

# PORTRAIT OF AN EMERGING INDUSTRY

*ESCOs are recreating themselves to explore new markets and adapt to changing ones.*

BY DAVID S. DAYTON,  
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**T**he process of restructuring the electricity industry continues to accelerate. Over time, most expect it to lead to lower but more volatile electricity prices and the development of new electricity-related products and services. For retail suppliers, both changes will require increased demand-responsiveness, flexibility, market coverage, reliability, and product differentiation. Thus, most participants in the retail electricity markets have become or are becoming energy service companies (ESCOs).

You can see this evolution in many places. A large number of electric utilities have launched ESCO divisions, made acquisitions, and offered new services. The pace of mergers and acquisitions among ESCOs themselves has quickened. In the last two years, an increasing number of energy saving performance contractors have been prequalified by the U.S. Departments of Energy and Defense. Membership has grown in industry trade associations, such as the National Association of Energy Services Companies (NAESCO), and professional associations, such as the Association of Energy Services Professionals and the Association of Energy Engineers. Energy marketers have actively pursued opportunities beyond the meter. And the number of third-party financiers for energy saving projects has increased.

Moreover, the structure of the ESCO market is changing as rapidly as it is growing. There are three major trends. First, independent ESCOs are declining both in number and share of the market for energy-efficiency services. Second, retail energy service companies (RESCOs) and utility-owned ESCOs are an increasingly

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Warren Gehring / IEC, Inc.

significant force in that market. Third, performance contracting, long a hallmark of the ESCO industry, is losing ground to other forms of energy service contracts in percentage of total revenue, except in the government market. (Table 1 identifies firms in the three major categories of ESCOs.)

So, what does the picture look like and what is it becoming?

### A Crowded Field

Most but not all traditional ESCO companies started as independents—that is, companies not owned by utilities or equipment manufacturers—although more than half have been acquired by utilities or others. In terms of size, most companies in this group have annual sales of less than \$100 million and derive most or a substantial part of their support from performance contracting arrangements. Some firms (Energy Investment, HEC, and Xenergy, for example) earn more revenue from engineering or consulting services than from performance contracting, but their ESCO peers still consider them significant competitors.

Few independent ESCOs are likely to survive electricity industry restructuring. Never dominant players in the ESCO industry, many of these firms (CES/Way, Energy Masters, and Co-Energy Group, for example) targeted niche institutional markets or grew through participation in utility demand-side management (DSM) programs (Noresco, Sycom, Proven Alternatives, Onsite Energy, Enersave, and Planergy). Over the last several years, most of these firms have been bought by utilities or energy marketers. For example, Energy Masters was acquired by Northern States Power, CES/Way was purchased by Energy Pacific (now part of Sempra Energy), and Noresco was bought by ERI. The few remaining independent ESCOs are trying to increase their market presence and reach either through strategic alliances with power or gas marketers or mergers—Onsite Energy's merger with Sycom is a good example. A few have

TABLE 1

### A PARTIAL LIST OF ESCOS IN THREE CATEGORIES

#### Traditional ESCOs

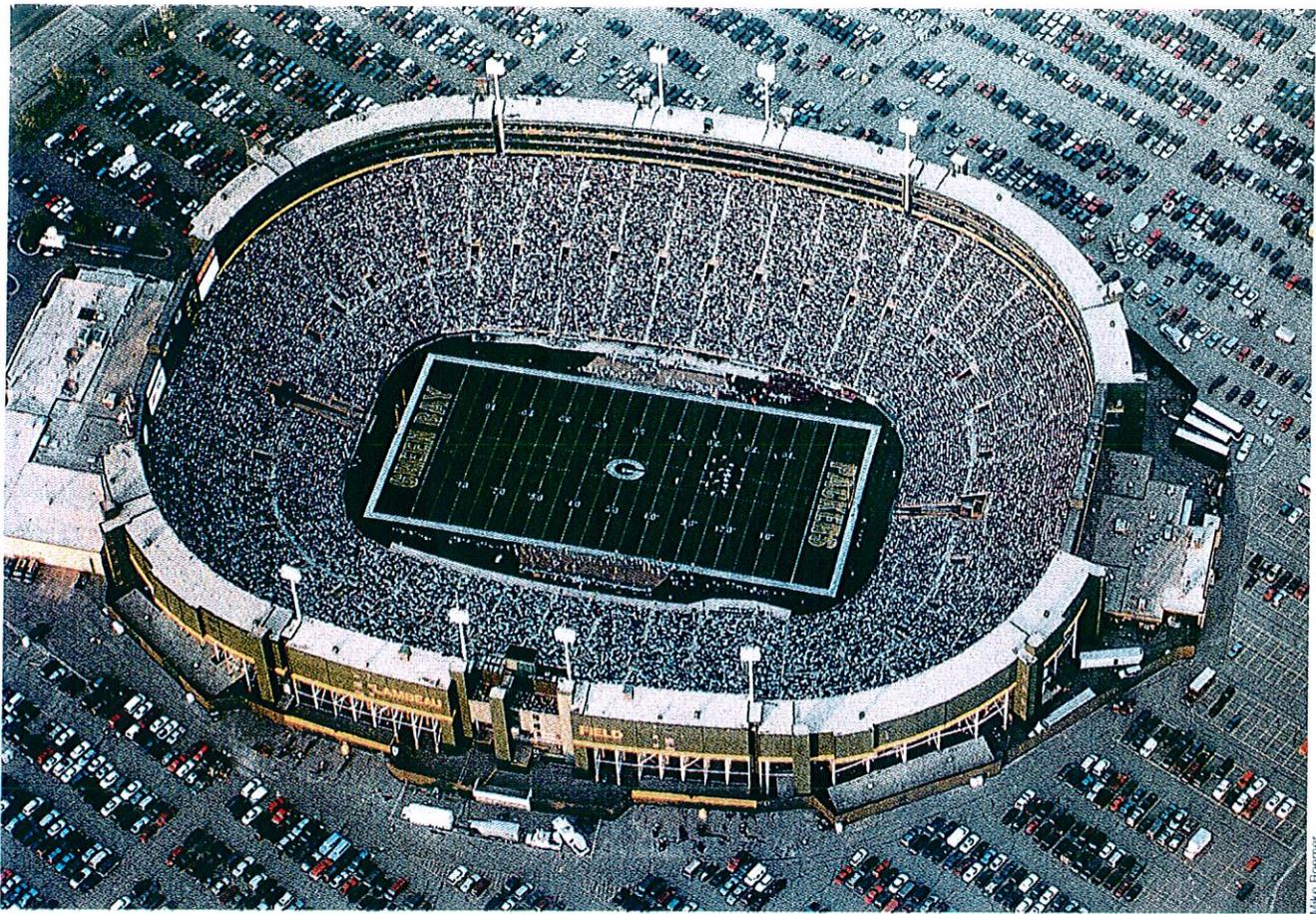
CES/Way (acquired by Energy Pacific)  
 Co-Energy  
 Cogensex; Citizens Conservation (acquired by Eastern Utilities)  
 Coneco (Boston Edison)  
 Custom Energy  
 DMC (acquired by Honeywell)  
 Energy Investment (acquired by Duke)  
 Energy Masters (acquired by Northern States Power)  
 Enersave  
 EPS (majority owned by PECO Energy, then divested)  
 Financial Energy Management  
 HEC (acquired by Northeast Utilities)  
 Noresco (formed by New England Electric System, then independent, then acquired by ERI. Conogen, IEC, Scallop, and Pequod also acquired by ERI.)  
 Onsite Energy (merged with Sycom in 1998)  
 Parke Industries (acquired by Carolina Power & Light)  
 Planergy  
 Power System Solutions  
 Proven Alternatives  
 Rose Technology (Canada)  
 Sycom (merged with Onsite Energy in 1998)  
 Tescor (Canada; acquired by Duke Energy)  
 Viron (acquired by York)  
 Xenergy (acquired by NYSEG)

#### Other Entities with ESCO Operations

Carrier  
 Enron Energy Services (acquired Bentley, others)  
 Honeywell  
 Johnson Controls  
 Landis & Staefa  
 Marriott  
 Phillips Lighting  
 Polsky Engineering  
 Service Master Energy Management  
 Trigen

#### Retail Energy Service Companies (RESOs)

AEP Energy Services  
 Atlantic Energy/Delmarva—Conectiv  
 Baltimore Gas & Electric—Constellation  
 BEC Energy—EnergyVision (interest sold out to Williams)  
 Brooklyn Union Gas Energy Services  
 Carolina Power & Light—SRS  
 Central Hudson Gas & Electric Energy Services  
 Central Maine—Combined Energy  
 Commonwealth Edison Energy Services  
 ConEdison Solutions  
 Consumers Power—CMS Energy Services  
 Duke Solutions  
 Edison Source  
 Entergy Enterprises  
 First Energy Services  
 FPL Energy Services  
 GPU—ENCON Services  
 HL&P Energy Services  
 Illinova Energy Partners  
 Kansas City Power & Light—The Conservation Group  
 LG&E—Enertech  
 New England Electric System—AllEnergy  
 NIPSCO/Bay State Gas—Energy USA; Savage Engineering  
 Northeast Utilities—Select Energy  
 PacifiCorp—EnergyWorks  
 PECO Energy—Exelon  
 PEPCO Services  
 PG&E Energy Services (was Vantus)  
 PSE&G—Energis Resources  
 Sempra Energy Solutions  
 Southern Development & Investment Group  
 TU Energy Services  
 Virginia Power—Evantage  
 Wisconsin Energy Company—Wisvest  
 Washington Water Power—Avista



Mike Rosemer

repositioned themselves as specialized contractors in an attempt to find profitable niches (in construction management, project engineering, and so on) and no longer act as project developers.

The second category comprises the energy service operations of energy marketers, equipment and controls manufacturers, and property management firms. Some companies in this group are well-established performance contractors; others are new entrants. Although a shorter list, company revenues in this category that are attributable to energy-efficiency or performance contracting projects substantially exceed the total revenues of traditional ESCOs. One distinguishing feature of firms in this category is that the business strategy for their ESCO operation often includes broadening the market for the equipment and services of their respective core businesses.

Companies in the third category—RESCOs—are a division of a utility or a separate subsidiary and can be either regulated or unregulated. Almost all these companies have been formed re-

cently, typically as one element of a utility's strategy to retain or capture electric load (as opposed to the older traditional ESCOs, whose principal goal is to earn revenue from performance contracting). Many utilities have transferred relatively large numbers of staff to their RESCOs (as opposed to ESCOs, who typically draw staffing from the private market in response to immediate revenue prospects). At present, it appears that many RESCOs invest more shareholder money each year than many traditional ESCOs collect in total annual revenue, believing that new products and services will yield a positive return in years to come as the market develops.

It should be noted that the distinctions between traditional ESCOs and RESCOs may well fade with time. Some utilities maintain both an inhouse RESCO and an acquired ESCO—Carolina Power & Light, Energy Pacific, Northeast Utilities, and PECO Energy are some examples. These dual structures are unlikely to be sustained in part because companies are likely to move toward closer organizational integration

**Philips Lighting is part of the team making Green Bay Packer's Lambeau Field an Energy Star building. (See page 12.)**

of their various retail services businesses as electricity industry restructuring proceeds. Moreover, utilities' acquisition of independent ESCOs means integrating diverse cultures, managements, and staffs. This process (often chaotic and painful) is still evolving, but the infusion of traditional ESCO capabilities and techniques has clearly accelerated as utilities set up unregulated companies separate from the wires business.

It is interesting to note that the prices paid by utilities for ESCOs reflect very high valuations of intangible assets. For example, the recent acquisitions of Noresco by ERI and CES/Way by Sempra, among others, commanded prices well above their book value. The valuations were probably driven by discounted present values of future earnings expectations, especially in the federal performance contracting market. Also, these high acquisition prices imply that the cost of setting up a new

ESCO and gaining market share is even greater—and, presumably, utilities recognize the synergistic values of ESCO staffs, market positions, and competitive skills when combined with their supply-side capabilities. Duke Energy's acquisition of Energy Investment and Tesco, Northern States Power's of Energy Masters, New York State Electric & Gas' of Xenergy, and Carolina Power & Light's of Parke Industries probably reflect a strategic purpose related to geographic coverage, market positioning, and demonstrated skills on the other side of the meter.

The earliest marching orders for RESCOs were to develop services or products even remotely related to energy—security, telecommunications, information technology, and preventive/predictive maintenance, for example—that might help establish a market position or retain customers in anticipation of competition. More than \$100 million has been spent and scores of products rolled out, although few

companies have reported on their market penetration or revenues. Business strategies have been characterized by large and frequent changes in market focus, apparent even in press releases but more startling when viewed from the inside. It appears that many RESCOs are beginning to refocus on services related to their core energy business, in part due to disappointing market response, particularly among residential customers. Utilicorp and PECO Energy's decision to pull the plug on their EnergyOne joint venture is one example.

It remains to be seen the extent to which RESCOs will rely on performance contracting as a principal marketing strategy.

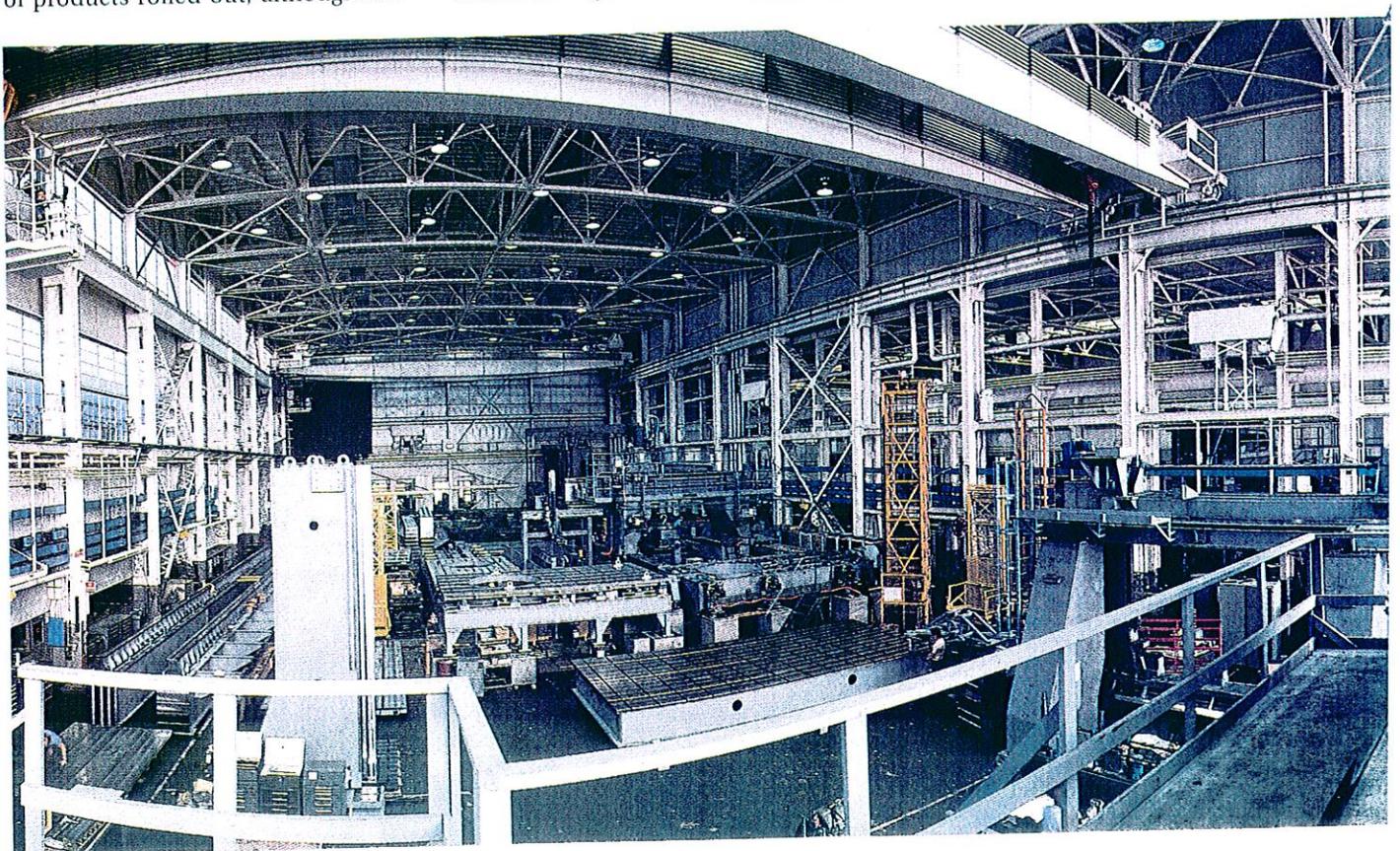
#### **Marriage, Divorce, and Cohabitation**

Nearly all the energy services companies in Table 1 have been engaged in multiple courtships, primarily with each other. Some interactions have led to serious negotiations and due-dili-

gence proceedings, but lawyers and investment bankers have been the only consistent winners to date, outside of some utilities that have acquired ESCOs. Among the reasons for broken engagements are mutual suspicions in regard to jockeying for and capturing the allegiance of customers. Controls companies, utilities, and power marketers all have designs on national accounts and large energy users, and all are confident that they can eventually provide the broad array of services.

Although most formal joint ventures involving ESCOs have ended in splitsville, marriages in the form of acquisitions have recently accelerated. Deregulation is a key driver for these acquisitions—increased competition prompts utilities and marketers to seek greater margins and a stronger customer bond behind the meter.

Cohabitation, however, is far more prevalent. For example, HEC (owned by Northeast Utilities) has formed a joint venture with Arizona Public Service. It



has also signed strategic alliance agreements with a rural cooperative's marketing arm, a power marketer, and two large international manufacturers that want to form ESCOs in the Pacific Rim market. Such strategic alliances have proliferated in response to three demands:

- the potential of selling comprehensive services, in particular a one-stop combination of energy supply and demand-side services;
- the need to establish a national presence to serve national accounts customers; and
- the need to form bidding teams that include all the capabilities required by DOE and other federal agencies in their performance contract solicitations.

Many such cohabitations, especially bidding teams, are not intended to last beyond their ad hoc purpose. The Army, Air Force, several specific military commands, and DOE have issued more than 20 energy service performance contract solicitations over the

past three years, arranged according to geographic region, special-purpose facilities, and specific technologies. These have attracted between two and thirty responses each, with awards going to a single winner up to dozen. But few of the responses came from single firms, even large ones—due to the large required scopes of geography, services, and technology, nearly all bids were from teams of two to four or more firms. Such associations are claimed to be among closely related firms working in an integrated management structure, though most associations dissolve quickly if the bid is lost, with the participants then forming different alliances for new solicitations. In one typical case, an ESCO in the northeast found a winning strategy in teaming with five different utilities, three otherwise competing ESCOs, several engineering and environmental firms, and an energy marketer. In that case, only one marriage, in the form of a legal joint venture, persists. But stra-

tegic marketing alliances intended to be quasi-permanent have survived their ad hoc purpose in about half the other cases.

The jury is still out on how well these alliances will penetrate traditional and new markets. However, some strategic alliances ultimately should prove successful in delivering energy-efficiency services as part of a broader set of retail energy services.

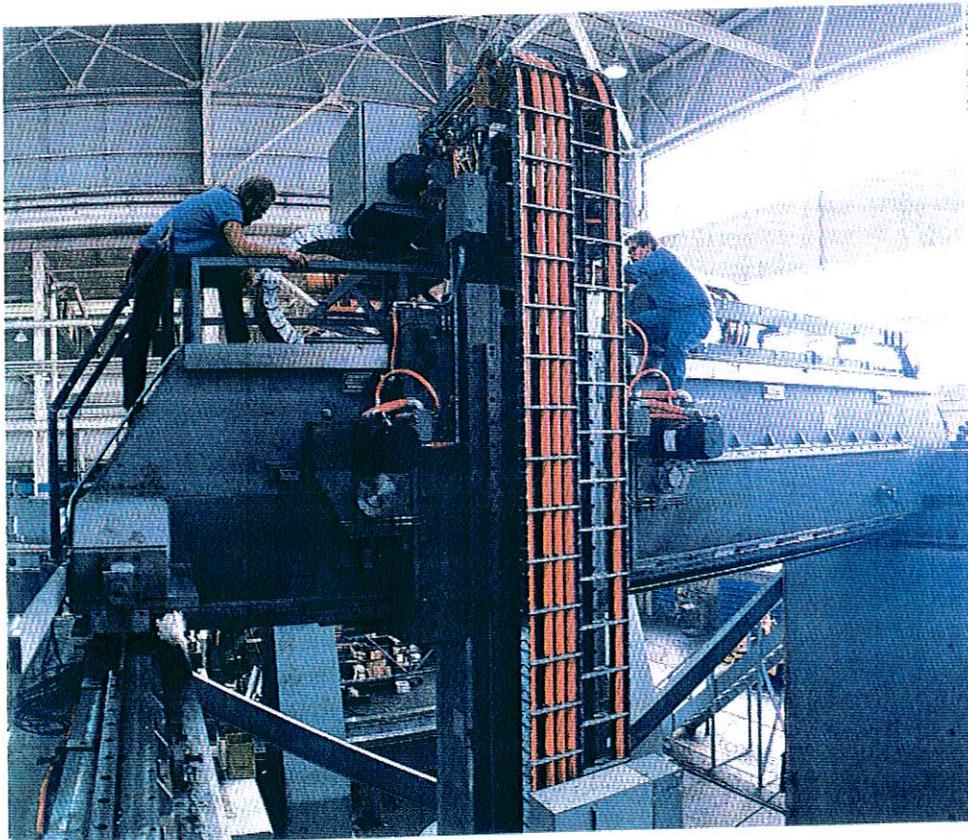
### **The Mainstay of Performance Contracting**

Restructuring is also reshaping ESCO markets. Historically, the institutional sector has accounted for about 60 percent of ESCO activity. More than 35 states have enacted legislation that enables schools, universities, and local and state governments to undertake energy-efficiency investments using performance contracting approaches. Moreover, the market drivers that have allowed performance contracting to gain a foothold in these markets are still compelling: Public and nonprofit agencies continue to face constrained capital budgets, aging buildings and equipment in need of modernization, incentives to reduce operating costs, and lack of inhouse technical expertise. (In these respects, private for-profit agencies are increasingly in the same boat.)

ESCOs have also focused on institutional customers because they tend to be stable over performance contracting terms, and their facilities typically require common energy-efficiency technologies. With the advent of restructuring and the declines in utility DSM spending, many ESCOs have made concerted efforts to return to their original roots and have increased their marketing activities in the institutional sector. RESCOs are also targeting institutional markets, further intensifying competition.

In the gradeschool market, performance contracting is still growing, al-

**With various and specific needs, industrial markets are hard to crack. Alliances among ESCOs can provide tailored responses.**



Mark Sigal / Folio



James Cook / Folio

**Performance contracting for schools is still big, but as their energy managers become savvier, contracts are for shorter terms.**

beit at a slower rate than over the last decade. Because the number of competitors has increased significantly, the market share of ESCOs that have historically been active in this market may well be decreasing slightly with downward pressure on margins. For example, Florida has roughly seven to nine ESCOs currently active in the schools market. As school district energy managers have grown more familiar with the performance and savings attributable to high-efficiency equipment, they have become increasingly interested in stipulating energy savings for projects at the outset or limiting verification activities to short-term commissioning, rather than ongoing, long-term measurement and verification of savings.

In the local government market, performance contracting also appears to be growing as dozens of solicitations have been issued and many have been awarded to experienced ESCOs. The

sales cycle is typically longer compared to school districts, projects are often more technically complex, and local governments, particularly larger entities, are more likely to have trained energy managers. Several recent competitions meet the criteria most ESCOs use when deciding to expend substantial effort: sufficient savings opportunity; a rational competitive process with clear evaluation criteria and without apparent bias; affordable proposal requirements; and local contractors available for installation and service.

On the downside, local governments are susceptible to slow and irrational procurement practices brought on by political influences. For example, a large equipment manufacturer, active in municipal bid competitions where it has significant economic presence, successfully protested three adverse awards in 1997-98. In these cases, the "winning" ESCO was required to submit additional justification, endure long delays, or share the work. And while only a few local jurisdictions have issued performance contracting solicitations thus far (suggesting a signi-

ficant market potential), there is some concern that the most attractive opportunities have already been implemented in the larger public buildings, leaving capital-intensive work that can't pay for itself out of energy savings only.

Local governments and hospital associations or chains have also been among the most active participants in retail competition pilots. For example, in California, many cities, counties, water districts, universities, and state agencies have issued solicitations for retail energy suppliers and are interested in aggregating loads of their own buildings as well as residents and local businesses (on a voluntary basis). Local school districts have been much less active. Based on a review of solicitations nationally, approximately 40 percent of governmental agencies have expressed an interest in having retail suppliers offer energy-efficiency services. Thus, it is conceivable that the suppliers providing such services in local, state government, and university markets will propose, as part of their scope of services, projects based on the

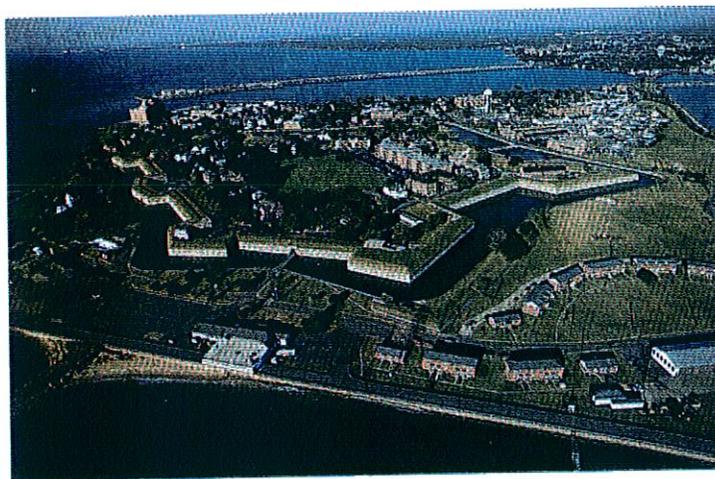
results of facility energy audits, analysis of load profiles, and master energy plans.

### Shrinking DSM Programs

ESCOs have been adversely affected by the reductions in utility spending on energy-efficiency programs, which has decreased by 50 percent since 1993. Not surprisingly, cuts in DSM spending have been most pronounced among utilities in states where retail competition has already begun or is imminent. However, in the near term, utility-sponsored DSM programs still remain an important potential driver for ESCO activity in a number of states. For example, in Minnesota, the Department of Public Service approved a \$61 million DSM budget for Northern States Power for 1998 and 1999, some of which goes to DSM bidding. Similarly, in Wisconsin, Colorado, and Texas, several utilities are engaged in bidding or have recently issued requests for proposals for DSM services.

As DSM expenditures decline, a new source of funding for energy-efficiency activities may come from wires charges targeted for public-purpose programs. A number of states that are furthest along in the restructuring process have enacted public-benefits charges (PBCs) to support energy-efficiency activities. These PBCs represent an important source of funding, although the funds are often guaranteed for only a relatively short time period. In some states, PBC funding levels have been significantly reduced, and several states have chosen to target their limited monies for various types of upstream market transformation activities or to overcome market barriers faced by smaller customers. In these states, PBC funds will not provide leveraging opportunities for ESCOs that have tradi-

tionally targeted larger commercial and institutional customers. A few states (California, New York, New Jersey) have included continued support for a private-sector energy-efficiency services industry as an explicit policy objective, and where such a commitment exists, standard performance contracting programs will likely emerge as the dominant form of publicly supported ESCO activity. In the long term, however, ESCOs must expect that PBC funds will play a decreasing



David M. Doody / Uniphoto

**Thanks to efficiency measures, federal energy consumption has dropped 17 percent since 1985.**

role in revenue-related activity. This situation could be altered, however, if a PBC fund mechanism for energy efficiency is included in future federal legislation that addresses electricity restructuring.

### The Federal Market: A Boon?

In seeking to break out of their more traditional markets, ESCOs have long looked to the federal market for energy-efficiency services. The reasons are good:

- federal legislation and executive orders that direct agencies to reduce energy consumption by 20 percent and 30 percent per square foot by 2000 and 2005 (respectively) relative to a 1985 baseline;
- an estimated \$5 billion investment in

energy-efficiency projects needed to meet the Energy Policy Act of 1992;

- the need to replace or upgrade infrastructure;
- significant efficiency opportunities evident in federal facilities;
- congressional preferences for private capital over public appropriation; and
- commitments to eventual privatization of energy/water/waste management.

Until recently, however, few ESCOs have had the fortitude to expend significant marketing resources in this difficult-to-penetrate sector. (The few exceptions include CES/Way, EPS, Co-Energy Group, Citizens Conservation Corporation). The electric utility and ESCO industries have been working for years with the Departments of Defense and Energy for years to rationalize the federal procurement process, with gradual success, yielding a series of prequalification rounds

followed by regional competitions to develop short lists of experienced performance contractors.

There are a few key observations regarding the market for energy-efficiency and other retail services in the federal sector. First, contracting approaches adopted by agencies vary across region and time. Second, transaction costs are likely to be high, and specialized expertise in federal procurement and contracting alternatives will be required for companies seeking to develop energy-efficiency projects in this sector. Third, thus far, it is apparent that significantly fewer dollars have been invested in energy-efficiency projects through performance contract approaches compared to utility services contracts. Fourth, a significant fraction of the potential energy-efficiency work in the federal sector remains undone (roughly 50–70 percent), and it is unclear ultimately

how much of the federal market for energy-efficiency services will be serviced via performance contracts or utility services contracts. Fifth, many federal agencies are active participants in states with retail competition programs and have announced awards to retail suppliers. In a few cases, these awards include both commodity and other value-added services, which may provide another avenue to deliver energy efficiency. (See Table 2.)

### A Difficult Sell?

Several analysts have predicted that commercial and institutional customers will be receptive to total energy management product and service packages and that TEM will become a significant new market. In this approach, suppliers provide full-service energy supply and efficiency improvements on defined services (chilled water, compressed air, steam, refrigeration, for example) at a unit price. Some high-profile integrated energy services contracts include Microsoft's agreement with Johnson Controls and Dreamworks Studios arrangement with Sempra Energy. Likewise, PG&E Energy Services' recent agreement with Ultramar Diamond Shamrock is intended to involve both commodity supply and a range of efficiency equipment, auditing, and other energy management measures. Yet while such agreements hold the promise of unlocking a lucrative new market for ESCOs and others, they are not yet occurring on as frequent or a sustained basis as early boosters had hoped.

One problem is consumers' lack of familiarity with integrated arrangements as well as their relatively low level of concern about energy and facility management. High-technology companies may be more sensitive to these issues and particularly to questions of power quality, which may be one reason some high-tech firms have expressed interest in comprehensive outsourcing options. Differences in contract duration for commodity supply and financing of efficiency-related

projects poses another stumbling block. Many large energy consumers are looking for only one- to two-year energy supply agreements and do not want to be locked into one supplier for the long periods required to service debt on major capital investments in facility renovations and heating, venti-

lation, and air-conditioning equipment (HVAC). At present, TEM services represent a potential market opportunity rather than a market with substantial current demand or near-term profitability.

Although the market for TEM services is in its formative stages, this does

TABLE 2

## RESCO PRODUCTS AND SERVICES LIST

### Energy and Water Sourcing, Contracting, and Billing

- Power and gas marketing or brokering
- Marketing of other fuels
- Water and wastewater treatment
- Derivative and customized pricing contracts, pre-purchasing, risk management
- On-bill financing of products and services
- Multisite conjunctive billing
- Purchase and lease-back of central thermal and power plants
- Build-own-operate central plants
- End-use pricing (steam, chilled water, compressed air, refrigeration)
- Assuming cogeneration/qualifying facility ownership and dispatching
- Development of alternative energy sources (fuel cells, solar, wind, geothermal, micro-hydro, biomass, microturbines, etc.); selling to power marketers with renewables quotas

### Information Services

- Energy use analysis, tracking, and reporting
- Telecommunications
- Data processing for end users, other utilities, system operators
- Market research, product directories

### Power Reliability and Quality Services

- Marketing and installation of generators, fuel cells, batteries, other back-up
- Energy storage (pumped, thermal, inertial)
- Dual connections, dual fuels, propane plants

- Uninterruptible power supplies
- Internal distribution upgrades
- Correction of power factor, harmonics, safety, and grounding problems
- Voltage control, surge protection, other isolation services

### Traditional ESCO Services

(Related to boilers, chillers, lighting, controls, HVAC, etc.)

- Energy and water efficiency analyses, feasibility studies
- Design of efficiency-related improvements
- Design-build, general contracting, installation, system integration
- Training, documentation, commissioning
- Performance contracting
- Savings measurement and verification
- General energy engineering
- Building automation

### Other Services

- Security services
- Preventive and predictive maintenance services
- Appliance and HVAC maintenance/repair
- District heating and cooling
- Waste disposal, reduction, conversion, and remediation
- Call center support, electronic billing
- Environmental and process monitoring
- Tree trimming
- Training in energy applications and technologies

not mean customers are uninterested in obtaining specific value-added services along with commodity supply. An analysis of customer requests for proposals shows that some customers, especially institutional ones, are in fact eager to obtain selective energy-efficiency services such as energy auditing, load management, and controls from their nonutility energy provider. In states such as California, where billing and metering services have been unbundled, there is also extensive interest in and intensive competition to provide sophisticated metering and billing options.

### The Emerging Industrial Market

The industrial market has been difficult to penetrate in a regulated environment—it's hard to have a national strategy if there are only a few energy service choices. Now, however, there is vigorous competition among power marketers and utilities as well as gas traders, who have been in this market for several years. Some of these competitors include demand-side improvements in their offers, and some extend savings guarantees. Although many sophisticated pricing/trading structures are being marketed, significant savings are difficult to guarantee on commodity prices alone because of slim margins and price volatility. Thus the substantial opportunities to reduce consumption and optimize demand profiles become attractive means to guarantee long-term customer cost reductions.

ESCOs have not rushed into this market opening for several reasons, principal among them being the complexity and sensitivity of industrial processes. One cannot claim to be expert in all the operations evident from scanning the SIC code list, and plant managers are unlikely to trust strangers with interrupting production. However, ESCOs may begin to have more success as they separate energy uses that are organic to processing from those that are overhead. This is essentially an accounting distinction, but it gets at the

heart of marketing success. "Throughput energy" is counted in the product cost and is peculiar to the production process—thus it is both sensitive to management and inaccessible to non-experts, though it accounts for 80 percent of a plant's energy use. "Overhead energy" is often counted at higher levels in corporations and is common among many plants—thus it is not proprietary and is more accessible to ESCO technologies.

It is feasible to compile a list of actual technologies (as opposed to plant types) and separate the throughput

inefficient as public ones, especially at the overhead level.

The most likely penetrator of industrial markets may be strategic alliances developed by energy marketers, utility-owned or other. First, an alliance of marketers with ESCOs can reconcile the differing contract terms of commodity supply and debt service by taking on the whole responsibility for making steam, chilled water, compressed air, refrigeration, etc. This constitutes a very good customer bond. Second, they are already in discussion with high-level decisionmakers about fu-



from the overhead items. The total number of really distinct technologies is a few dozen, and two-thirds or more are of the overhead variety: quite common among plants (compressed air, boilers, chillers, refrigerators, and so on), familiar to ESCOs experienced in large institutional facilities, nonproprietary, and otherwise accessible.

Moreover, manufacturing and processing plants are not immune to the disease of deferred maintenance. Private organizations are often as energy-

DSM spending has declined 50 percent since 1993, but ESCOs fill the gap, continuing to find new areas in which to grow.

ture energy purchases. Third, they can offer convincing guarantees of real cost reductions, combining the credibility of large energy companies with demonstrated efficiency performance elsewhere. And fourth, alliances are in a position to put the whole deal on a single monthly bill, including debt service on improvements that the plants

know they need. However, the market for comprehensive supply/efficiency packages in this sector is still almost entirely speculative at this time.

### Some Predictions

Utility-owned ESCOs and RESCOs will emerge from restructuring with a significant share of the market for energy-efficiency services. Currently, dozens of utility-owned RESCOs are active in traditional and emerging markets targeted by the independent ESCOs. Some of these RESCOs, in part due to their ESCO acquisitions, are already formidable competitors in some markets. Other RESCOs appear to be struggling with developing products and services based on their core competencies while at the same time re-inventing their utility-oriented organizations and staff—whose experience is drawn primarily from regulated environments—into sales-oriented, demand-driven businesses. The combination of market pressures, merging of ESCO and utility cultures, managements, and staff, and various ad hoc bidding alliances will produce a



Courtesy, TU Services

A new electric chiller is placed atop the Tandy Center Complex in Ft. Worth, TX. It's part of TU Solutions' overall building upgrade.

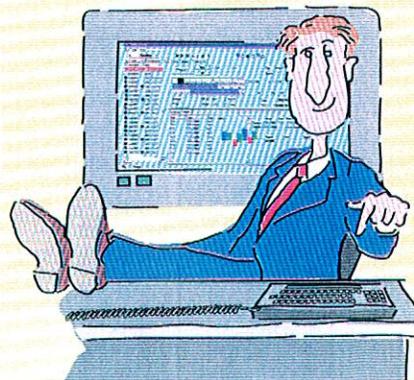
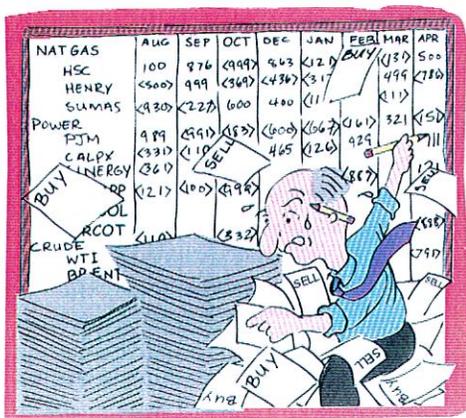
smaller field of battle-hardened new RESCOs. Over time, independent ESCOs and utility-owned RESCOs will become indistinguishable from one another as the first group continues to shrink and failing entities from the second withdraw from the field. (See the sidebar, "RESCOs: A Malthusian View.") This

combination will emerge from restructuring with a market share for energy-efficiency services that is at least comparable to the share enjoyed by the companies in category three in Table 1.

In the language of the economists, ESCOs relied on performance contracting to overcome their customers' "principal-agent concerns"—the risk that savings would not be realized and lack of trust in the service provider—by tying ESCO compensation to demonstrated energy savings. Ironically, the successes of performance contracting have partially undermined its future. Over the last decade, an

increasing number of customers (and project financiers) have become more familiar and comfortable with the kinds of services offered by ESCOs as well as their ability to perform. As such, customers are less likely to demand performance contracts, particularly for projects involving certain types of efficiency measures, such as lighting equipment changes.

But the growth of the total market for energy efficiency services is hap-



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## RESCOS: A MALTHUSIAN VIEW

Estimates of the size and growth of the energy services market appear, at first glance, to accommodate new entrants comfortably. Public and private studies from such respected names as Frost & Sullivan, Barakat and Chamberlin, Xenergy, Hagler-Bailly, R.K. Miller, the Boston Consulting Group, and the National Association of Energy Service Companies project annual revenues anywhere from \$4 billion to nearly \$300 billion, depending on the definition (which is nowhere precise). These estimates do not include the sale of electricity and fuels, and they all show positive growth trends. Moreover, the margins earned in energy services are far greater on a percentage basis than those in the commodities markets. This has encouraged the formation of retail energy service companies (RESCOS) and their entry into the wide range of products and services listed in Table 2.

Although the market for energy services is large and growing, it is a crowded field. Entrenched distributors and contractors compete for every dollar in every service category. Since few truly new or proprietary products are likely to be spawned in RESCO hatcheries, the margins earned from any of those services must be wrested from competitors. And competitive pressures tend to drive prices down to a level that just supports margins sufficient to absorb minimal overheads and attract capital.

The typical staffing process for RESCOS is to transfer several employees from the regulated utility to a new subsidiary, with a few nonutility marketing professionals. A conservative estimate of the number of new employees injected into the energy services industry by this process in 1997-1998 is in the range of 5,000. These employees are not designers, installers, assemblers, or service personnel, but primarily managers, marketing/sales staff, billing and infrastructure professionals, planners, and analysts. Therefore their compensation and associated overhead must be supported (eventually) by new energy services margins.

The overheads carried by RESCOS into competitive markets can be too heavy for marginal players. A quick survey of competitors shows much lighter overheads for all but the dominant firms. Moreover, one cannot be dominant in the whole mix of products and services suggested in Table 2—in fact, overheads tend to increase as the breadth of offerings spreads.

In his essay, "Principle of Population as It Affects the Future

Improvement of Society," the English economist Thomas Robert Malthus (1766-1834) predicts that unchecked population (growing geometrically) will always rise to the limits of resources (growing arithmetically) and then be checked by starvation (if not war or disease). So it is in the energy services industry. The unchecked growth of RESCOS, coupled with their wide range of offerings in an already-crowded market, offers the same gloomy prospect.

But it may not be so gloomy. Four prescriptions hold promise in the face of this prospect:

- *Focus.* RESCOS can compete successfully in the sale of electricity and fuels enhanced by value-added, closely-related services. The services in Table 2 should be taken not as a menu of stand-alone services but as a list of possible enhancers to the core business of commodity sales.

- *Package.* The telecommunication industry has prospered through deregulation by packaging new and core services imaginatively, not by surging into new fields. In electric and gas marketing, a number of attractive ways to offer customers what they want is emerging. These packages respond to market demands like reliability, quality, convenience/time, predictable pricing, and risk management.

- *Diet.* The level of general and administrative expense supported by competitive firms is far lower per revenue dollar than that generally borne by the spun-off RESCO. RESCOS suffer from both the carried-in, regulation-oriented infrastructure and the allocated share of corporate services. Some staff reductions, traditionally avoided in regulated industries, are inevitable.

- *Escape.* Those that survive the coming shake-out may be those who free themselves from regulation-driven legal, accounting, personnel, and administrative procedures. A physical separation from utility headquarters may be as important as an entrepreneurial management.

The number of RESCOS, size of their staffs, menu of their offerings, number of competitors, and allocation of corporate costs are all too large to be sustained by the margins available in the energy services market, in spite of its large size and growth. The proliferation of RESCOS will continue until their resources are consumed, after which many will starve.

pening. There may not be a net decline in performance contracting opportunities, at least in the near term. But the dominant role of such contracting for ESCOS will be reduced as total energy services revenues rise. The reason for this optimism is the broader definition itself, including such services as district heating/cooling, water conservation, wastewater treatment efficiency, appliance/HVAC service, fuel diversity and demand profile control, power quality and internal distribution upgrades, etc.

Given these uncertainties in various market sectors, it is unclear if performance contracting activity will increase or decrease in absolute terms over the next three to five years. Especially in the institutional sector, where managers must often prove to trustees, funders, and voters that their investments are cost-effective, performance contracting will continue to have a prominent position in the energy-efficiency services market. There are also some reasons to expect outsourcing of energy services to involve

substantial performance contracting of a different type—the sale of end-use commodities like steam, chilled water, compressed air, refrigeration, etc., on a unit-priced basis. Over time, we expect that the share of energy-efficiency services provided through performance contracting will shrink even as the overall market for energy-efficiency products and services continues to grow. Thus, ESCOS that have relied on performance contracting as their brand identity will have to continue to adapt if they expect to thrive. ♦