Energy Procurement: A Strategic Sourcing How-To Guide

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ASHE catalog #: 055191

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Executive Summary

In the past, with energy costs largely regulated and therefore fixed, hospital engineers simply purchased energy directly from local utilities. Today, market deregulation coupled with a host of new financial intermediaries and energy products, advances in energy technology, and a new emphasis on sustainability requires energy buyers to make complex procurement decisions.

These fundamental changes require that hospitals adopt new methods for sourcing energy supply (at least in deregulated markets). The most important of these methods is to align facility, finance, and supply chain professionals around a financial approach to energy procurement. This monograph sets forth energy procurement best practices adopted by leading health systems around the United States.

Key concepts in this monograph are that 1) energy is a financial commodity traded using financial tools, and that 2) financial methods should drive hospital energy decision making.

Emphasis on financial management contributes to an organization’s ability to respond to the value-based procurement efficiency standards of the Affordable Care Act. In light of these changes to both the energy market and the health care field, hospitals today should approach energy procurement using three best practice principles (Aggregation, Alignment, Analytics).

Aggregation

Acting alone, a single hospital’s energy spend may not command the respect of suppliers. However, a group of hospitals can aggregate to create buying power in the market, thereby leveraging lower costs and greater access to the best products and contracts.

Some large health systems are able to bring large spend volumes to market. However, all hospitals have the potential to aggregate with their peers through membership in group purchasing organizations (GPOs) or through system-wide aggregation, offering energy supply programs or other forms of association. Procurement professionals are well placed to help implement this kind of aggregation strategy.
Alignment

Hospitals should engage their finance and contracting teams to support facility directors in making energy market decisions. Such collaboration is best accomplished by forming an “energy committee” consisting of finance, supply chain, and facility experts. Once formed, the committee should collaborate on strategy and its approach to all energy purchasing decisions.

Analytics

The final key to energy savings is to employ financial analytics to make market decisions. Analytical tools should be used to inform energy strategy, forecast market trends, and ensure an optimal balance of savings opportunity and budget stability. These tools are applicable to assessing the cost and value of all energy supply sources, whether they are traded in the markets or developed as on-site/off-site power projects.
Triple Bottom Line Benefits

**Cost benefits**

Effective procurement of electricity, natural gas, district energy, renewable energy, on-site or off-site power generation, and energy storage is fundamentally a risk avoidance and cost-saving opportunity. Employing energy purchasing best practices can prevent unwelcome surprises and result in potential budget savings for health care facilities.

**Environmental benefits**

Market procurement of energy allows hospitals to obtain access to renewable or cleaner fossil fuel-generated sources of electricity.

**Social benefits**

Resources saved through effective management of energy costs can be redirected toward patient services and encourages the continued deployment of viable sustainability strategies that benefit our communities, nation, and the world.
How To Implement Energy Procurement Best Practices

1. Understand Hospital Energy Markets

To grasp the financial nature of buying energy in today’s unregulated markets, we must first understand how the market works and the significant changes that are occurring.

Hospitals buy retail energy. Retail energy refers to a contract to supply an end-use customer with electricity or natural gas service from a source point to a delivery point on the utility distribution system serving the customer. The utility then ensures delivery of the energy to the customer’s retail meter. Nearly all U.S. states allow some form of retail competition for natural gas supply services, while 18 states, plus the District of Columbia, allow large energy users some form of access to the competitive electric market.

As the natural gas and electricity markets deregulated, many hospitals found they could reduce their costs and exercise greater control over their energy budgets by buying energy in the competitive market. To access the competitive market, hospitals entered into contracts to purchase energy from retail suppliers. In general, retail suppliers do not produce the energy they sell. Instead, they buy their energy commitments in the wholesale market. This market is both physical and financial. When suppliers enter into retail contracts to deliver physical energy to customers, behind the scenes they secure both physical and financial swap contracts to ensure delivery and to hedge the retail price.

While entering the competitive market generally resulted in cost savings, switching from the utility’s fixed-rate service exposed hospitals for the first time to market price risk. When confronted with these roiling markets, many hospitals tried to manage the risk by setting their entire budget at a single fixed rate. While this stabilized the budget, it was not an effective tool for obtaining

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1 As of February 1, 2016, they are: CA, CT, DE, IL, MA, MD, ME, MI, NH, NJ, NY, OH, OR, NV, PA, RI, TX, and VA.
the lowest cost energy. Locking in long-term fixed rates meant paying the supplier to take the price risk. Doing this came at a cost, both in terms of risk premiums and in terms of forfeiting the opportunity to obtain lower pricing during market downturns.

Meanwhile, some energy suppliers began using “hard sell” tactics to entice hospitals to buy from them. In response, professional brokerage services were formed to offer an orderly process for managing the supplier selection process.

In the traditional retail environment, the energy broker runs a competitive supplier selection process intended to yield the lowest fixed energy price. Some larger brokerage firms employ reverse auction software that allows the client to watch suppliers compete for the contract in real time via the Internet.

The use of energy brokers helped facility professionals manage the process, while the use of a competitive supplier selection ensured that the hospital was achieving the lowest available fixed price on a given day. However, there were still challenges to hospital energy procurement.

First, suppliers understand that energy auctions impact only the competing bidders’ profit margins, amounting to about 3 percent of total budget cost. Auctions have no effect on the underlying wholesale price of energy, which drives 97 percent of the budget cost. Second, some suppliers reserved intensive wholesale market management for high-value corporate customers.

Despite buying relatively large energy loads, many hospital facility directors did not have the financial staff or sophisticated procurement staff available to support their procurements. A change in this traditional individual strategy and implementation of the best practices outlined in this monograph can help hospitals with energy procurement.

2. Implement Procurement Best Practices

A key for success is understanding that, because of market volatility and market intermediaries, energy is a financial as well as a physical product. The three fundamental building blocks of a prudent energy purchase strategy are:

- Aggregation
- Alignment
- Analytics
2.1. Aggregation

Because energy is financial, larger aggregations of energy spend are attractive to the market. The benefits of larger aggregations include lower supplier margins and access to the best products, pricing, and contracts available.

The following chart depicts the energy market financial hierarchy:

Financial institutions and global energy giants dominate the wholesale market and trade billions of dollars in energy each day. These institutions use financial agreements to set pricing.

- **Retail suppliers** enter into financial transactions with wholesale trading operations to set a price for a specific quantity of energy. The supplier adds its profit margin onto each unit of electricity or natural gas delivered to and consumed by the hospital pursuant to the retail supply agreement. Retail supplier margins are generally not more than 3 percent of the total cost of energy.

- **Aggregations** of individual buyers are attractive to suppliers and induce suppliers to provide access to the wholesale market and to better products and contract terms.

- **Individual buyers** are at the bottom of the energy market hierarchy and typically buy higher-cost fixed-rate contracts from retail suppliers.
A paradigm shift in hospital energy procurement began in 2010, when the nation’s leading health care group purchasing organizations (GPOs) began to seek change from the energy supply market. Not only were hospitals seeking lower costs, but they also began to ask for financial management tools that were previously only available to large corporate buyers. As hospital GPOs and larger systems aggregated their members’ energy spend, group buying power increased significantly, soon totaling tens and even hundreds of millions of dollars in some groups. At the same time, the massive cost reductions forced by the Affordable Care Act triggered a rapid consolidation in the hospital sector, resulting in the consolidation of multiple facilities into large integrated delivery networks.

This increased scale has helped drive down supplier margins without the need for auctions. Most importantly, suppliers are now offering GPO members, large integrated delivery networks, and increasingly, single hospitals, the same financial management products that had previously been reserved only for larger corporations.

Health care buyers often seek collaborative arrangements with their peer institutions to obtain the benefits of energy aggregation.

2.2. Alignment

2.2.1. Align Energy Procurement with the New Financial Energy Market

For decades, energy has been the exclusive responsibility of the hospital facility director. Today, changes in the market mean that professionals from other departments, particularly finance and supply chain, can provide substantial value in energy procurement.

Energy buyers must understand that the most effective way to buy energy is to consider the bundle of energy aspects as a whole, and to manage investments in them simultaneously. That is to say, decisions to respond to opportunities in rates about bulk energy purchasing; renewable energy and environmental offsets; fuel switching; consumption management and reduction; and facility operation all affect one another and must be considered simultaneously for optimal outcomes. Ideally, the health care organization should develop its energy purchasing strategy with a multi-disciplinary team from finance, procurement, and facilities to ensure that procurement is part of a comprehensive overall strategy.
2.2.2. Form (or Expand Existing) Energy Committee

The best way to obtain the expertise and support necessary for a strong energy management program is to form a committee (or at least expand the existing one) to create a cross-functional team that brings together the expertise of several disciplines within the health system. It is important to note that an energy committee will have other duties related to strategic energy management, including sourcing, operations, tracking, reporting, and communications. This monograph focuses only on procurement-related issues.

When seeking the participation of the various members of the energy committee, the following guidelines should be considered:

- The facility department has specific knowledge of the hospital’s energy needs, including usage and anticipated changes in demand. This information will be crucial when deciding how to layer energy purchases over the life of the contract. Facility staff will provide information regarding the relationship between market energy and on-site operations.
- Corporate treasury/finance manages all of the institution’s financial investments, including bond interest rates, insurance, and other products traded in financial markets. Because energy is traded in a financial market, it is vitally important to recruit the treasury or finance department to share its expertise in this area, as well as provide its fundamental understanding of financial products and strategies. The participation of treasury/finance professionals in the energy procurement process will be crucial because this group also is responsible for managing the institution’s budget, knows just how much market risk the institution is willing to take, and has a fundamental understanding of financial products.
- Supply chain/purchasing brings to the committee in-depth knowledge about the institution’s purchasing practices. The energy committee will rely on this group’s expertise in negotiating energy contracts and terms.
2.2.3. Assign Committee Member Duties

The composition of the energy committee and its responsibilities and areas of expertise related to energy procurement include:

| Facilities Operations | • Understanding of the technical aspects of energy usage  
|                       | • Knowledge of facility/campus energy requirements  
|                       | • Engineering expertise  
|                       | • Knowledge of and planning for future changes to energy requirements  
|                       | • Knowledge of energy utilization systems and alternatives (HVAC, on-site generation, etc.) |

| Corporate Treasury or Finance | • Decision-making regarding fixing prices for defined periods and volumes  
|                               | • Understanding of financial (energy) markets  
|                               | • Knowledge of institution’s tolerance for risk  
|                               | • Knowledge of the budget |

| Supply Chain/Purchasing | • Negotiating of contracts  
|                         | • Managing energy committee and procurement process  
|                         | • Monitoring and enforcing vendor requirements and contract compliance |

2.2.4. Determine Market Strategy Using Investment Criteria

A key to hospital success in navigating the energy markets is to treat the procurement budget as an investment and to manage market risks using the same financial analytics and risk management tools used to manage the treasury portfolio. Financial analytics, then, drive all energy supplier pricing management decisions. This discussion addresses the market procurement of any unregulated energy product.

When undertaking the energy procurement process, the energy committee should first ask which of several criteria is most important to the hospital in setting its energy procurement goals. Consider how important the following criteria may be to the finance and leadership teams. Criteria for consideration include the following:

- Avoiding risk of short-term price increases
- Taking advantage of short-term price reductions
- Short-term budget stability
- Lowest cost over the long run
Portions of the enterprise energy consumption can be purchased under different terms. Variables in buying energy in a market are price, non-energy costs, and time frame. An aggregation of energy buying can be cut up into slices, and each slice bought with different characteristics, allowing the organization to optimize its energy purchase to match its energy cost goals.

When purchasing energy directly from the utility, the buyer is subject to whatever rate changes the utility may impose, usually on a quarterly or annual basis. When buying directly from the market, the buyer may set its natural gas pricing for up to three years and electricity pricing for up to five years in advance. In addition, the buyer may set a fixed rate, pay the prevailing market index rate, or a combination of both.

A fixed rate is a firm contract price for a fixed amount of energy for a fixed duration of time agreed on by the buyer and supplier. This rate is referred to as “fixed,” but in practice, nearly all energy supply contracts allow the supplier to pass-through certain non-energy costs or cost changes, resulting in actual prices that are only partially fixed.

A market index rate refers to the price of energy at a particular delivery point at the time the energy is consumed. For electricity, index rates float on an hourly basis, while for natural gas they could change monthly or daily, depending on the contract.

Most hospital buyers traditionally have chosen a fully fixed rate for energy because they perceive that budget stability is vitally important, and because they see no value in exchanging slight increases in risk inherent in a portfolio approach to achieve significant gains.

However, as health care organizations become larger, or as they aggregate with one another in various group purchasing organizations, the opportunities for managing upside risk while seizing very real cost reduction opportunities are significant.

Similarly, many energy buyers, having grown accustomed to years of declining energy prices, have concluded that following the market will give them the lowest overall cost. In truth, it is usually correct that simply buying at the market index rate is the least costly in aggregate, over time.
But this method also exposes the buyer to the highest risk of short run fluctuations. Or, as one energy finance expert has said, “it works great until it doesn’t.” The energy committee must examine the value of the relationship between cost and risk to its organization.

### 2.2.5 Design Energy Investment to Best Match the Value of the Relationship Between Cost and Risk

**When short-term budget stability is the primary goal, a fixed rate is best.** Most hospital energy buyers choose a fully fixed rate for energy because budget stability is perceived as vitally important in an era in which Medicare-based budgets have little margin for fluctuation. This approach has the advantage of protecting, for the duration of the contract, against price increases. But in exchange for risk avoidance, the hospital pays a fee. Moreover, the timing of the purchase, as well as the quality of the supplier providing the product, has a significant impact on the fixed rate. That, plus the fact that this method precludes being able to access lower prices available in changing markets, ensures that it is usually the MOST expensive way to buy energy.

With natural gas, which is traded on a national public exchange (NYMEX), hospital facility directors have become comfortable buying fuel in segments over time, rather than setting the budget based on a single rate on a single day. In making natural gas decisions, the facility staff may engage the hospital CFO in market timing decisions or bring in outside advisors to provide forecasting and other professional services.

However, with electricity, the complexities of energy procurement have caused some hospitals to lock the entire budget at a single fixed rate.

**Where the goal is to save the most money regardless of the budget risk or volatility, a market index rate approach is best.** Over the past ten years, a buyer who bought energy at the hourly market index rate would have saved significant money compared to buyers who bought using fixed pricing. However, health care organizations tend to fear this method because it can involve market swings of 100 percent or more over a single year, and they are often unwilling to tolerate such uncertainty.

If the energy committee decides to go with a fully indexed product, it should develop an “investment strategy” for each slice of its energy procurement pie. It will need to monitor market trends, lock in buys at appropriate points, and manage the potential for severe market shocks.
Where the goal is to enjoy the benefits of fixed rate stability as well as the lower costs associated with market index pricing, a market management approach is best. The method of market procurement with the highest probability of achieving low cost and high stability is the market management approach, which combines more stable fixed pricing with lower cost market index pricing. This approach consists of contracting for different layers of energy buys at different fixed prices at different points in time, with a portion of the load floated at market index rates. This approach also provides the flexibility to lock pricing layers at various times. Using this approach, the buyer assesses potential savings opportunities and balances this with the likely risk of the market moving higher.

The following chart shows that over a ten-year period, the use of a fixed-rate product set at one point in time was the most expensive; the index product the least expensive but most volatile; and the blended or market management approach the best combination of low price and low volatility.
2.3. Choose an Energy Advisor

Creating a comprehensive energy investment portfolio, including bulk supply; renewables (on-site and off-site); environmental attributes; demand management and load profile leveling; and consumption reduction programs is complicated, and further complicated by the increasingly complex financial characteristics of the market. Because this is not a core expertise of most health care procurement, facility operations, and finance staff, many organizations may seek help in creating their overall energy investment portfolio as well as managing their particular bulk energy purchases.

The energy advisor’s role is to:

a. Conduct a professional-quality supplier selection process, and recommend to the hospital a supplier that meets the highest industry standards and aligns with the hospital’s culture.

b. Recommend the appropriate energy products that match the hospital’s budget goals and risk tolerance and its interest in obtaining energy from sustainable sources.

c. Negotiate supplier agreements and product pricing.

d. Provide advice and analytics regarding the management of energy budget risk commensurate with the hospital’s corporate goals and governance.

e. Monitor the energy market and provide regular updates on market trends and appropriate timing of market purchases and pricing.

f. Verify results and adjust market strategy during the supply contract term.

An advisory firm is not the same as a broker, which runs a simple request for proposal or auction to obtain a fixed rate on a single date. Instead, the advisory firm should bring energy market expertise that is not otherwise available within the hospital energy committee. The energy advisor should bring expert market analytics, negotiating skills, and the ability to make recommendations to support the committee’s ongoing market decisions. The advisor’s analytical platform should be capable of completely unbundling supplier pricing into its many cost components, including energy, capacity, transmission, and ancillaries.

Energy cost is the actual cost of the electric or natural gas commodity. This is the component that is actively traded in the market, and the advisor’s role is to help position the hospital to take advantage of potential savings in that market.
Non-energy costs include transmission and delivery of the electricity or natural gas. With regard to natural gas, these costs are called basis costs and are bid in the market, and the advisor’s role is to obtain optimal pricing.

With regard to electricity, transmission-related costs are not traded in a retail market; therefore, the advisor’s role is to suggest ways in which these costs can be reduced by managing or reducing facility loads or offset using alternative supplies. Alternative supplies include on-site power generation such as cogeneration and battery storage.

The advisor should be able to determine, with a high probability and with complete transparency to the buyer, which energy supply components can be purchased at favorable prices and which are overpriced and should be purchased at a later date. This is a statistical modeling and risk management exercise, and should not to be confused with claims that the advisor will “beat the market” or “get the lowest price possible.”

As mentioned above, a market index product is one based on the daily cost of energy, while a fixed product is a price for a fixed amount of energy agreed on by supplier and buyer. An actively managed approach includes a mix of fixed and market index pricing. The advisor should provide a range of products, including a market index product with layered blocks, a fixed energy price with some or all non-energy costs passed through, or a fully fixed product, depending on the budget requirements and risk tolerance of the hospital.

The advisor’s role is to obtain retail supplier pricing and compare these offers to the underlying wholesale market curve as well as to each other. This provides full transparency regarding which supplier is providing the lowest cost. The advisor should then run statistical risk exposure models to determine whether the supplier pricing is within the expected range or is high or low for the intended contract term. Lastly, the advisor then rebuilds the full energy product cost by adding back in all of the necessary components to arrive at the optimal price for the buyer.

Assuming the buyer chooses a market management approach to energy procurement, the advisor continues to provide long-term budget management that forecasts the most probable market conditions and recommends a series of carefully managed price layers, purchased over the contract period, to optimize savings and stabilize the budget.
2.4. **Choose the Retail Energy Supplier**

Energy prices are a blend of several elements—commodity cost, transmission cost, taxes and regulatory fees, and supplier costs.

Nearly the entire price the hospital pays for energy derives from the commodity and therefore is determined by a wholesale market and not the retail supplier. The supplier’s role is to serve as the hospital’s conduit to the wholesale market. For this reason, it is best to choose the retail supplier based on how well that company will serve as the hospital’s representative to the financial institutions that determine the price end-users pay for energy.

This approach opens the door to managing all aspects of energy supply as financial investments.

Suppliers should be evaluated using a matrix of factors, including the following:

1. The financial strength of the retail supplier providing the fixed price. This is vital, as financially stronger suppliers tend to offer lower retail product costs and are able to stand behind their pricing, even in severe market conditions.

2. The ability and willingness of the supplier to offer and support the type of energy product desired by the hospital: fully fixed, partially fixed with pass-through costs, layered product, etc. Energy market management is a service business: a supplier with a lower bid price may not be offering the same product or level of support as a higher bidder.

3. The retail contract language. Most retail contracts contain provisions that allow increased costs to be passed through during the contract term. Do we know what those are and are we comfortable taking these risks?

4. The term length of the contract. Suppliers have term preferences based on their own financial strength and goals as well as how they view the buyer’s credit. Look carefully at the pricing for the products you want, and if there are noticeable differences in how they bid certain years and terms, ask the suppliers why.

5. The time frame when pricing is fixed. Supplier pricing can vary substantially depending on the date and time it is offered. In making a supplier comparison, it is important to control for differences in when the pricing data were collected.
6. Supplier servicing of the contract, including ongoing price changes and adjustments of contract quantities in response to market conditions and bill verification. You have to live with the supplier for the entire contract term. Be sure its service is up to your standards.

7. Equal comparisons between suppliers. When reviewing offers, always be sure that you are making fair comparisons and that the prices from each supplier cover exactly the same items and potential for changes in the same way.

Only after we have carefully identified the product we want to purchase and are satisfied with the supplier’s service offerings are we ready to consider market price comparisons.

2.5. Use Analytics for Better Decision Making

Retail energy suppliers typically determine pricing for the products they sell to energy buyers using statistical probability modeling. This involves testing the likelihood that a particular price will occur in the wholesale market during the upcoming contract period. This information helps the supplier determine the price it will pay at wholesale and resell at retail. It also helps determine the quantity of energy to be purchased or sold at that price now and in the future.

Buyers can also use these tools to optimize their energy purchase, and they will tend to pay less when they do so. A statistical model for electricity or natural gas provides a hospital buyer with the probability that the supplier’s contract price will be higher or lower during the contract term.

The following statistical model depicts an expected case, which is usually very close to the supplier’s current pricing offer; a best case; and a worst case. Using this model, the hospital can decide whether it wishes to purchase all or some of its required energy at the expected rate, or wait for the market to move lower, toward the best case, while also taking the risk that it may move higher, toward the worst case.

This information in turn allows the buyer to build a ladder of layered purchases, in which portions of the energy spend are fixed at intervals throughout the contract term, rather than all at once. Or, the buyer might form a set of “investment rules,” buying at certain price levels to both mitigate risk and seize opportunities.
An example of a portfolio of laddered purchases is shown in the figure on the next page. In the figure, the bar for each month represents total consumption. Fixed price blocks of energy, or hedges, are depicted by the blue, orange, and red colors.

The green bar segments depict the portion of each month’s volume that was left to float at index price. The blue bars represent a fixed price for 25 percent of the volume each month. The price of that portion of each month’s load is $4.19. The orange hedge was 50 percent of the monthly volume but for only three of the months with a price set at $4.11. Each of these hedges was done separately over a period of many months.
2.6. Contract Structure for Managed Risk Strategies

2.6.1. Index with Block Pricing

The foundation for market management is the energy block. A block is a portion of the hospital’s energy load that is priced at a fixed rate. These fixed price block contracts very closely mimic wholesale forwards or swaps except they are for much smaller volumes than normally traded in the wholesale market. Suppliers will typically price these forward block products based on the wholesale price of the same contracts. The portion of the hospital’s load that is not fixed by the block floats at the clearing price set in the wholesale market for the region in which the hospital is located.

This index and block structure allows for a layered approach and allows the hospital to fix portions of its physical energy demand over time. For example, one layer might be purchased on closing of the initial supply contract, with more layers added on a monthly or quarterly basis, often relating to physical settlement months or years in the future.

Layers can be added up until the month when the energy is to be consumed. The benefit to the customer is building a portfolio of fixed prices, akin to dollar cost averaging in a supply chain contract. Over the past ten years, this active market management approach has proven to result in lower overall costs and less budget volatility than fixing the full price and volume on a single date.
As the electricity market has matured, some leading energy advisors are now able to offer their clients access to forward market price curves and provide advice on managing future budget risk. The use of statistical probability modeling and other analytical methods to manage market risk has also introduced a new level of service for larger retail commercial buyers. While not as widespread as the traditional fixed-rate product, this new level of “market management” service is changing how hospitals buy electricity and natural gas.

2.6.2. Non-Energy Components

In addition to the energy commodity, the retail energy purchase includes other charges such as capacity, transmission, ancillaries, and distribution line losses in the case of electricity. For gas purchases, non-energy costs include transportation, lost gas charges, and energy conversion factors. In general, these additional cost components are charged based on tariffs that are regulated by either state or federal regulators, so the end-user likely will have little control over them. See Appendix 3 for additional information regarding non-energy components.
Appendix 1: Case Studies

Today, hospitals and health care systems are challenged to reduce energy costs through smarter market purchasing and physical energy asset development. Many have adopted new best practices in energy procurement for their facilities. These practices go beyond traditional auction methods of market sourcing and procurement.

In establishing the new standards, many major health systems challenged themselves to adopt analytical and sourcing methods that are usually reserved for energy wholesalers and suppliers. This required the systems to align internally so that facility, finance, and supply chain experts are collaborating around a common energy strategy.

The following systems are realizing significant energy savings as a result of energy procurement changes.

**WellSpan Health**

At WellSpan Health, a multi-hospital network based in York, Pennsylvania, the transition from a traditional bid-based, fixed-rate procurement method to an actively managed market approach has yielded savings of $2.1 million over the current contract term. WellSpan began by organizing a multi-disciplinary committee consisting of the chief financial officer, the chief operating officer, the vice president of treasury, and key facility directors. The committee actively manages the electricity and natural gas spend.

In the early years, the health system preferred fully fixed-rate energy products provided by the retail sale subsidiary of its local utility as these offered the most budget stability. After considerable study and discussion, WellSpan became more open to the competitive market and eventually joined a large hospital aggregation that purchased energy as a group. In joining the aggregation, WellSpan moved away from the utility and began using the group’s electric supplier, which had agreed to reduce the margins it was charging by 50 percent.

The next step was for WellSpan to begin using statistical market modeling to identify savings opportunities in the forward markets. This led to a new
product design in which the health system layers its energy purchasing over time. The result has been multimillion dollar savings compared to the traditional approach.

**SSM Health**

SSM Health based in St. Louis, Missouri, is a Catholic health system with more than 40 owned and affiliated hospitals across multiple states.

Prior to adopting an aligned model, individual SSM hospitals were purchasing their own energy, often using contrary strategies. The divergence between facilities ranged from hospitals that purchased fully fixed rate energy on a single date, to others that rode the monthly index market with no fixed pricing at all. At the system level, there was no coordination and market gains were being cancelled by market losses.

Starting in 2013, SSM made a corporate decision to change the way it purchases energy. The first step was to form a committee consisting of finance, facility, and supply chain leaders to set strategic direction. The next step was to collect every system facility’s energy data and assess the opportunity to create savings. This process, led by the corporate manager of purchased services, revealed a significant value to implementing a fully aligned approach to energy.

Next came the implementation stage in which the willingness of facility leaders to collaborate and pool their knowledge played a crucial role. Once aligned, the facility group appointed representatives serve alongside finance and supply chain leaders to make market decisions for the overall SSM system. The key is keeping everyone informed and aligned around the central goal of reducing energy costs.

SSM worked through the system treasurer and chief investment officer and used the services of a contracted energy advisor. The process drove nearly $3 million in savings for 2015–16. “The process resulted in a cultural change for SSM. Energy purchasing was transformed from an individual, hospital-level activity to a system-wide initiative.
Appendix 2: Competitive Markets

Natural Gas

Hospitals are able to access the competitive natural gas market in nearly every state, although some rural locations may not have service.
**Power**

Eighteen states, plus the District of Columbia, allow large energy users some form of access to the competitive electric market. They are: CA, CT, DE, IL, MA, MD, ME, MI, NH, NJ, NY, OH, OR, NV, PA, RI, TX, and VA.
Appendix 3: Non-Energy Components of Energy Supply

Retail suppliers are responsible for more than just the physical supply of energy. The standard retail supply product includes the commodity plus the transportation services necessary to deliver the energy to the retail customer’s local utility delivery system. The utility then delivers the energy to the hospital’s on-campus meter.

In general, these additional cost components are charged based on tariffs that are regulated by either state or federal regulators, so the end-user likely will have little control over them.

Electricity Non-Energy Cost Components

The standard retail electricity supplier product includes the following components in addition to the actual energy produced by the power plant:

**CAPACITY.** A charge levied by the regional transmission organization (RTO) to ensure regional electric system reliability. The capacity charge reflects generation plant fixed costs and is intended to ensure that sufficient power generation is available to meet peak system requirements, both now and in the future. Capacity pricing is determined by the RTOs through competitive auction among available power generators and may be set up to 3 years in advance. Not all RTOs charge for capacity as a separate cost. Customers are usually charged for capacity based on annual peak demand requirements for the facility.

**TRANSMISSION.** Transmission is the cost of building and maintaining the interstate high voltage lines that connect power generators to the utility’s distribution system and utility to utility. Transmission cost is regulated by the Federal Energy Regulatory Commission (FERC) under traditional cost-based rate making. Charges are fixed on regulated tariffs and are typically based on peak demand requirements for the facility. In some states, the utility collects
transmission fees and in others the supplier is responsible for them, so be sure to understand how your local regulations treat these charges.

**ANCILLARIES.** “Ancillaries” refers to a portfolio of as many as 30 energy-related services that are required for grid reliability. These services include voltage control, frequency control, generation reserves, black start, operating costs, and so forth. These charges are determined by FERC-regulated tariffs and are billed to the supplier by the RTO.

**DISTRIBUTION LINE LOSSES.** These losses refer to the additional energy that a supplier must deliver to the grid to account for resistance in the lines. Suppliers have to provide 3 percent to 10 percent more energy to the grid than ultimately flows through a facility’s electric meter. There are a number of ways that suppliers bill for this, so be sure to understand how losses are accounted for when comparing offers between different suppliers.

In a fully fixed-rate product, the supplier typically fixes the retail energy rate through a wholesale market swap that ensures that the supplier’s market risk is covered. Capacity, transmission, and ancillary costs are priced based on utility tariffs, and they are not traded at the retail level. This means that the hospital cannot hedge these costs in the market and the hospital is usually best off simply having the supplier pass the costs through at whatever tariff rate was in force at the time of use. In some cases, a supplier may be willing to fix the cost for capacity, transmission, and ancillaries and to stand by that price even if the tariff goes higher. In this case, the supplier will add a risk premium to cover its exposure on the tariff-based components.

**Natural Gas Non-Energy Components**

The standard retail natural gas supplier product includes the following components, in addition to the actual fuel being purchased:

**TRANSPORTATION.** The first component is the cost of transporting the gas across the interstate or intrastate pipeline system before it reaches the local distribution company (utility). In many cases, the supplier price is for gas delivered to the utility system and is inclusive of transportation costs. In some cases, however, the gas may be priced at a gas “hub” or pricing point that is not at the utility connection point, giving rise to additional costs for shipping the gas from the hub to the utility. Transportation costs are regulated tariffs, but discounted costs are sometimes available from the supplier.
**FUEL AND/OR LOST GAS.** Fuel and lost gas are the additional energy that a supplier must deliver to the utility to account for gas to fuel compressors that keep pressure in the lines and for gas that is lost in the system due to leaks. Suppliers have to provide 1 percent to 5 percent more gas than ultimately flows through a facility’s utility meter. There are a number of ways that suppliers bill for this, so be sure to understand how losses are accounted for when comparing offers between different suppliers. Some contracts are priced “at the meter” with pricing that is grossed up for losses. Others are “at the gate” and there will be additional volume charged at the contract price to account for fuel and losses.

**ENERGY CONVERSION FACTORS.** These factors need to be considered if the utility is metering and billing for gas in units different than the heat content value used for market-traded contracts. Gas is generally metered in volume through the meter, and is measured in cubic feet, sometimes expressed as hundreds (ccf) or thousands (mcf) of cubic feet. However, MMBtu gas trading and pricing is based on the heating value (or energy) contained in the gas and measured in British thermal units (BTUs), which is often expressed as millions of BTU (MMBtu). Sometimes utilities refer to a million BTUs as a “dekatherm,” and they measure smaller volumes in “therms,” which is 100,000 BTU. Many utilities will have a fixed conversion factor, but some will have a variable factor that changes monthly, so you need to understand how your supplier will be billing for this conversion.