Thomas A. Edison Will Finally Smile: The Pricing of Energy Services, Not Kilowatt-Hours

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Now that demand-side management (DSM) has emerged as a realistic option to selling only electricity, the concept of energy service as a utility's end product can be realized. Energy services, not electricity per se, are what Thomas A. Edison originally intended to sell. Customers want light, heat, cooling, and entertainment; utilities (or third parties) can sell these services directly to customers while maintaining the equipment. When utilities sell energy services, customers receive convenience and save on their electric bills. This significant change in how utilities provide services to customers can put DSM on a truly level playing field with supply alternatives of all kinds, provide superior customer value, and maximize economic efficiency. This change will also allow Edison to finally smile.

This paper will describe the technical, logistical, competitive, marketing, and pricing hurdles to enacting energy service pricing programs. Details of the following will be included in the paper:

- Major hurdles: Appropriate pricing levels, pricing bundled or unbundled services, developing a baseline, contract development, measurement of energy service level delivered, metering requirements, brokering of power and gas, appliance replacement and ownership, price escalation rates.

- Competition: Energy service pricing in regulated and non-regulated environments, competition among utilities and ESCOS, barriers to entry.

- Marketing approaches: Defining the product (e.g. lumen levels on work surfaces, air temperature and humidity, air quality, power quality, etc.), approaching appropriate market niches (customers with high margins, low interest in energy, willing to contract services, etc.), coordination with trade allies and utilities.

The paper will finish by developing a sample case study of how a utility or other company might enact an energy service pricing program. This paper is valuable in that it brings a host of customer, DSM, supply-side, and competitive issues together into a coherent package, and describes a scenario that is highly likely to emerge in the near future.

Introduction

Since the start of the centralized electric utility system, power has been sold by the kilowatt and the kilowatt-hour. Typically, utilities allow customers to purchase as much power as they want, then bill them monthly. Regulated electric utility pricing spreads large capital expenditures over long periods of time. Historically, customers saw their rates actually decline as new power plants were built. In recent years, however, these supply-side economies of scale have disappeared. Still, rates have increased slowly because of the long amortization periods of power plants and the wide diversity in investment time horizons.

Traditional ratemaking and regulation have tended to encourage customers to accept as a given that utilities and regulators make good decisions about large capital investments for energy production. The form that electricity payments have taken under traditional regulation—average, monthly, retroactive payments—encouraged customers to underinvest in their own capital expenditures for energy-efficient appliances. Therefore, in the long run they have paid more than they needed to for energy services. This overpayment is sometimes referred to as the "payback gap" but it is also referred to as a market barrier. Other market barriers have also led to underinvestment in energy-efficient end-use technologies. These other barriers have included:

- The desire of both buyers and builders to keep the purchase price of homes and buildings low even though customers pay the cost of inefficiency over a long period of time;
- Lack of suitable information about the energy consumption and cost of each end use;
- Lack of information about how well technologies work; and
- Lack of availability of appropriate technologies.

In essence, DSM has attempted to overcome these and other barriers that were created by an electric utility system that for years concentrated on the supply side.

Energy Services Versus Electricity

To fully understand the breadth of opportunities for improving the electric delivery system, one must understand the concept of energy services as an end product. Electricity is a derived demand; that is, it is something consumed to obtain some other product or service. Consumers purchase electricity to keep warm or cool, to light their homes or buildings, to process goods, or to facilitate some other function. Consumers would accept other fuel sources or means of meeting their end-use goals if the resulting service is equivalent to or better than the service provided by electric utilities and the cost is the same or lower. In some states, regulators have encouraged utilities to change their product orientation to the energy service market by providing DSM regulatory incentives. Traditional regulation, by contrast, tends to reward increases in electricity sales.

To make a truly economically efficient decision, a customer must look at the *energy service* in question as the ultimate product. Customers can achieve an end-use objective through the joint use of capital and energy. The customer can optimize the mix of these two goods by looking at the total costs of the various combinations that meet the end-use objective.

Example

Assume electricity rates of 8¢/kWh. A residential customer needs to buy a new refrigerator. He knows that a refrigerator uses electricity, but he is unsure of how much it uses or how much it costs per year to operate. Without much thought, he concludes that the cost of running the refrigerator is relatively insignificant, especially since he only pays for it a little each month. Since the running cost of the refrigerator is not separated out on his monthly energy bill, which has no end-use information, the customer has no easy way to ascertain what the actual cost of running the refrigerator is.

At the store, many models are available with a variety of energy efficiencies. The customer likes two models best, one with a price of $900 and one with a price of $700. When he asks the salesperson about the price difference, the salesperson astutely replies that the $900 model is more energy efficient. They cannot quite figure out what the yearly savings would be, even with the benefit of the yellow appliance label, but the customer decides that it must take a long time to recuperate the $200 cost difference, so he buys the less-expensive unit, happy that he has made a wise economic choice.

Analysis

The more efficient refrigerator uses about 25% less energy than the other model, which equals a monthly savings of $3, or $36 per year. These savings make the payback period approximately six years. Given that the average customer does not want to tie his money up for long periods of time, the customer in our example actually made a logical decision. However, from the perspective of life-cycle cost, the energy-efficient model has much lower costs, saving about $500 over its 20-year life.

The Solution

To make the optimal life-cycle decision for the purchase of the refrigerator, costs must be analyzed on an equivalent basis. I use two simple methods to illustrate this type of analysis. (Neither method factors in discount rates or inflation.) The first method assumes hat because a refrigerator is typically paid for in a lump sum, the energy to drive the refrigerator is also paid for in a lump sum at the time of purchase. In essence, the customer is faced with two choices: (1) buy the inefficient refrigerator ($700) along with the “energy package” (think of it as a battery pack that lasts as long as the appliance) needed to run it ($2,880) for a total of $3,580, or (2) buy the efficient refrigerator ($900) and its energy package ($2, 160) for $3,060. This decision is much easier for the customer this time. He opts for the efficient unit.

Although the first method is useful to demonstrate how purchase and payment methods can alter investment decisions, the second method provides a more likely scenario. Under the second method, we assume that when the refrigerator purchase is made, the cost of the refrigerator and the energy it uses is “bundled” together. The customer cannot buy one without the other. The seller provides the refrigerator on a monthly cost basis over its useful life, much like a lease. However, the customer not only pays for the equipment but for the entire energy service, including the energy cost. If we ignore inflation and other carrying costs, the inefficient unit costs $14.92/month, whereas the efficient unit costs only $12.75/month, a 15% savings. The customer would choose the bundled energy service package that has the lower cost per month and a $520 lifetime savings. The energy service level he would receive from the efficient model would be equivalent to that of the inefficient model.

Eliminating Market Barriers

In each method described above, both the supply (electricity) and the demand (appliance) decision is balanced and optimized from the customer's perspective. The second method is energy service pricing: selling customers an end use for a periodic fee. The vendor packages the technology and the energy as a single product.

Most of the other market barriers to high-efficiency investment also disappear under the second method. Information and availability barriers are more likely to be adeptly handled by third parties whose job it is to analyze energy life-cycle costs and make the best technologies available.

From the perspective of a utility that earns its money by selling more kilowatt-hours, the decision to offer energy service pricing would be suboptimal for its financial well being. However, as market barriers to demand-side investments fall, utilities will enter this competitive arena. Energy service costs would likely be competitive given that a number of vendors would be competing to provide the best package of services and value for the cost. This value could easily include nonenergy benefits, such as maintenance services and productivity improvements.

Why have third-party firms, like energy service companies (ESCOs), not taken advantage of this DSM "arbitrage" opportunity? It appears that third parties could easily take a large part of the profits from the differential in life-cycle costs and pass some of the savings on to customers. There are several reasons why third parties have not yet built large businesses from this opportunity:

- Some companies *have* taken advantage of this opportunity through shared savings arrangements, but these types of agreements are not common or large in scope.

- For historical reasons, public utilities typically have a high level of credibility as energy providers compared to third parties. The energy service market is thus a tough one to enter.

- The energy service business is risky for smaller companies, as the savings for customers can be highly uncertain.

- Historically, energy analysis and measurement techniques have not been highly effective or accurate. However, over the past several years many new techniques and models have been developed to better assess the energy use patterns of buildings and equipment.

- The potential for energy savings has not been large in the past because of the relatively low cost of energy and the relatively narrow band of efficiency that characterized typical competing appliances. Recently, with electricity prices rising in many areas, profit margins for businesses narrowing, and many companies pushing for more efficient appliances, the economic savings potential has risen dramatically. Thus, the stage is set for more parties to take advantage of demand-side arbitrage.

Thus, the energy service market could expand dramatically in upcoming years, especially with access to a variety of retail electricity suppliers.

The Strategic Benefits of Energy Service Pricing

The benefits of energy service pricing (ESP) can be significant for both the utility and the customer. As competition becomes more intense between energy service providers, ESP can be a significant competitive tool that helps utilities to offer a variety of value-added services along with their electricity sales. Most value-added opportunities lie in using electricity more effectively. ESP can facilitate the capture of these opportunities. Also, ESP can facilitate the creation of strong long-term relationships between a utility and its customers. Long-term energy service contracts can help utilities retain customers by providing a wider variety of services. These services may even include the use of alternative fuels, if those applications are profitable. Finally, ESP allows a utility to identify and pursue market niches that are mutually beneficial for the customer and utility.

Some potential service options include:

- Maintenance services
- Installation and removal of equipment
- System optimization
- Power quality enhancements
- Backup generation
- Information about customer energy use
- Real-time monitoring

- Productivity or comfort enhancements
- Engineering and technical assistance

With their additional bundled services, utilities would be able to charge more for added value while still offering low-cost basic services.

Customers will be interested in ESP because it will give them the ability to lower their overall cost of energy services or increase the value of their energy services through some of the mechanisms outlined above. Some services will replace existing services. Other services will make businesses more productive. ESP will be the vehicle for delivering the added value.

The relationship between DSM and ESP is important. DSM programs that are selected because they pass the Total Resource Cost Test have tended to increase rates and bills for nonparticipants compared to the alternative supply-side option. Many DSM programs provide up-front rebates to participating customers to overcome the market barriers to investment. A pure ESP program would not have the same effect, as each customer would be an independent investment that does not directly affect the rates of the other customers. Market barriers would be overcome through positive cash flow and bundled service attributes rather than by rebates and cross-subsidies.

The Current Marketplace

To understand how ESP would work in practice, it is useful to lay out how the marketplace currently works and how that might change with ESP. I assume here that a utility will be the provider of the ESP program (this assumption will be discussed in more detail later), although it could be another third party provider. Table 1 demonstrates how the current marketplace would be altered by ESP.

Under ESP, conflict could potentially arise between the utility and traditional providers, such as retailers, distributors, contractors, and engineering firms. Customers may also have a difficult time understanding ESP given their long history with traditional methods. I return to these problems later.

Pricing Options for ESP

Several different pricing arrangements can be envisioned within an ESP framework.

- *Pure ESP, whole building.* Under this arrangement, the customer would not receive an electricity or gas bill. The utility would contract for all energy services for a given building and send a bill for those services to the customer on a periodic basis. The utility might bundle other services with the basic energy services; it might also provide information on energy use.

- *Pure ESP, partial services.* Another arrangement would entail contracting for select end uses within a building. For example, the utility could contract separately for lighting, air comfort level, refrigeration, or other end uses of interest.

- *Retrospective ESP. This* arrangement would be similar to the shared savings that some energy service companies and utilities offer. Customers would pay their electricity and gas bills, but the utility would identify the savings attributed to the new energy-efficient technologies that they had installed. The customer would share some portion of the identified savings with the utility through a separate debit method.

- *Energy service charge.* Utilities might offer some energy-saving technologies to customers, then place an additional, separate energy service charge on their monthly bill for a period of time. In concept, this arrangement is similar to shared savings with predicted, as opposed to measured, energy savings. The intent is to avoid the up-front cost for the customer while assuring positive cash flow from the first month of installation.

Developing the Contract

One of the most important and difficult tasks of an ESP program will be to develop a contract that ensures an increase in value for the customer and profits for the utility. Many technical and analytical skills will be required to ensure that the contract is sound. The contract might consist of the parts listed in Table 2.

Building, Technology, and Cost Analysis

A great deal of analysis will be required to determine how to design the optimal energy service program for a given customer. This analysis will be simpler for a new building in the design stage and more complex for existing buildings with complicated processes.

A complete audit of the customer facility must be conducted to develop a model of the building's energy use. At the same time, all available information on energy use patterns should be gathered including energy bills, energy management system documentation, and load shapes. With this information, the building and its equipment should be analyzed with a building simulation model, then calibrated to actual load data.

Table 1. How the Current Marketplace Would Be Altered by ESP

Current Structure	Structure with ESP
Utility bills for monthly kW/kWh	Utility bills for monthly energy services
Utility has obligation to provide reliable electricity to customers in its service territory	Utility has contractual agreement to meet customer end-use requirements for a certain price and duration
Customers make technology purchase decisions	Utility makes technology purchase decisions with customers
Customers pay up-front for technology purchases or finance them	Utility purchases and provides the use of the technologies and bundles them with energy for a fee
Customers purchase technologies from vendors	Utility purchases technologies from vendors, distributors, or manufacturers
Contractors and A/E firms specify technologies to install	Utility determines or specifies which technologies to install
Customers maintain equipment or hire contractors to do so	Utility maintains equipment directly or through contractors
Customers have incentive to maintain equipment and operate it efficiently; however, most do not have the knowledge or inclination	Utility has strong incentive to maintain equipment and operate it efficiently; utility also has knowledge and inclination
Customers must sort through variety of information sources to piece together their energy and business decisions	Utility bundles energy services together and can add other value-enhancing services

Once the baseline energy service level and costs have been established, the analysis of cost-effective new technologies can be conducted. This step could become time consuming if a high level of optimization is conducted. In essence, the analysis should identify the trade-offs in costs between incrementally more efficient technologies and the energy cost savings. Although this type of analysis is a complex task, with experience these analyses should be fairly accurate over a large number of applications. Also, in recent years more end-use load data and more advanced techniques and models for both predicting and measuring energy use patterns have become available. As time goes on, analysis costs will drop significantly.

Pricing Terms

The pricing terms in the contract will determine the attractiveness of the ESP program to the customer and the potential profitability to the utility or energy service provider. The utility will be providing several services of value, even with its basic energy service pricing program.

The ESP program will help overcome many market barrier costs. Specifically, ESP will:

- Eliminate customer up-front costs
- Guarantee positive cash flow without a loss of service quality
- Eliminate search costs and economic analysis costs for the customer
- Alleviate fears of technology failure
- Lower ongoing operating costs

Given these benefits, one could anticipate that any level of monetary savings would be attractive to customers as long as the ESP program truly eliminates their market barrier costs. However, the greater the savings, the greater the number of customers that will participate. The particular pricing terms must be determined using the specific

Table 2. Parts of a Contract in an ESP Program

Contract Item	Work and Analysis Required
Technology change-outs	Utility must analyze which energy-using technologies are currently cost-effective and which should be replaced and at what point in time. This type of analysis would require the ability to model energy use, to determine the relative efficiencies of current versus new technologies (including interactive effects), and to accurately predict energy impacts.
Pricing	Utility must predict how the energy savings will translate into dollar savings. This type of analysis would include prediction of load shape changes and future energy prices. Also, the division of savings between the customer and the utility must be estimated. Savings for the customer must be attractive while leaving profits for the utility.
Pricing terms	The duration of the contract and the flow of money must be determined. The duration needs to be long enough to allow the utility to recover its investment. Also, the cash flow division may change over time. In addition, the customer may want to include some "out" clauses in case conditions change dramatically.
Operation and maintenance	The contract should specify responsibilities for operation and maintenance of each technology. There may be a maintenance schedule.
Performance specification	The contract must specify the energy services that will be provided. For a retail establishment, for example, this might include a certain lumen level and color rendering on product surfaces, a temperature and humidity band for the air, a level of power quality for electronic equipment, and a reliability level for overall electric service.
Performance monitoring	The contract would also specify how the performance will be measured and how disputes will be resolved.
Ownership	Initially, the equipment might be owned by the customer or the utility. Also, equipment might be leased from the utility to the customer or vice versa.

customer profiles, their rate structures and load shapes, the technologies involved, and the potential energy savings. The following steps will probably be needed to determine the price terms:

1. Determine the costs of purchasing and installing the new cost-effective equipment. Amortize these costs over the contract life at the utility's discount rate to develop a cash flow on the cost side.

2. Determine the costs of operating and maintaining the equipment over the life of the contract. These costs are added to the equipment costs. Also add any marginal administrative costs that would apply.

3. Determine the utility cost savings of the new equipment versus the old equipment. These savings are not the same as the potential bill savings at the customers' current rates, as reduced rates and reduced utility costs are not synonymous.

4. Develop the net savings cash flow on a monthly basis by subtracting costs from savings.

5. Create a price to the customer for the energy service that will yield a net savings compared to what they would have paid under conditions of normal service operations and rates. The remainder will be left as profit for the utility or returned to ratepayers. The price will be set by either regulation or market forces, depending on the umbrella under which the utility is working.

Performance Specification and Monitoring

A highly innovative and unique feature of an ESP program will be the specification of the energy service levels that will be delivered to the customer. At present, few organizations around the country have experience with energy service delivery. Some end uses will be fairly straightforward to specify, but others will be more difficult. In the early stages of experience with ESP, utilities must work closely with customers to ensure that they are comfortable with the contract agreement. Table 3 lists the end uses illustrating the performance specifications that could be included in the contracts.

The energy service contract must specify the level and range of end-use service and the methodology for actually measuring and documenting the end uses of interest. Although many different methods are available to measure and monitor the energy use characteristics of an end-use technology, the addition of other service attributes can-complicate the issue.

For example, most inexpensive lighting monitors measure the length of time the lights are on, and another device is needed to measure the power draw of the set of lights. This protocol normally used for assessing DSM lighting impacts would not be adequate in ESP. The assessment would require more comprehensive measurement that would include measuring the lumen level throughout the customer's building and assessing the color rendering. These measurements could be obtained during a walk-through or a "mini-commissioning" of the facility. The important thing is that the customer must be pleased with resulting design.

For HVAC applications, it would be necessary to go beyond the measurement of the energy use of the technologies, which is the normal procedure for DSM evaluation. The ESP measurement would need to include ongoing monitoring of temperature, humidity, air flow, and air makeup. Documentation would also be necessary to ensure that the contract terms were met.

Liability Issues

An ESP program will expose the sponsoring utility to new forms of risk. The utility will be able to reduce some of these risks through appropriate contract language and through experience with ESP programs. The risks that utilities must address include:

- Underperformance of the equipment
- Unexpected fuel price changes (electricity or other)
- Unexpected weather changes
- Quality problems with the end-use product
- Misrepresentation of the end-use product
- Major changes in customer building and equipment use

The utility must decide which of these risks they will bear and which they will put on the customer. Those risks that are likely to be taken by the utility are equipment failure, quality problems, and misrepresentation. The risks that

Table 3. End-Uses Illustrating Performance Specifications

HVAC	Temperature range, humidity range, air flow rate, outside air makeup, hours of operation
Lighting	Lumen level at various points/heights, color rendering, task lighting versus general lighting, security lighting, hours of operation
Refrigeration	Temperature of stored goods or chilled water delivery, rate of delivery, hours of operation, refrigerant type
Motors	Drive power, work output, noise level, power quality, hours of operation
Plug loads	Quality of power, reliability level
Process loads	Specifications that are particular to the given process (throughput, quality, temperature, precision, safety, etc.)
Electric vehicles	Size of vehicle, miles driven, miles between charges, charging time

might be borne by either party or shared include weather changes (which could be adjusted by degree-day normalization), fuel price changes (which could be linked to an index), and changes in equipment.

One of the selling points of a complete ESP program will likely be that the customer will bear virtually no risk. A large group of customers would probably choose to pay a premium in exchange for eliminating yearly or monthly fluctuations in energy costs, having the utility make equipment purchase decisions, or taking care of operation and maintenance.

Identifying Target Markets

Certain customer groups will be more inclined than others to participate in ESP programs. Commercial customers are the most likely target markets initially, but residential customers may become more attractive in the future. Characteristics of likely target customers might be as follows:

- Not interested in managing their own energy operations
- Concerned about overall operating costs
- Earn moderate to low profit margins
- Wish to upgrade quality of energy operations
- Trust utilities more than trade allies
- Avoid hassles whenever possible
- Place a premium on environmental benefits

Large industrial customers tend to manage their own energy operations and have dedicated personnel for operation and maintenance. These customers are more inclined to look for the lowest electricity price rather than purchase energy. services. Commercial customers that use a moderate amount of energy tend to concentrate on their primary business. Thus, retail stores are most interested in selling their products, restaurants are most interested in catering to their customers' tastes for food and ambience, and professional offices are most interested in emphasizing employee comfort and productivity. Although these customers are not primarily interested in energy or energy costs, they appear to offer a great opportunity for enhanced energy services. Many customers may be willing to pay more for better services or to reduce the hassles they have to deal with.

See Table 4 for potential target markets for an ESP program.

Other forms of segmentation may also be appropriate for targeting ESP services. Needs-based segmentation is of particular interest. EPRI's CLASSIFY program divides commercial customers into nine different needs-based segments, each of which has its unique business strategy, business operations, energy operations, and end-use applications. Although five of the nine segments face major barriers to traditional DSM programs, it appears that only two segments face significant barriers under an ESP program.

Needs-based segmentation can assist in the marketing of ESP in two key ways. First, it can help identify those businesses with a high potential for purchasing ESP program services. Second, it can help relate key ESP program attributes to the persons in the target organization who are important decision makers. For example, the chief financial officer may be most interested in the contracted cost of the energy services, but the building manager may be most interested in the end-use technical specification of the contract.

Ownership and Financing Issues

The ownership of the equipment used in an ESP program will probably be a complex and important issue. In some cases, existing equipment will be taken over by the utility or possibly leased from the customer to the utility (leaseback). In other cases, the utility will own the equipment and lease it to the customer. Variations on these options are possible if third parties are involved.

Financing will also take on many different characteristics, and it will often be connected to the ownership issue. Loans from the utility or a third party could be used to finance customer-owned equipment. -Alternatively, if the equipment is owned by the utility, the utility could self-finance or finance through third-party lenders.

Customers typically either own their own equipment or lease it as part of their overall building lease. The ESP program may need to alter this relationship. The options for doing so include:

- Financial lease. In this arrangement, the lessor extends credit to the lessee and transfers all responsibilities of ownership, including maintenance, insurance, taxes, etc., for a period close to the economic life of the leased equipment. At the end of the lease, the lessee has the option to buy the equipment at not less than fair market value or to return the equipment. Financial leases are similar to mortgage-type loans. A sale and leaseback arrangement is one type of financial lease.

Table 4. Potential Target Markets for an ESP Program

Target Market	Lighting	HVAC	Motors	Refrigeration	Plug Loads	Process
	Energy Services					
Retail stores	✓	✓				
Office buildings	✓	✓			✓	
Restaurants	✓	✓	✓	✓		
Hotels		✓	✓	✓		
Institutions (schools, hospitals)	✓	✓	✓	✓	✓	
Groceries	✓	✓	✓	✓		
Light industrial customers	✓	✓	✓	✓		✓

- Operating or service lease. This type of lease includes both financing and maintenance and usually applies to office equipment and vehicles. This lease often applies for periods much shorter than the useful life of the equipment (either periods less than full amortization are prescribed or periods are cancelable). This type of lease is especially valuable to lessees that upgrade equipment frequently.

- Utility ownership. In this arrangement, the utility owns the equipment and simply sells the output of the equipment. It is not clear how this arrangement would work from an accounting or tax perspective.

- Customer ownership. In this arrangement, the customer would retain ownership and lease back the equipment to the utility.

Addressing Concerns of Trade Allies

ESP programs will require utilities to move into a market normally addressed by trade allies, including engineering firms, electrical contractors, distributors and retail sellers, energy service companies, and lending institutions. Although we have seen that utilities will want to be involved with these aspects of energy service delivery, it is not a foregone conclusion that utilities will take on all the responsibilities themselves. The utility could act as the organizer and manager of the ESP operation, subcontracting the work out to existing trade allies.

It is likely that a large-scale ESP program would accelerate the change-out of equipment, expand OtkM operations, and require substantial amounts of capital. Thus, an ESP program could be a boon for local trade allies. Utilities wanting to appease trade allies would emphasize this aspect of the program.

Trade allies may protest that the utility has unfair market power due to its long-standing monopoly presence. Regulators will have to address this issue, and utilities must be sensitive to the use of traditional labor pools. Ultimately, the trade ally issue will be largely driven by the business strategy decisions of the utility. As with DSM programs today, different utilities rely on trade allies to different degrees depending on their in-house capabilities, their relationships with trade allies, and their customer service philosophy.

Regulatory Issues

Regulators will certainly note that an ESP program is nontraditional from a DSM perspective. Since ESP could be conducted from outside the utility by any third-party organization, regulators will probably give ESP special attention.

Specific concerns that regulators may have include:

- Will this type of program promote anticompetitive effects in the energy service marketplace?

- How will an ESP program benefit ratepayers, as opposed to shareholders?

- How can the participants be protected? Will there be some type of price control?

- Regulators will need some type of scrutiny over contracts, but how much?

To gain regulatory approval for a pilot ESP program in a regulated environment, a utility should probably concentrate on the positive attributes for the customers in general. These attributes include:

- Overcoming significant market barriers
- Making customers more economically efficient ,
- Capturing comprehensive DSM measures
- Making long-term changes in the energy-efficiency market
- Eliminating the need for cross-subsidies that can increase rates
- Creating a program in which alternative fuels could be used
- Improving the environment

Three forms of ESP programs could emerge. Each one will have its own particular regulatory problems and issues.

1. *ESP within a regulated environment.* ESP programs in this environment will probably be treated more as DSM programs with a different delivery mechanism. Program success would be measured by determining cost-effective levels of resource savings. Regulators would monitor and dictate the allocation of savings between ratepayers and shareholders.

2. *ESP outside of a regulated environment but inside the service territory.* Under this form, virtually anybody could sell energy services to customers. An ESCO could simply take over a customer's energy operations, pay the bills to the electric and gas utilities, and charge the customer for energy services. Given the potential for competition in this market, utilities could likely conduct ESP programs through unregulated subsidiaries. Regulators may have concerns but not be able to address them outside of courts. However, trade allies may bring up antitrust issues, claiming that the utility's monopoly position gives it an unfair advantage in the marketplace.

3. *ESP outside of a regulated environment outside of the service territory.* Like option 2, no real barriers to entry would exist for the ESP market under this form. Utilities might soon be competing against one another for the same customers under these types of programs. Some utilities may choose to collaborate on ESP projects.

Launching a Program

Launching an ESP program will require an orientation that is somewhat different than that associated with most DSM programs. An ESP program will require the development of site-specific contracts that pay particular attention to whole-building energy use. Also, operational changes will be as important as technological changes. The following steps will be required to start an ESP program:

- Market Potential Analysis. This analysis would consist of identifying those customer groups most likely to take advantage of an ESP program and estimating the level of energy services for which they may contract. As mentioned above, certain customer groups will be much more likely to participate in ESP programs due to their specific business characteristics.

- Profitability Targets. Using the market potential analysis, the utility could estimate the potential savings associated with ESP applications. This estimate would be translated into potential profit margins and savings to customers. The utility would determine the appropriate pricing mechanisms to attract customers, as customers would be purchasing something that is unique. One method to enter the market might be to guarantee savings to a customer over a period of time relative to the costs that the customer would have incurred outside the ESP program.

  The utility would also thoroughly analyze the potential profitability of various program options and conduct a sensitivity analysis of market changes and other risk factors. Since customers may be willing to pay for value-added services, the price for these options would need to be determined.

- Marketing and Implementation Plans. The marketing plan would lay out the activities necessary to capture the market for energy services. Aspects such as delivery mechanisms, promotional messages and methods, price levels, and service options would be developed.

  Delivery might be conducted through the use of certified trade allies or with internal staff. Trade allies might be used in a turnkey fashion or on a task basis. Promotional messages would highlight the features and benefits that are important to the target customers. These messages might include lower operating costs, lower up-front outlays, guaranteed maintenance, and improved environmental quality.

Conclusions

An ESP program holds the potential to provide significant benefits to customers, the utility service provider, and society. Customers can lower their overall energy service costs and increase their productivity. Utilities can earn profits by providing enhanced services and retain customers through mutually beneficial contracts. Society-at-large benefits from lower environmental impacts due to better energy life-cycle decisions and from the resource savings that create more income for firms, which in turn boosts the economy.