Utility Affiliated ESCOs and the Market for Energy Services in the United States

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ABSTRACT

With the deregulation of the electric industry, many utilities are investigating the prospects for providing energy services through traditional and new organizational arrangements. Investor-owned utilities have been particularly active with a dramatic increase in the number of energy services subsidiaries over the last several years.

This first part of this paper describes who the new players are, their target markets, products and services offered, and customer strategies. Various organizational arrangements are reviewed, including mergers, acquisitions, partnerships, and joint ventures.

The second portion of the paper analyzes the potential for such activities, with an emphasis on the market as it has unfolded over the past several years. Factors influencing the size and structure of the market are identified.

In addition, the paper examines what actions have already been taken by customers, via DSM programs and federal mandates, as well as looking at the economics of energy conservation measures in a deregulated market.

This paper presents an overview of the energy services market with key information for those companies about to enter the market, or those that are currently providing energy services.

Background and Purpose

With the deregulation of the electric industry, many investor-owned utilities consider energy service companies (ESCOs) a key marketing and customer service strategy. The purpose of this paper is to describe the new players, target markets, scope of services and technical specialties, ownership patterns and other key characteristics of utility based ESCOs.

The paper also explores the potential market for ESCOs. It concludes with how the ESCO industry has grown for utilities in recent years and discusses future structures and strategies.

Method of Approach

ESCOs are subject to definitional challenges. According to the National Association of Energy Service Companies, an ESCO means "...a company engaged in developing, installing and financing comprehensive, performance-based projects, typically 7-15 years in duration, centered around improving the energy efficiency of facilities owned or operated by customers." (Richard D. Cudahy and Thomas K. Dressen, "A Review of the ESCO Industry in the United States," NAESCO, 1996, p. 12).

There is a growing tendency to refer more broadly to energy services as including power marketing, energy brokering, equipment maintenance and/or warranties, power quality services,

information technologies and other activities that do not necessarily entail performance contracting, long term agreements, or financing. Also, some subsidiaries of utility companies characterize themselves as offering energy services by which they mean supplying gas, electric and other types of energy, not the traditional definition focused on energy efficiency.

This paper, in part, documents the results of a telephone survey of utilities to identify energy service companies (ESCOs) and follow-up market research of the ESCO industry. The telephone survey was conducted in March and early April, 1997 of investor-owned electric utilities for the Edison Electric Institute. The survey results have been supplemented with other private sources of information, web site home pages, and other public documents such as marketing literature.

The results presented here are simply a snapshot in time. Given the dramatic and rapid changes in the electric utility industry in general, it should be recognized that ESCOs in particular are also evolving rapidly in number and strategy.

Size and Growth of the Industry

A total of 102 investor-owned utilities were contacted as part of the survey. Roughly two-thirds of the utilities admitted to the presence of an ESCO in their organization. In summary, the 1997 survey found:

- 66 utilities with ESCOs
- 36 utilities without ESCOs including 1 that refused to say either way

ESCOs have been growing rapidly in numbers. Over three-fourths of the utility ESCOs were established from 1995 through the first quarter of 1997. Survey results show utility ESCOs were established at the rate 19 in 1995, another 19 in 1996 and 13 in the first quarter of 1997. By the end of 1997, over 25 ESCO's had been formed during the calendar year. Some of the ESCO's were formed as a result of joint ventures with other companies, rather than spin-offs from parent companies.

Of the utilities without ESCOs at the time of the survey, at least half admitted consideration was being given to offering energy services performance contracting. A few indicated that consideration had been given to forming an ESCO, but had been rejected.

Ownership and Regulatory Status

The large majority of the ESCOs operated as unregulated subsidiaries of the utility holding company. Only ten, or about 15%, of the ESCOs surveyed are being operated as a regulated organization within the utility. Even where the ESCO operated as a regulated subsidiary, information was obtained that indicated a movement toward unregulated status.

Most subsidiaries operating ESCOs were 100% owned by the parent utility. In the cases where the utility had acquired part ownership of an independent ESCO, the plans were generally to acquire complete control.

Target Territories

Virtually all ESCOs target their own service territory. Most also market regionally in the

neighboring states. But a surprisingly large number consider themselves in the national market. According to the EEI survey, 42% said that they were going to market their services nationally. The survey also showed that 36% were focused on regional efforts, while 11% were going to concentrate on local strategies. This appears to be due to the association with national accounts in part and to the acquisition of ESCOs that have established multiple offices during the years of demand-side management (DSM) bidding programs. Several utilities in the survey (about 11%), located near or doing business in another country, consider their ESCO markets to be international.

The utility ESCOs appear to be pursing two broad strategies. One is customer retention, where the utility targets existing accounts as a way to obtain long term commitments. A second strategy is customer acquisition, where the utility targets new accounts in hopes of gaining additional business for selling energy once retail choice is available.

Target Customer Classes

Nearly all ESCOs target the commercial market class of customers. The industrial class of customers was also targeted by virtually all the ESCOs. Just one ESCO subsidiary of a utility claimed their target market was only industrial customers. In terms of amount of business between the two markets, several ESCOs volunteered most of their activity was with the commercial class of customer.

Residential customers were included by only a few ESCOs. In these few cases it seemed that the ESCO was relatively recent and in fact the business objectives were still being refined. In other cases, the ESCO was closely associated with an energy marketing business of the utility that was targeting residential customers along with commercial and industrial accounts.

Target Market Segments

Little useful information was gained when inquiring about whether the ESCO limited itself to market segments such as schools, hospitals, government, retail, and offices. Only a few claimed a narrow interest in any segment, and that was usually labeled as institutional. Most ESCOs target the full range of commercial accounts with particular sales focus on institutional customers such as schools, hospitals, and government accounts. One reason that institutional accounts are attractive is that they have often lagged in energy efficiency investments due to budgeting and cash flow limitations.

End-use Technologies and Comprehensiveness

Nearly all the ESCOs profess comprehensiveness by including a broad range of technologies. Lighting and air conditioning are the two most common end-uses targeted for energy services performance contracting. However, some ESCOs concentrate more on lighting and in one case nearly exclusively on this end-use with its relatively short payback.

Virtually all ESCOs profess independence when it comes to recommending equipment. In some cases, quantity purchases are made with one vendor that encourages the ESCO to specify that equipment. In a few cases, the ESCO is affiliated with another utility subsidiary that manufacturers or markets specific vendor products such as reflectors for lighting fixtures or automated building control systems.

Scope of Services

The utility ESCOs were often part of a larger subsidiary that provided other products and services. Common product categories included power quality, standby generation, and electric substations. Common services included analysis, engineering, design and project management. Other services include residential HVAC equipment contracting, lighting product manufacturing, meter reading, and billing services. Another common activity was energy marketing, either brokering where the utility does not take ownership, but more commonly with marketing where the utility does hold ownership at some point in the energy transaction.

There is some speculation that energy services performance contracting is considered an interim step toward a broader marketing strategy. This theory holds that once retail choice is prevalent, the ESCOs will become full energy service providers with both energy efficiency products and energy supplies.

Performance Guarantees

The telephone survey revealed that some utility subsidiaries did not consider themselves as energy services companies because they did not offer performance guarantees on a routine basis. However, it was generally revealed that the utility would include a performance guarantee if that was the customer need and it would close the deal.

Size of Utility ESCOs

Size is a particularly sensitive area. Many utility ESCOs do not want to reveal this information. However, the results show that the size ranged from small operations of one or two people to large ESCOs of over 500 employees. Based on the survey results, there appears to be a "bimodal" distribution of the personnel numbers. Of the ESCO's who provided information, 45% had fewer than 20 employees, and 24% had more than 100 employees.

Similarly, some ESCOs are doing less than $1 million a year in energy services investments and one has reached over $100 million annually. When combined with other activities such as power quality and energy marketing, sizes can be much higher. In the Utility Data Institute Directory of Energy Services Companies, the reported gross revenues show a similar "bimodal" distribution pattern.

Total of Over $300 Billion Energy Services Market, over 10-20 years

Despite the large number of utility ESCOs, the market potential is great. We estimate the market potential is about $320 billion for energy efficiency investments over 10 to 20 years in commercial and industrial facilities, or about $4.50 per square foot for all of the square footage in commercial and industrial facilities located in the United States.

This estimate is based on a review of annual spending for energy by commercial and industrial accounts, an estimate of the energy savings potential and a calculation of investment needed to achieve the energy savings.

The energy bill in the U.S. for commercial and industrial customers is $133 billion per year. This is composed of $115 billion for electricity in 1996 based on statistics from the Edison Electric Institute and $18 billion for natural gas based on estimates from the American Gas

Association.

Energy efficiency investments could reasonably achieve savings of 30% on these energy bills. This is based on a range of estimates. EPRI has estimated energy savings in the range from 27% to 44% depending on the technology. Amory Lovins of the Rocky Mountain Institute has estimated savings potentials of 75%. The U.S. Office of Technology Assessment has estimated a 33% savings potential.

The energy bill savings due to efficiency investments are therefore about $40 billion per year assuming a 30% savings in the $133 billion annual energy bill, or about $0.50 per square foot.

One way to calculate the investment potential is on the basis of paybacks. Facility managers and others typically judge investments by how fast the incremental cost will be paid back out of cost savings. Paybacks for energy efficiency investments can range from less than one year to over 20 years, depending on the technology and the application. ESCO projects often combine measures with short paybacks and long paybacks to achieve an optimum amount of energy savings.

Acting alone, facility managers typically seek paybacks of about 3-4 years, although the range can be wide depending on the priorities of the owners and needs of the buildings. A payback of 8 years is assumed to achieve the maximum technical potential based on energy savings. This longer payback recognizes that many investments must be made simply to replace aging equipment, such as ballasts, or equipment out of environmental compliance, such as chillers containing CFC refrigerants, or failing structures, such as roofs.

This translates into an investment potential of about $320 billion when the $40 billion in annual energy bill savings is multiplied by a payback of 8 years. In other words, there is a total market technical investment potential of about $320 billion to achieve the technical potential energy savings.

On an annual basis, the $320 billion in investment potential would translate to about $32 billion assuming that 10% of the potential is realized each year. This suggests that utility ESCOs have a maximum target market of about $32 billion per year in which to sell energy services performance contracting.

However, if only 5% of the market potential is realized, then the market potential drops to $16 billion per year. Since buildings typically operate for 40 years, the overall market potential could be calculated as the $320 billion divided by typical building life, for an annual potential of $8 billion.

Market Analysis

There are three key factors to consider when analyzing the ESCO energy efficiency market in greater detail: realization rates, number of players, and completed projects. Realization rate refers to the work that is actually performed by ESCO's; the number of players refers to the potential competition for energy efficiency projects, and completed projects refers to the part of the market that needs little, if any, efficiency upgrades.

The Department of Energy, in the 1996 *North American Energy and Measurement and Verification Protocol* guide, estimated that North American companies spent $5 billion in buildings in 1995 to conserve energy and water. In a paper presented at the 1996 ACEEE Summer Study, C.A. Goldman of the Lawrence Berkeley National Laboratory calculated that the installed cost of all ESCO projects in 1994 totaled $450 million. A growth rate of 10% would

have led to $495 million in ESCO projects in 1995. Using the DOE estimate, this figure would correspond to a realization rate of 9.9%. In other words, 90% of the energy efficiency projects were performed in-house or with other types of companies.

Prior to the Energy Policy Act of 1992, there were 5 key players in the energy services market: utilities, independent ESCO's, energy management and control system companies; equipment manufacturers, and engineering consulting firms. Each of the players, for the most part, kept to their own portion of the market "niche" (utilities with audits and technical training, ESCO's with project management, etc.). After the Energy Policy Act, new players started to enter the market. The new players were organizations such as power marketers, exempt wholesale generation companies, investor-owned generation companies, privately-owned generation companies, and investor-owned distribution companies. As of March 1998, there were over 443 power marketers (up from 70 in 1994) registered with the Federal Energy Regulatory Commission and 377 exempt wholesale generation entities.

Another player has entered the energy services market from modest beginnings in the late 80s and early 90s. Contractors, particularly mechanical contractors, have shown an increasing interest in and ability to undertake performance contractors.

To further analyze the current energy services market, it is helpful to analyze the statistics for the last several years. There are multiple sources of national program and statistical data. The sources shown in this section of the report include the following:

- U.S. Environmental Protection Agency (EPA);
- Air-Conditioning and Refrigeration Institute (ARI);
- U.S. Department of Energy's Energy Information Administration (EIA);
- Energy User News (trade publication);
- Electric Power Research Institute (EPRI); and,
- AESP Demand-Side Management Conference Proceedings.

EIA Analysis

According to the Energy Information Administration's *Electric Power Annual 1996 Volume II* report, the annual energy savings from utility-sponsored DSM programs rose from 14.7 billion kWh in 1989 to 61.8 billion kWh in 1995. In the years after 1991, when EIA estimated savings by program type, energy efficiency programs accounted for 90% of the overall energy savings for each year. In 1993, energy efficiency programs accounted for 41.1 billion kWh, or 90.8%, of the 57.4 billion kWh saved. By 1996, energy efficiency programs accounted for 59.8 billion kWh, or 96.8%, of the 61.8 billion kWh saved

The EIA statistics also show the amount of money spent by electric utilities on DSM. From 1989 to 1996, electric utilities spent a total of $15.984 billion on DSM programs. When breaking out the direct costs of energy efficiency programs (typically 55% to 58% of the total DSM spending), it is estimated that electric utilities spent slightly over $9.0 billion on energy efficiency programs, the bulk of which went towards incentive payments to customers. If this amount represented 25% of the total investment in energy efficiency projects (for commercial, industrial, and residential customers), then there was a total of $36 billion spent over the 7 year period (or slightly over $5 billion per year).

In the EIA 1995 *Commercial Building Energy Consumption and Expenditures Survey*, published in 1997, many key statistics about commercial facilities in the United States were

highlighted. Based on the 1997 data, in 1995 there were approximately 58.9 billion square feet of commercial floor space for 4.6 million commercial buildings. However, the 1995 CBECS study did not include parking garages (1.652 million square feet in 1992) or commercial buildings on industrial facilities (2.124 million square feet in 1992). It is likely that by the end of 1996, the global numbers for all commercial space were approximately 65 billion square feet and 5 million buildings. These values are separate from the 12.3 billion square feet at the approximately 247,200 industrial facilities in the United States in 1994.

Commercial buildings are the most likely targets for energy services companies. Due to their number, size, and, in many cases, lack of in-house technical knowledge, they are prime candidates for a variety of energy services. However, many of these facilities have already participated in utility programs.

EPRI Analysis

In 1995, EPRI published their *1994 Survey of DSM Programs and Services*. The numbers in the report show participation in utility programs up until December 31, 1994. Undoubtedly, since the data is over three years old, the participation numbers are significantly higher at this time. According to the report:

- 679,255 commercial customers participated in at least one DSM program;
- 401,531 commercial customers participated in energy efficiency programs;
- 196,921 commercial customers took part in lighting programs;
- 47,061 commercial customers participated in HVAC efficiency, motor efficiency, and motor drive programs; and,
- 31,195 commercial customers participated in other end-use or "unrestricted" technology programs.

The study does not show whether the participants performed partial or complete building projects in each category, nor did it account for overlap between programs. Both of these factors would tend to lower participation rates and the amount of square footage upgraded.

However, the EPRI study did not provide an average number of buildings per customer, which could range from part of one building, for a partial upgrade or retrofit, to over 100 buildings on a college or industrial campus. An entire campus may be considered to be one customer by the local utility. This factor would increase the number of buildings upgraded.

Based on the EPRI information, it is safe to estimate that, by the end of 1994, at least 10% of all commercial buildings in the United States had participated in at least one utility-sponsored DSM program.

EPA Analysis

Another source of national data is the United States Environmental Protection Agency Green Lights program. Since 1991, the EPA has been collecting data from program participants on their lighting upgrades. EPA collects project management data, along with lighting technology, fixture cost, and energy savings information. According to the EPA, as of December 31, 1997, 2500 participants (partners, allies, and endorsers) in the Green Lights program have voluntarily reported the following statistics:

- 6.92 billion square feet recruited into the program;
- 1.95 billion square feet upgraded with high-efficiency lighting;
- 16,500+ completed projects;
- 33,000 completed surveys;
- $1.51 billion invested in lighting upgrades; and,
- $218 million received in utility rebates.

It should be noted that of the 1.95 billion square feet in upgrades, about 248 million square feet of upgrades, or about 12.7%, occurred in industrial/manufacturing facilities, leaving about 1.7 billion square feet of upgrades in commercial facilities.

As with the EPRI data, participation is counted for partial upgrades or for part of the total square footage available. Completed surveys or projects may represent part of a building or include multiple buildings.

The data collected by the EPA, gathered from voluntary reporting of program participants and input to a database, can be considered to be "raw" data that has not been statistically collected or analyzed. However, this "raw" data, due to the number of surveys and upgrades, as well as the national nature of project data, shows important market trends. Although the statistical inaccuracy may be as high as +/- 10%, the data provides clear insights into market performance where certain project management options are favored by a vast majority of participants.

One area of project management highlighted in the EPA data is financing. Based on the data for 16,500+ upgrades, most of the partner types use internal funding mechanisms. The partner types most likely to use outside sources of funding are state and city governments. The EPA data does not reveal the trend of the federal government becoming a likely candidate for external funding through partnerships with electric utilities (as part of area-wide agreements between branches of the federal government and EEI) and performance contracting. For other partner types, over 70% in each category recorded that they used internal funds to finance their completed projects.

By type of facility, the most likely candidates for external funding of Green Lights projects were education facilities, followed by food sales and service, assembly, and health care facilities. Facilities such as office buildings, lodging, industrial plants, and retail sales reported 70% to 90% of the projects were financed with internal funds.

Other studies confirm the Green Lights data. In 1995, the trade publication *Energy User News* conducted a random survey of 384 subscribers on issues related to lighting. One of the questions asked was "how will you finance the purchase of new equipment?" The survey participants were allowed to respond with multiple options. Over 60% of the respondents said that they would use at least one form of internal financing mechanisms, such as a capital budget or operation & maintenance budget. Capital budget was selected by 61.5% and O&M budget was chosen by 64.8% of the respondents. Slightly over 29% replied that they would use utility rebates. Other options, such as performance contracting, leasing, lease/purchasing, and loans each were selected by less than 6% of the survey population.

ARI Analysis

For space conditioning data, the Air Conditioning and Refrigeration Institute (ARI) monitors the sales of residential, commercial, and industrial equipment. One area of possible

market activity is central water chillers, usually with a capacity of at least 300 tons (3,600,000 Btuh). Based on ARI data, out of 80,000 chillers in the United States, over 14,620 chillers were converted to non-CFC refrigerants or replaced between 1992 and 1995. By the end of 1997, ARI found that 23,709 chillers were converted or replaced, which corresponds to nearly 30% of the market. No action had been performed on the other 56,291 chillers (70% of the market) at the end of 1997. ARI also estimated that 28,538 chillers (36% of the market) would be converted or replaced by the end of 1998.

DOE Motor Analysis

The Department of Energy has published the *Energy Efficient Electric Motor Selection Handbook* as part of its Motor Challenge program. In the handbook, one of the figures shows the market share for energy efficient motors by year and motor size. The table below shows the estimated market shares between 1987 and 1994 for energy efficient motors:

Table 1. Energy Efficient Motor Sales per Selected Year, as a Percentage of Total Unit Sales

Motor Size Range	1987	1990	1994
1.0 - 5.0 horsepower	9%	10%	18%
5.1 - 20.0 horsepower	11%	18%	22%
20.1 - 50.0 horsepower	14%	22%	32%
50.1 - 200.0 horsepower	21%	38%	39%

The DOE information did not provide data on the fractional horsepower (under 1.0 hp) motor market. However, the data does indicate that the market has been in transformation over the past several years. In addition, new efficiency standards for the most commonly used motors took effect in October 1997, with higher efficiency levels taking effect in the year 2000.

BCS Partners Analysis

For energy management systems, a report by BCS Partners highlights industry statistics. According to BCS Partners, 5% of the commercial buildings in the United States have energy management and control systems (EMCS), controlling 21% of the total square footage (or approximately 6.5 billion square feet). For commercial buildings built from 1980 to 1989, 7% of the buildings (and 30% of the area) have an EMCS. For those commercial buildings built in the 1990-1992 time period, 15% of the buildings, covering 49% of the area, have an EMCS. In addition, as of 1992, education, health care, and office buildings have the highest number and percentage of square feet controlled by an EMCS (9.1 to 16.6% of buildings, and 34.1 to 52.0% of the square footage). In addition, the number and percentage values increase as the size of the facility increases.

Another factor that should be considered by energy service companies is the participation rates in utility DSM programs. At the AESP 7th National DSM Conference, a paper presented by Barakat & Chamberlin, Inc. highlighted various utility DSM programs for the commercial market. The paper showed a 5% to 80% penetration rate for commercial new construction programs among several utilities, along with a 0.5% to 16% annual participation rates for commercial lighting programs. The lighting programs included rebates, audits along with rebates, and direct installation activities.

Annual participation rates, multiplied by the number of potential program participants, can produce a clear picture of the market potential in a utility distribution company's service area. Facility turnover rates and persistence factors should also be taken into account when trying to determine market potential. Higher penetration or participation rates may translate into fewer opportunities if the turnover rates are low and the measure persistence is high.

Sample Case Study

When looking at the market for energy services, it is helpful to analyze a sample situation. The sample for this paper is an office building in the Potomac Electric Power Company (PEPCO) service territory. PEPCO serves the city of Washington, D.C. and two surrounding counties in Maryland. There are very few industrial customers in the PEPCO service area, and for the year ending December 31, 1996, there were about 71,100 commercial customers. These customers consume slightly more than 62% of the total kWh sold by PEPCO. Other categories include residential (26.5%), street lighting (0.5%), rapid transit (1.5%), and wholesale (9.5%).

In addition, PEPCO has offered several DSM programs to its commercial customers. PEPCO is representative of an electric utility that was aggressively marketing its programs and paying lucrative incentives. The four most significant programs PEPCO ran were the Custom Rebate Program, the Early Chiller Retirement Program, the New Building Design Program, and the LightSwitch (direct install) Program. The programs all became full scale between 1991 and 1993. Many of the programs were suspended in Washington D.C. in late 1994 and were offered in Maryland until April, 1998.

Before entering this type of market, an energy services company needs to ask three vital questions: 1) What types of projects have been done? 2) What are the customer's choices for equipment and services? and 3) How is the timing?

In terms of the projects already done, as of late September, 1997, PEPCO had received 13,398 applications for its Custom Rebate Program, 519 applications for its Early Chiller Retirement Program (an important subset of the 13,398 applications), and 917 applications for the New Building Design Program. This corresponds to a cumulative 20% participation rate. However, when multiple applications from the same customer are considered, the overall application rate is probably closer to 16%.

Of the 14,315 application received, PEPCO has made payments for 9,309 requests for payments. This corresponds to a project completion rate of 65.0% and an overall participation (and completion) rate of approximately 13.1%. PEPCO has paid out $180 million in incentives to its commercial customers between 1990 and September, 1997. If this amount corresponds to 50% of the total amount invested, then PEPCO customers have invested nearly $360 million in energy efficiency projects between 1990 and the latter part of 1997.

However, the participation rate increases significantly when one considers the fact that a significant number of commercial customers, such as street lighting customers, multi-family building common areas, and other infrastructure type accounts, may only be eligible for part of one program listed above (e.g., city-owned street lighting fixtures can only apply for lighting rebates under the Custom Rebate Program).

For example, of the 71,100 commercial customers, there are over 50,000 that are labeled "general service, non-demand" accounts by PEPCO. These customers have peak demand under 25 kW per month, and most of them occupy less than 5,000 square feet. The Direct Install program, available only to general service non-demand customers, replaced lighting equipment in over 7,000 of these facilities. This number corresponds to an overall eligible customer participation rate of 14%.

Other areas with active and/or aggressive DSM programs will likely have similar results. For those customers that have not participated in DSM programs, and are in the market for energy services, there are several options. A customer may currently choose between PEPCO, an energy services company, a power marketer, transmission system operators, in-house staff, and generation companies for the following items: basic electric service (generation, transmission, and distribution); energy audits; efficiency equipment rebates; billing and/or rate information; financing; power marketing; equipment installation; and, equipment operation and maintenance.

Different players will have different advantages (and disadvantages) in offering the above products and services. Alliances will likely be formed to "bundle" products and services that are offerred to customers. For example, in late 1996, it was announced that Honeywell (energy services company) and Louisville Gas & Electric Power Marketing, Inc. (a power marketing company) had formed a strategic alliance. Other such strategic alliances may be performed to increase the product and services diversity offerred to customers.

Another factor that may change the market is federal legislation. As part of the minimum wage law passed in August, 1996, there was a provision that eliminated the partial tax-free nature of utility rebates to commercial and industrial customers. As part of the Energy Policy Act of 1992, the percentage of utility rebates that was excluded from gross income rose from 40% in 1995 to 50% in 1996. It was scheduled to rise to 65% in 1997 and afterward, but the minimum wage law changed that provision. Starting January 1, 1997, the subsidy disappeared and 100% of utility rebates to commercial and industrial were considered to be taxable income.

As a result, some customers may have rushed to complete projects during the 4th quarter of 1996 to ensure that the rebates received were partially tax-free. It is not clear what the elimination of the subsidy had on the energy services market in 1997 and beyond.

Outlook for Utility ESCOs

At the time of the survey, about 2/3 of investor-owned utilities operated ESCO subsidiaries. Many of the remaining utilities were actively considering ESCOs. It is estimated that in early 1998, about three-fourths or about 75 of the 100 largest utilities operated ESCOs.

While ESCOs continue to grow in number, a few have also closed down. At least one ESCO in the last year has shut down. Whether it remains a temporary or permanent closure remains to be seen. By way of comparison, one utility started up an ESCO in the early 1980s, sold off its projects in the late 1980s, and started up again in the mid-1990s.

Independent ESCOs are becoming fewer in number as utilities acquire their operations. This also can be a volatile trend. Several of the utility ESCOs established in the early 1980s were spun off by management in the late 1980s. Since then some of these ESCOs have been acquired by other utilities.

There is significant debate in the utility ESCO industry about the financial returns for these operations. Some observers claim that few are doing well financially. Others note that this may be a transitional strategy until the advent of retail competition. It is projected that ESCOs represent a medium term strategy to build customer relationships both within and outside the traditional service territories of the parent utility. Then, when retail competition arrives, the relationship established by the ESCO will be expanded to provide energy marketing.

Another likely trend is toward total energy management. At least one leading utility ESCO has signed an agreement with a national chain food retailer to provide total energy management services. This includes investments in energy efficiency at supermarket locations, contracting for electric and natural gas service, and maintenance of operating energy systems. These services are bundled as total energy management for a price based not on energy savings, or costs of service, or time and materials, or other conventional approaches. Rather the total energy management package is priced by space.

Thus, the customer will be paying an agreed upon rate of dollars per square foot. In exchange the customer will have energy supplied, equipment installed, and operations maintained by the ESCO. The risk will be on the ESCO to negotiate favorable gas and electric rates, to determine when to replace equipment, and what preventive versus corrective maintenance practices to adopt.

Summary and Conclusions

Energy service companies represent a substantial level of activity with investor-owned electric utilities. As of spring of 1997, about two-thirds of the largest investor-owned utilities operated an ESCO and an estimated three-fourths do as of early 1998.

The investment potential is large for energy efficiency investments, but much of the work is being done on an in-house basis, or has already been performed with the impetus of utility demand-side management programs or government-sponsored voluntary programs. Growth of ESCOs may be even greater as they expand into energy marketing, and if more end-users increase their reliance on outsourcing.

As the electric utility industry becomes restructured over the next several years, there will be rapid changes to the energy services market. As with other industries that have a large number of suppliers, there will likely be more strategic alliances and mergers among energy services companies with each other and with other participants (such as power marketers and generation companies) in the competitive environment.

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