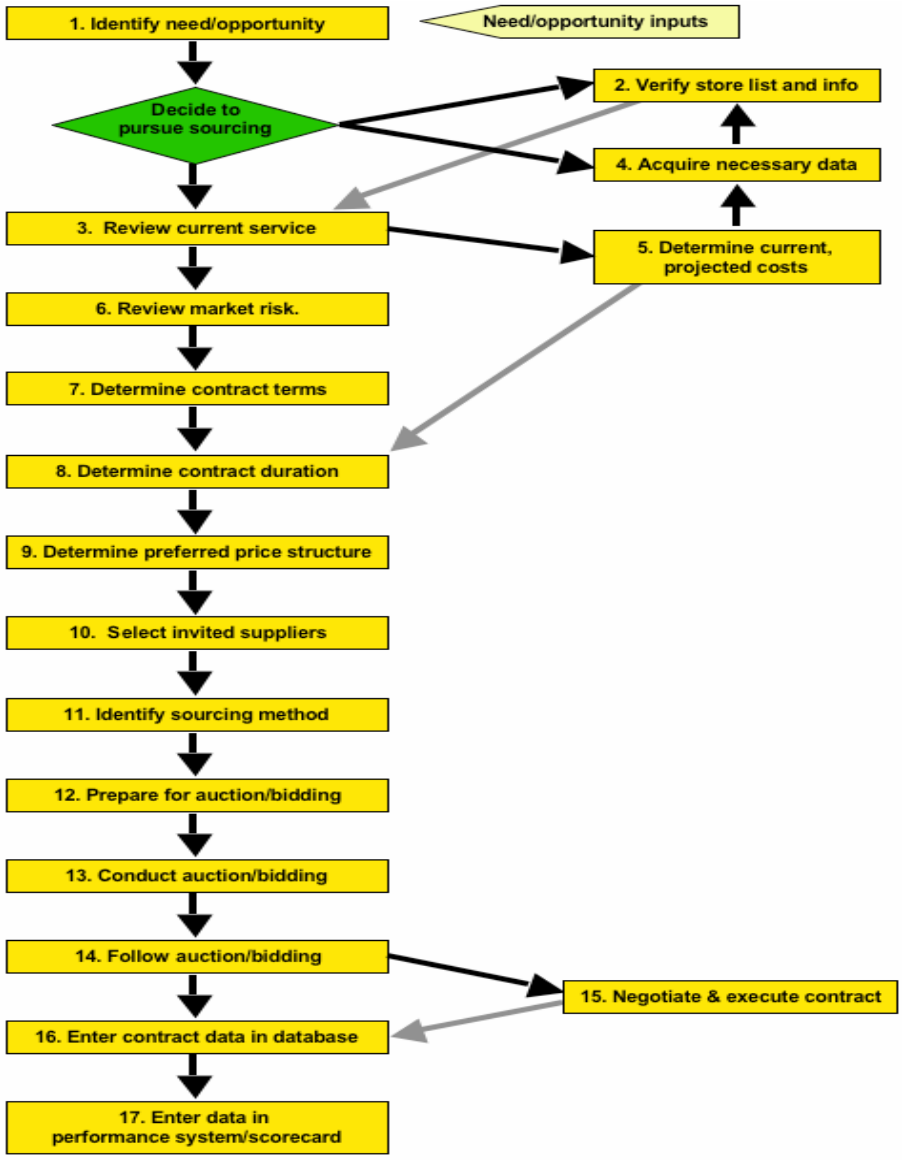

Figure 9

- Prior identification of markets (the market map)
- Prior establishment of energy market sourcing strategies
- Pre-registration or qualification of suppliers
- use of standard contracts or pre-negotiation of terms
- Pre-approval of contracts (within specified range of terms)
- Availability (in minimal time) of required data and requests for quotations

Electronic Procurement

Energy procurement activities can and should be consistent with your overall supply chain strategy, procurement approach, and business priorities. Energy markets are complex and change rapidly. A good energy e-procurement system can help the strategic energy team post energy supply needs more quickly and efficiently, simultaneously distributing requests for quotation (RFQs) to multiple suppliers.

Working with an energy e-procurement technology and service provider that specializes in energy transactions and understands the complexities of natural gas and electric markets carries the added benefit of helping the team capitalize on more savings opportunities than would likely be possible using traditional, manual processes. Because these methods can reduce the cost of pursuing competitive energy bids by a factor of 100 or more, the return on investment can be extremely favorable. Significant time savings (and consequently, labor savings) can be gained in market and supplier research, obtaining and formatting account data, developing quality RFQs, and evaluating bids. In addition to the direct costs saved on labor, e-procurement can reduce the opportunity cost of strategic energy sourcing by accelerating the process such that the maximum number of savings opportunities can be converted into contracts.

Before the first RFQ is generated, a good energy e-procurement system provider should support the strategic plan with input on where savings opportunities exist and a deep understanding of the relative benefits of various types of contract structures at any given time. An effective energy e-procurement provider should produce an “apples-to-apples” comparison of supplier offers that is auditable and support a decision that is easy to explain to management. Since energy e-procurement involves very high-dollar transactions and consideration of many complicated options, a good provider should offer access to highly informed industry veterans who can help evaluate options strategically, not just help complete online forms.

With energy e-procurement, it’s crucial that buyers and suppliers can communicate freely and directly with one another in order to obtain the best quality information and thus, achieve the lowest possible price. Some broad-based e-procurement providers, such as those that offer aggregation purchasing or specialize in MRO supplies, don’t allow buyers to interface directly with suppliers. The team should only consider providers that offer complete transparency between supplier and buyer, and that disclose fees and terms clearly, up front. The best providers are free from energy supplier or distributor influence so that work groups can feel comfortable that the provider is working to find best deals and that there are no conflicts of interest. Further, if the company has invested in an enterprise e-procurement system, the team should select an energy e-procurement provider that can and will leverage the existing system, whenever possible.

Contracts and Contract Management

This phase of strategic energy sourcing can and should be a seamless, predictable part of the process with as much work done in advance as possible; but for companies without a contract management plan in place, it is often the point at which the system breaks down. Without a standard, baseline contract in place and pre-approved by management and corporate legal counsel, protracted negotiations and legal reviews can create delays that result in lost savings for buyers. Monthly deadlines for switching come and go, or the fleeting window of price opportunity closes altogether.

Since time is of the essence when shopping competitive energy markets, standardized contracts that can streamline the approval process make good strategic sense.

The North American Energy Standards Board (NAESB) Base Contract for Retail Sale and Purchase of Natural Gas is an excellent starting point, and the contract is available from www.naesb.org. Many suppliers and buyers have been using the NAESB standard contract for wholesale for some time, and the newly released standard contract for retail transactions was based on the wholesale version, with significant input from retail energy buyers. The work group will want to compare the NAESB contract to its own corporate contracts, as well as the standard contracts of suppliers with which it is likely to work.

Drawing from all these sources, a standard contract can be written that provides ample flexibility and does not require all buyers and all suppliers to accept identical terms. The goal is to create an instrument to which clauses can be attached that address specific buyer and supplier business needs, while providing a largely uniform platform from which all parties can negotiate. The contract's familiarity and pre-approval status set the stage for more efficient negotiations between buyer and supplier and for more rapid execution. Negotiations center on only essential aspects, agreement is reached in advance or at least sooner, and maximum savings are more likely to be captured.

Table 2 provides some examples of the paragraphs that address standard more or less "boilerplate" legal issues and those that address more substantive business issues.

Boilerplate Paragraphs	Substantive, Contract-Specific Paragraphs
Liability	Price components (taxes, ancillary, etc.)
Indemnification	Covering supply costs upon early termination
Governing law	Price adjustments (fuel, etc.)
Entire agreement; severability	Price basis/index
Assignment	Replacement costs
Force majeure	Renewal
Default	Termination
Transaction confirmation and notices	Usage variations
Representations	Billing and payment
Captions, counterparts	Contacts

Table 2

Program Implementation

If the strategy, plan, processes, and other program elements are developed in advance and the all of the preparatory steps — priority setting, market mapping, risk analysis and management planning, contract standardization or negotiation, supplier selection, and pre-approval (within a range of parameters) from signatory authorities — are completed in advance, program implementation involves tracking markets and moving quickly when energy windows of opportunity open to request quotations, evaluate bids, and sign contracts. If e-procurement is employed, these steps can be accomplished in less than a week; contracts can be signed within hours of bidding. The benefits are low procurement costs and effort, immediate cost reduction accrual, and no lost opportunities as a result of changing market prices.

Performance and Contract Management

The core team manages and executes the energy supply management plan on an ongoing basis. The plan is maintained, reviewed periodically with stakeholders, and modified as necessary to reflect results, changing markets, and needs. The team should use frequent informal communication, monthly progress reports, monthly review discussions, and quarterly review meetings to keep management informed and to be able to hold the team accountable for program implementation, performance, and results as measured by the performance measures and management system(s).

Existing systems or simple systems created specifically for this purpose (for example, a well-designed spreadsheet) can be used. The team can collaborate with information technology groups to review existing system and database reporting capabilities to design an energy performance management information system that can establish baselines and monitor performance improvement. The team should maintain and update the system monthly.

Where possible, the work group should devise an energy contract management information subsystem to operate within any existing company contract management system. A typical system addresses contract terms, expiration date, rates, alert period, utility, supplier, contract costs, savings, etc.

Summary

Although energy deregulation has added layers of complexity to energy supply management, it has also created the opportunity for businesses to integrate electricity and natural gas procurement into their overall strategic sourcing program. Similar to the benefits of strategically sourcing other supplies and assets, purchasing energy supply in competitive markets can significantly reduce costs and help businesses achieve operational efficiency and competitive advantage.

The key to making energy deregulation work is having a strategic energy sourcing and supply management plan in place. Businesses that invest the time to develop such a plan and include representatives from procurement, facilities management, corporate management and other key stakeholders in its development can be assured that their energy sourcing strategy will align with overall corporate goals and supply chain policies. Integrating energy into the broader strategic sourcing plan allows businesses to take what is typically one of the top five largest operating expenses and manage it proactively, rather than allowing volatile energy costs to derail the budgeting process and muddy financial projections. Greater predictability, reduced exposure to market risk, and lower overall costs are three benefits of strategic energy sourcing that fall straight to the bottom line.

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